

Organizers:



ECDMFR

2026

June, 25-27
IASI, ROMANIA

The 20th European Congress of
**DentoMaxilloFacial
Radiology**

ABSTRACT VOLUME

TABLE OF CONTENTS

OP1 - 1 EXPLORING DENTAL-DEDICATED MRI (DDMRI) AS A RADIATION-FREE MODALITY FOR COMPREHENSIVE GENERAL ORAL HEALTH ASSESSMENT: A PILOT STUDY	9
OP1 - 2 MRI-BASED FRACTAL ANALYSIS OF THE TRIGEMINAL NERVE FOR IDENTIFYING SYMPTOMATIC NEUROVASCULAR CONTACTS IN TRIGEMINAL NEURALGIA.....	10
OP1 - 3 EVALUATION OF THE RELATIONSHIP BETWEEN MANDIBULAR THIRD MOLARS AND THE MANDIBULAR CANAL USING MAGNETIC RESONANCE IMAGING.....	11
OP1 - 4 FEASIBILITY OF DENTAL-DEDICATED MAGNETIC RESONANCE IMAGING IN THE DEPICTION OF OSTEOMYELITIS AND OSTEONECROSIS-RELATED LESIONS OF THE JAWS.....	12
OP1 - 5 LINGUAL NERVE VISUALIZATION WITH DENTAL-DEDICATED MRI: FEASIBILITY AND OBSERVER REPRODUCIBILITY	13
OP1 - 6 FEASIBILITY OF DENTAL-DEDICATED MAGNETIC RESONANCE IMAGING IN THE EVALUATION OF DENTAL TRAUMA IN A PAEDIATRIC COHORT.....	14
OP2 - 2 THE ROLE OF CBCT IN THE LOCALIZATION OF IMPACTED MAXILLARY CANINES AND DETECTION OF INCISOR ROOT RESORPTION	15
OP2 - 3 A NOVEL CBCT-BASED SCALE FOR EVALUATING THE SEVERITY OF TEMPORO-MANDIBULAR JOINT DISORDERS.....	16
OP2 - 4 CLINICAL OBSERVATION AND CONSIDERATION ON THE CLOSE SPATIAL RELATIONSHIP BETWEEN MANDIBULAR CANAL BRANCHES AND IMPACTED THIRD MOLARS.....	17
OP2 - 5 RADIOLOGICAL ASSESSMENT OF MAXILLARY SINUSITIS WITH EMPHASIS ON ODONTOGENIC ETIOLOGY: A RETROSPECTIVE CBCT-BASED STUDY OF 36 CASES	18
OP2 - 6 THE ROLE OF THREE-DIMENSIONAL IMAGING IN CHILDREN'S CRANIOFACIAL ANOMALY DIAGNOSIS AND TREATMENT PLANNING	19
OP3 - 1 THE ACCURACY OF COMPUTER AIDED DETECTION OF PERIAPICAL RADIOLUCENCIES ON CBCT IMAGES USING ARTIFICIAL INTELLIGENCE DEEP LEARNING MODEL	20
OP3 - 2 DEEP LEARNING-BASED PREDICTION OF IMPACTED THIRD MOLAR EXTRACTION DIFFICULTY FROM PANORAMIC RADIOGRAPHS.....	21
OP3 - 3 AI-ASSISTED AUTOMATIC DETECTION OF HIGH-RISK CAROTID VARIANTS ON CERVICAL CT ANGIOGRAPHY: SURGICAL IMPLICATIONS FOR ENT AND MAXILLOFACIAL PROCEDURES	22
OP3 - 4 ARTIFICIAL INTELLIGENCE-BASED SEVERITY CLASSIFICATION OF ATLANTO-ODONTOID JOINT OSTEOARTHRITIS ON CONE-BEAM COMPUTED TOMOGRAPHY	23
OP3 - 5 PANORAMIC IMAGE QUALITY AND AI-BASED TOOTH DETECTION: A PERFORMANCE ANALYSIS.....	24
OP3 - 6 SEGMENTATION OF IDIOPATHIC OSTEOSCLEROSIS WITH AUTOMATIC DEEP LEARNING ON PANORAMIC RADIOGRAPHS: AN ARTIFICIAL INTELLIGENCE STUDY	25
OP3 - 7 ACCELERATING DATA ACQUISITION IN DENTAL MRI WITH DEEP LEARNING-BASED IMAGE RECONSTRUCTION TECHNIQUES	26

OP3 - 8 DYNAMIC TMJ MR IMAGING USING DEEP-LEARNING BASED IMAGE RECONSTRUCTION.....	27
OP4 - 1 MAGNETIC RESONANCE IMAGE ARTEFACTS RELATED TO RESTORATIVE DENTAL MATERIALS: A SYSTEMATIC LITERATURE REVIEW.....	28
OP4 - 2 BEYOND THE TEETH: INCIDENTAL SELLAR REGION FINDINGS ON DENTAL-DEDICATED MRI	29
OP4 - 3 ASSESSING THE OVERALL PERFORMANCE OF A DENTAL-DEDICATED MRI (DDMRI) SOLUTION	30
OP4 - 4 INDICATIONS FOR 0.55 T LOW-FIELD MRI IN PAEDIATRIC DENTISTRY AND ORTHODONTICS.....	31
OP4 - 5 THREE-DIMENSIONAL EVALUATION OF CONDYLAR AND ARTICULAR EMINENCE MORPHOLOGY IN DIFFERENT SKELETAL MALOCCLUSIONS.....	32
OP4 - 6 UPPER AIRWAY MORPHOLOGY IN JUVENILE IDIOPATHIC ARTHRITIS: A SYSTEMATIC REVIEW AND SYNTHESISED ANALYSIS.....	33
OP5 - 1 THE ORDER OF AI SUPPORT IN THE WORKFLOW OF MAXILLOFACIAL RADIOLOGY ASSESSMENT: IS IT MORE EFFECTIVE BEFORE OR AFTER TRADITIONAL OBSERVATION?.....	34
OP5 - 2 PREDICTING DENTAL IMPLANT FAILURE: A MULTIMODAL DEEP LEARNING APPROACH USING CBCT AND CLINICAL DATA.....	35
OP5 - 3 DEEP LEARNING-BASED AUTOMATED DIAGNOSTIC CHARTING ON PANORAMIC IMAGES: COMPARISON OF NEXT-GENERATION DEEP LEARNING ARCHITECTURES.....	36
OP5 - 5 AUTOMATED MULTICLASS SEGMENTATION OF DENTOMAXILLOFACIAL STRUCTURES ON CONE BEAM COMPUTED TOMOGRAPHY	37
OP5 - 6 CHRONOLOGICAL AGE ESTIMATION IN DENTISTRY USING FUSED EXTRAORAL RADIOGRAPHS: A SWIN TRANSFORMER V2-BASED DEEP REGRESSION APPROACH.....	38
OP6 - 1 COMPARISON OF LOW-, STANDARD- AND HIGH-DOSE PROTOCOLS OF CBCT ASSESSING ANATOMICAL LANDMARKS AND PATHOLOGY RELATED TO THIRD MOLARS: AN EX VIVO STUDY	39
OP6 - 2 KNOWLEDGE DISTILLATION FOR FAST AND EFFECTIVE DEEP LEARNING-BASED DENOISING OF CONE-BEAM COMPUTED TOMOGRAPHY VOLUMES.....	40
OP6 - 3 DO FACIAL HARD AND SOFT TISSUE CHANGES CORRELATE IN TERMS OF SYMMETRY? LONG-TERM LONGITUDINAL ANALYSIS IN A COHORT WITH SKELETAL CLASS III.....	41
OP6 - 4 EVALUATION OF THE RELATIONSHIP BETWEEN CRISTA GALLI CLASSIFICATIONS USING CONE-BEAM COMPUTED TOMOGRAPHY	42
OP6 - 5 COMPARISON OF VOLUMETRIC AND SURFACE-BASED ANALYSES OF MANDIBLE ON CBCT USING TWO SEGMENTATION SOFTWARES	43
OP6 - 6 A DEEP LEARNING MODEL FOR OVERBITE ASSESSMENT ON INTRAORAL SCANS.....	44
OP6 - 7 THREE-DIMENSIONAL CBCT EVALUATION OF PRP-ENHANCED BONE HEALING IN CHILDREN WITH MAXILLOFACIAL CLEFTS.....	45
OP7 - 1 DOES CBCT DOSE REDUCTION AFFECT AI-BASED MANDIBULAR SEGMENTATION ACCURACY? AN EX VIVO STUDY	46
OP7 - 2 DO ARTEFACTS FROM DENTAL IMPLANTS IMPAIR THE DIAGNOSIS OF SIMULATED INTERNAL ROOT RESORPTION IN CONE-BEAM COMPUTED TOMOGRAPHY?.....	47
OP7 - 3 RADIOGRAPHICALLY AND ANATOMICALLY ACCURATE PATIENT-SPECIFIC 3D-PRINTED MAXILLOFACIAL PHANTOM FOR IMAGING RESEARCH.....	48
OP7 - 4 ARTIFICIAL INTELLIGENCE FOR CARIES DETECTION IN PRIMARY AND PERMANENT TEETH: A CROSSOVER RANDOMIZED CONTROLLED TRIAL	49

OP7 - 5 LEARNING TO SEE BETTER: THE IMPACT OF AI-ASSISTED DENTAL CHARTING IN DENTAL EDUCATION	50
OP7 - 6 PATIENT RADIATION DOSE IN PANORAMIC RADIOGRAPHY: HOW FAR HAVE WE COME?	51
OP8 - 1 MULTI-CLASS ANATOMICAL LANDMARK DETECTION IN PERIAPICAL RADIOGRAPHS WITH DEEP LEARNING	52
OP8 - 2 IMPACT OF BRUXISM ON MANDIBULAR CONDYLAR STRUCTURES: A RADIOMICS-BASED PANORAMIC RADIOGRAPHIC ANALYSIS	53
OP8 - 3 MANDIBULAR TRABECULAR BONE ALTERATIONS IN BREAST CANCER PATIENTS: A FRACTAL ANALYSIS OF PANORAMIC RADIOGRAPHS	54
OP8 - 4 INVESTIGATION OF CHANGES IN THE MANDIBLE IN FEMALE PATIENTS WITH HASHIMOTO'S THYROIDITIS	55
OP8 - 5 FRANKFORT-MANDIBULAR PLANE ANGLE ASSESSMENT ON PANORAMIC RADIOGRAPHS; PERSPECTIVES ON AI-ASSISTED ANALYSIS	56
OP8 - 6 BISECTED ANGLE AND PARALLELING TECHNIQUES WITH PORTABLE RADIOGRAPHIC EQUIPMENT USING 0° VERTICAL ANGULATION	57
OP8 - 7 DIAGNOSTIC RELIABILITY AFTER EDUCATION IN DETECTION OF CAROTID ARTERY CALCIFICATIONS ON PANORAMIC RADIOGRAPHS	58
OP9 - 1 DENTIHUB: AN AI-INTEGRATED PLATFORM FOR DENTAL EDUCATION AND RESEARCH	59
OP9 - 2 EFFECT OF AI-ASSISTED DECISION SUPPORT ON DENTAL STUDENTS' RADIOGRAPHIC DIAGNOSIS OF CARIES	60
OP9 - 3 DIAGNOSTIC ACCURACY OF A COMMERCIAL AI-BASED PLATFORM IN EVALUATING RADIOGRAPHIC QUALITY OF ROOT CANAL OBTURATION ON PERIAPICAL RADIOGRAPHS	61
OP9 - 4 IMPACT OF SIMULATION RADIOGRAPHY TRAINING ON X-RAY POSITIONING ABILITY: A PILOT STUDY	62
OP9 - 5 INFLUENCE OF IMAGE PROCESSING AND FILE FORMAT ON THE DIAGNOSTIC OUTPUT OF A COMMERCIAL DENTAL AI SYSTEM (DIAGNOCAT) : A CONTROLLED ROBUSTNESS STUDY	63
OP9 - 6 FOETAL DOSE OF CONE-BEAM COMPUTED TOMOGRAPHY: A COMPREHENSIVE MONTE CARLO EVALUATION	64
OP9 - 7 CHALLENGES IN DOSIMETRY PROTOCOLS FOR DENTAL RADIOLOGY	65
OP9 - 8 EVALUATING THE METHODOLOGICAL QUALITY OF DENTAL CBCT DRLS: A SYSTEMATIC REVIEW	66
OP10 - 1 EVALUATION OF THE RELIABILITY OF PANORAMIC RADIOGRAPHY IN THE DIAGNOSIS OF CAROTID ARTERY CALCIFICATION USING ULTRASONOGRAPHY	67
OP10 - 2 DISINFECTION PRACTICES IN INTRAORAL ULTRASONOGRAPHY: A COMPARATIVE SURVEY STUDY	68
OP10 - 3 THE IMPACT OF DOMINANT-SIDE TRAPEZIUS MASSAGE ON MASSETER HEMODYNAMICS: A DOPPLER ULTRASONOGRAPHY STUDY	69
OP10 - 4 DIAGNOSTIC UTILITY OF INTERVAL ULTRASOUND SCREENING USING OMERACT SCORING FOR MALT LYMPHOMA IN SJÖGREN'S DISEASE: A 19-YEAR RETROSPECTIVE ANALYSIS	70
OP10 - 5 IMAGING EVALUATION OF INFLAMMATORY PATHOLOGY ASSOCIATED WITH ERUPTED THIRD MOLARS	71
OP11 - 1 INCIDENTAL FINDINGS ON CONE-BEAM CT IN DENTAL IMAGING: PREVALENCE, CLINICAL SIGNIFICANCE, AND REPORTING GAPS—AN UPDATED SYSTEMATIC REVIEW (2018–2025)	72
OP11 - 2 IMPACT OF IMPLANT ARTIFACTS ON RADIOMORPHOMETRIC TRABECULAR BONE MEASUREMENTS	73



OP11 - 3 FRONTAL SINUSITIS GONE WRONG: MULTIMODALITY IMAGING OF POTT'S PUFFY TUMOR WITH INTRACRANIAL COMPLICATIONS.....	74
OP11 - 4 SMALL FINDINGS, BIG CONSEQUENCES: NEUROVASCULAR IMPLICATIONS OF MAXILLOFACIAL TRAUMA.....	75
OP11 - 5 CHONDROBLASTIC OSTEOSARCOMA OF ANTERIOR MANDIBLE: A CASE REPORT	76
OP11 - 6 SMALL BLACK HOLES IN THE JAWS AND OTHER CBCT FINDINGS SUGGESTIVE OF MULTIPLE MYELOMA	77
OP11 - 7 THE INTRAVENTRICULAR INCIDENTALOMA: A DIAGNOSTIC DETOUR IN ENT IMAGING.....	78
OP14 - 1 DENTAL IMPLANT STRATEGIES IN THE PRESENCE OF MAXILLARY SINUS MUCOUS RETENTION CYSTS.....	79
OP14 - 2 RETROMOLAR CANAL CHARACTERISTICS IN A TURKISH CYPRIOT POPULATION: CBCT STUDY	80
OP14 - 3 INTRAOPERATIVE SURGICAL NAVIGATION IS AS EFFECTIVE AS CONVENTIONAL SURGERY FOR ZYGOMATICOMAXILLARY COMPLEX FRACTURE REDUCTION: META-ANALYSIS	81
OP14 - 4 ORAL CAVITY AND OROPHARYNGEAL SQUAMOUS CELL CARCINOMA: A REVIEW OF IMAGING FINDINGS	82
OP14 - 5 MANAGEMENT OF MEDICATION-RELATED OSTEONECROSIS OF THE JAW: CURRENT STRATEGIES FOR DIAGNOSIS AND TREATMENT.....	83
OP14 - 6 MAXILLOMANDIBULAR ADVANCEMENT: BRIDGING FACIAL AESTHETICS AND AIRWAY FUNCTION.....	84
OP14 - 7 ODONTOGENIC CYSTS WITH SINUS EVOLUTION: EVALUATION OF MODERN DIAGNOSTIC AND TREATMENT METHODS.....	85
OP15 - 1 EXPLORING MANDIBULAR SEXUAL DIMORPHISM USING 3D CBCT RECONSTRUCTIONS: A PROMISING RADIOLOGICAL APPROACH	86
OP15 - 2 PRE-PROCEDURAL ANXIETY IN DENTAL RADIOLOGY: A COMPARISON BETWEEN ORTHOPANTOMOGRAPHY AND CONE BEAM COMPUTED TOMOGRAPHY	87
OP15 - 3 DEEP LEARNING APPLICATIONS IN CONE-BEAM COMPUTED TOMOGRAPHY FOR MAXILLARY SINUS PATHOLOGY: A SYSTEMATIC REVIEW.....	88
OP15 - 4 WHY CBCT IN ENDODONTOLOGY? DIAGNOSTIC ADVANTAGES IN ODONTOGENIC SINUSITIS AND PERIAPICAL LESIONS	89
OP15 - 5 THE ROLE OF PET/CT IN EVALUATING IMAGING CHARACTERISTICS OF HODGKIN LYMPHOMA WITH MAXILLOFACIAL AND ENT INVOLVEMENT	90
OP15 - 6 PET/CT IMAGING ASPECTS IN NON-HODGKIN LYMPHOMAS OF THE HEAD AND NECK	91
OP15 - 7 ANATOMICAL RELATIONSHIP OF ELONGATED STYLOIDS ON CBCT SCANS: VALIDATION OF DIAGNOSTIC LANDMARKS FOR SMALL-FIELD STUDIES.	92
OP17 - 6 A MULTI-STAGE DEEP LEARNING WORKFLOW FOR AUTOMATED DETECTION OF MAXILLARY SINUSITIS OF ENDODONTIC ORIGIN IN CBCT IMAGES	93
OP19 - 3 GUIDED IMPLANTOLOGY - TIPS AND TRICKS	94
PP1 - 1 DEVELOPMENT OF A PANORAMIC RADIOGRAPHIC SCORING SYSTEM FOR DENTAL STATUS ASSESSMENT.....	95
PP1 - 2 ACCURACY OF CHATGPT AND GEMINI IN MANDIBULAR THIRD MOLAR TEETH IN PANORAMIC RADIOGRAPHS: COMPARISON OF UNCOMMANDED AND COMMANDED CASES.....	96
PP1 - 3 CARIES DIAGNOSIS IN PANORAMIC RADIOGRAPHS ACCORDING TO THE ICDAS-RSS: COMPARISON OF THE DIAGNOSTIC ACCURACY OF LED AND LCD MONITORS.....	97

PP1 - 4 DIAGNOSTIC PERFORMANCE AND ACCURACY OF THREE AI MODALITIES IN ASSESSING THE MANDIBULAR CANAL RELATIONSHIP	98
PP1 - 5 RETROSPECTIVE EVALUATION OF THE DEGREE OF DEVELOPMENT OF THIRD MOLARS BASED ON ORTHOPANTOMOGRAMS OF CHILDREN AND ADOLESCENTS AGED 5-18 YEARS.....	99
PP1 - 6 PATIENT MOVEMENT AND PERCEPTION OF DISCOMFORT IN CHILDREN DURING SIMULATED DENTAL-DEDICATED MRI EXAMINATION.....	100
PP1 - 7 PREVALENCE AND MORPHOMETRIC CHARACTERISTICS OF FOSSA NAVICULARIS MAGNA ON CONE BEAM COMPUTED TOMOGRAPHY: A RETROSPECTIVE ARCHIVE STUDY	101
PP1 - 8 TRAUMA OF THE VISCEROCRANIUM: CT FINDINGS AND CLINICAL IMPLICATIONS.....	102
PP1 - 9 EVALUATION OF C-SHAPED CANAL VARIATIONS IN MANDIBULAR MOLARS USING CONE-BEAM COMPUTED TOMOGRAPHY IMAGES.....	103
PP1 - 10 MRI DIAGNOSIS AND MONITORING OF DENTAL PATIENTS: CURRENT CHALLENGES	104
PP1 - 11 AI-BASED MANDIBULAR SEGMENTATION ON CONE-BEAM CT: OPEN-SOURCE AND COMMERCIAL SOFTWARE VERSUS MANUAL SEGMENTATION	105
PP1 - 12 EDUCATIONAL INITIATIVE: VIDEO MATERIALS FOR LEARNING DENTAL RADIOLOGY	106
PP1 - 13 RADIOLOGICAL EVALUATION AS A TECHNICAL DETERMINANT IN PROSTHETIC DENTISTRY: DENTISTS' PERCEPTION OF 2D IMAGING VERSUS CBCT.....	107
PP1 - 14 PANORAMIC RADIOGRAPHY IN PEDIATRIC DENTAL PRACTICE: DIAGNOSTIC CONTRIBUTION TO EARLY DETECTION OF DENTAL PATHOLOGY.....	108
PP2 - 1 THREE-DIMENSIONAL VIRTUAL PLANNING IN ORTHOGNATHIC SURGERY USING NEMOFAB: REPRODUCIBILITY AND SURGICAL MOVEMENT ANALYSIS BASED ON CBCT DATA.....	109
PP2 - 2 NASOPHARYNGEAL MASSES ON CT: A CASE-BASED REVIEW.....	110
PP2 - 3 INTRAORAL STEREORADIOGRAPHY IN PERI-IMPLANT BONE LEVEL ASSESSMENT WITH VIRTUAL REALITY: AN IN VITRO STUDY.....	111
PP2 - 4 APPLICATIONS OF CT- LIKE MRI SEQUENCES IN PEDIATRIC MAXILLOFACIAL LESIONS	112
PP2 - 5 LE FORT FRACTURES ON CT: A PRACTICAL IMAGING GUIDE FOR RAPID RECOGNITION.....	113
PP2 - 6 CURRENT DIAGNOSTIC AND THERAPEUTIC ALGORITHMS IN TRIGEMINAL NEURALGIA: A COMPREHENSIVE REVIEW	114
PP2 - 7 NON-DESTRUCTIVE MICRO-CT EVALUATION OF THE METAL-PORCELAIN JUNCTION IN A ZIRCONIUM-ALLOY METAL-CERAMIC BRIDGE RESTORATION	115
PP2 - 8 ARTIFICIAL INTELLIGENCE APPLICATIONS IN DENTO-MAXILLOFACIAL RADIOLOGY	116
PP2 - 9 BEYOND RESECTABILITY: SERIAL IMAGING AS A DECISION-MAKING TOOL IN ADVANCED MAXILLARY SINUS SQUAMOUS CELL CARCINOMA.....	117
PP2 - 10 INTERACTIVE 3D VISUALIZATION FROM CT/CBCT DATA FOR PATIENT-CENTERED DENTAL EDUCATION.....	118
PP2 - 11 PEDIATRIC CERVICAL VASCULAR LESIONS: IMAGING CLUES FOR DIFFERENTIAL DIAGNOSIS.....	119
PP2 - 12 MORPHOMETRIC CHARACTERISTICS OF THE NASOLACRIMAL DUCT IN DIFFERENT SKELETAL MALOCCLUSION PATTERNS: A CBCT-BASED RETROSPECTIVE STUDY	120
PP2 - 13 ARTIFICIAL INTELLIGENCE IN DENTAL RADIOGRAPHIC SCREENING OF ATHLETES: ORAL DISEASE DETECTION AND DENTAL AGE ESTIMATION – A NEW ERA FOR SPORTS DENTISTRY	121

PP3 - 1 RADIOGRAPHIC EVALUATION OF UNICYSTIC AMELOBLASTOMA USING CONE-BEAM COMPUTED TOMOGRAPHY: A CASE REPORT	122
PP3 - 2 ANTERIOR BUCCAL MANDIBULAR DEPRESSION: CASE SERIES.....	123
PP3 - 3 LOCALIZATION GUIDED DEEP LEARNING SEGMENTATION OF EXTRACRANIAL CAROTID ARTERY CALCIFICATIONS ON CBCT IMAGES	124
PP3 - 4 DEMOGRAPHIC CHARACTERISTICS AND COMORBIDITY BURDEN IN PATIENTS WITH VERTEBROBASILAR ARTERY CALCIFICATION.....	125
PP3 - 5 SEGMENTATION AND CLASSIFICATION OF THE ANTERIOR ETHMOIDAL ARTERY ON CBCT FOR AI-ASSISTED IDENTIFICATION IN ENDOSCOPIC SINUS SURGERY.....	126
PP3 - 6 EVALUATION OF SCHNEIDERIAN MEMBRANE THICKNESS IN RELATION TO PERIODONTAL BONE LOSS IN MAXILLARY MOLARS USING CONE-BEAM COMPUTED TOMOGRAPHY.....	127
PP3 - 7 BEYOND TWO DIMENSIONS – THE CRITICAL ROLE OF CBCT IN DETECTION AND MANAGEMENT OF ROOT RESORPTION	128
PP3 - 8 MRI FEATURES OF SECONDARY BRAIN LESIONS FROM SALIVARY GLAND CARCINOMAS	129
PP3 - 9 THE IMPORTANCE OF MULTIPLE RADIOLOGICAL INVESTIGATIONS IN THE DIAGNOSIS OF NASAL FRACTURES AND THEIR FORENSIC RELEVANCE	130
PP3 - 10 SELECTIVE USE OF CBCT IN PEDIATRIC DENTISTRY: BALANCING GUIDELINE RECOMMENDATIONS AND THE NEED FOR EARLY DIAGNOSIS.....	131
PP3 - 11 WHEN ERUPTION FAILS: IMAGING FEATURES OF PATHOLOGICAL ERUPTION OF PERMANENT TEETH.....	132
PP3 - 12 NAVIGATING THE PAROTID GLAND: A MULTIMODAL RADIOLOGICAL APPROACH OF NODULAR LESIONS.....	133
PP3 - 13 IMAGING-BASED DIAGNOSTIC APPROACH TO OSTEOLYTIC LESIONS OF THE JAW: DIFFERENTIATING BENIGN TUMORS FROM MALIGNANT ENTITIES	134
PP3 - 15 THE ROLE OF CBCT IN IMPROVING THE ENDODONTIC MANAGEMENT OF C-SHAPED RADICULAR CANALS	135
PP3 - 16 PREVALENCE AND SPECTRUM OF INCIDENTAL FINDINGS ON DENTAL CONE-BEAM CT: A RETROSPECTIVE IMAGING STUDY	136
PP4 - 1 EPIDERMAL CYST IN THE DENTOMAXILLOFACIAL REGION – CASE REPORT.....	137
PP4 - 2 NECK PARAGANGLIOMA - MULTIMODAL IMAGING DIAGNOSTIC APPROACH.....	138
PP4 - 3 MAXILLOMANDIBULAR FIBROUS DYSPLASIA MIMICKING PAGET’S DISEASE.....	139
PP4 - 4 ARRESTED PNEUMATIZATION OF THE SPHENOID SINUS MIMICKING SKULL BASE LESIONS: A CASE REPORT	140
PP4 - 5 SURVIVING HEAD AND NECK EMERGENCIES ON CALL – WHAT THE RADIOLOGIST SHOULD NOT MISS	141
PP4 - 6 CT SIGNS OF ODONTOGENIC MAXILLARY SINUSITIS: CLUES TO DENTAL ORIGIN AND ANATOMICAL ASPECTS THAT MAY BE OVERLOOKED	142
PP4 - 7 THE TRIGEMINAL HIGHWAY: MAPPING RETROGRADE PERINEURAL SPREAD AND SYSTEMIC METASTASIS IN A RARE HIGH-GRADE NASOPHARYNGEAL ADENOID CYSTIC CARCINOMA.....	143
PP4 - 8 CALVARIAL METASTASES FROM PROSTATE CANCER: SCINTIGRAPHIC DETECTION AND CT CORRELATION – A 6-YEAR RETROSPECTIVE STUDY	144

PP4 - 9 CONE-BEAM COMPUTED TOMOGRAPHY IN THE SURGICAL MANAGEMENT OF SUBMANDIBULAR SIALOLITHIASIS	145
PP4 - 10 RADIOLOGIC STUDY REGARDING SOME MEASURABLE VARIABLES IN IMMEDIATE LOADING DENTAL IMPLANTS.....	146
PP4 - 12 ULTRASOUND IN IDIOPATHIC UNILATERAL MASSETER HYPERTROPHY	147
PP5 - 1 ACROMEGALY DIAGNOSED BY A DENTIST: A CASE REPORT	148
PP5 - 2 DISCOVERY OF NOVEL FGFR1 INHIBITORS FOR OSCC USING A MULTI-CLASS QSAR MODEL, VIRTUAL SCREENING, AND MOLECULAR DYNAMICS SIMULATIONS.....	149
PP5 - 3 SQUAMOUS CELL CARCINOMA OF POSTERIOR MAXILLA: A CASE REPORT	150
PP5 - 4 UNLOCKING THE OROPHARYNX: A MULTIMODALITY IMAGING REVIEW OF 12 BASE OF TONGUE LESIONS	151
PP5 - 5 FACIAL PAIN BEYOND ODONTOGENIC DISEASE: IMAGING CLUES FOR DIFFERENTIAL DIAGNOSIS IN HEAD AND NECK PATHOLOGY	152
PP5 - 6 IMAGING PHENOTYPES OF TEMPOROMANDIBULAR JOINT DISORDERS ARE UNDERPINNED BY DISTINCT PROTEOMIC AND METABOLOMIC TRAJECTORIES IN SYNOVIAL FLUID	153
PP5 - 7 BEYOND SIALADENITIS: CT AND MRI PATTERNS OF SALIVARY GLAND LESIONS.....	154
PP5 - 8 HOW FAR CAN IT SPREAD? FROM HEAD AND NECK CARCINOMAS TO BRAIN METASTASES	155
PP5 - 9 MICRO-CT RADIOMICS AND MACHINE LEARNING REVEAL PLCI2-DEPENDENT SKULL MALFORMATIONS IN MICE	156
PP5 - 10 "NOT JUST A SWELLING": INTRAOSSEOUS HEMANGIOMA OF THE MANDIBLE REVEALED BY MULTIMODAL IMAGING IN TWO PEDIATRIC CASES	157
PP5 - 11 IMPACT OF ULTRASONOGRAPHY-ASSISTED TRAINING OF CERVICAL LYMPH NODE EXAMINATION ON DENTAL EDUCATION	158
PP5 - 12 IMAGING PEARLS AND PITFALLS IN OSTEOSCLEROTIC LESIONS OF THE JAWS: A CASE-BASED SURVIVAL GUIDE FOR DIFFERENTIAL DIAGNOSIS	159
PP5 - 13 AI VS HUMAN EXPERTS IN ODONTO-PERIODONTAL DIAGNOSIS ON ORTHOPANTOMOGRAMS: A COMPARATIVE STUDY	160
PP5 - 14 CONTRIBUTION OF TURKISH RESEARCHERS TO THE WORLD'S DENTOMAXILLOFACIAL RADIOLOGY LITERATURE: A 20-YEAR ANALYSIS	161
PP5 - 15 PATIENT PERCEPTION OF RADIATION RISK IN DENTAL IMAGING AND THE ROLE OF EDUCATION IN THE ACCEPTANCE OF PREVENTIVE RADIOGRAPHIC EXAMINATIONS.....	162
PP5 - 16 CBCT-GUIDED PLANNING OF PTERYGOID IMPLANTS: EDUCATIONAL INSIGHTS INTO THE RADIOLOGICAL ANATOMY OF THE PTERYGOMAXILLARY REGION.....	163
PP6 - 1 HIGH-GRADE CHONDROBLASTIC OSTEOSARCOMA OF THE ORBIT – CASE REPORT.....	164
PP6 - 2 DIAGNOSIS OF ANAPLASTIC MENINGIOMA WITH SUBSEQUENT TRANSFORMATION TO GLIOBLASTOMA: A CASE REPORT	165
PP6 - 3 WHEN INFECTION CROSSES THE BARRIER: RADIOLOGICAL SPECTRUM OF INTRACRANIAL EXTENSION FROM HEAD AND NECK SOURCES.....	166
PP6 - 4 EXTENSIVE CNS METASTASES FROM GASTRIC ADENOCARCINOMA PRESENTING WITH FACIAL PAIN – UNUSUAL DISSEMINATION PATTERN ON MULTIPARAMETRIC MRI.....	167



PP6 - 5 | INTRAOSSEOUS SCHWANNOMA - A CASE REPORT 168

PP6 - 6 | AN ECTOPIC TOOTH WITH PERIAPICAL CEMENTAL DYSPLASIA IN THE MANDIBULAR CONDYLE: A CASE REPORT WITH CONE-BEAM COMPUTED TOMOGRAPHY IMAGES..... 169

PP6 - 7 | AN IMAGING PUZZLE: ECTOPIC PAPILLARY THYROID CARCINOMA AND BRAIN METASTASES 170

PP6 - 8 | THE IMPORTANCE OF DENTOMAXILLOFACIAL RADIOLOGY IN FORENSIC CASES171

PP6 - 9 | LEVEL OF KNOWLEDGE AND ATTITUDES AMONG DENTISTS REGARDING THE USE OF CBCT IN DENTAL PRACTICE172

PP6 - 10 | DIAGNOSTIC ACCURACY OF LOW-DOSE CBCT PROTOCOLS IN THE DETECTION OF ARTIFICIAL PERIAPICAL LESIONS: AN EX VIVO STUDY.....173

CLINICAL INDICATIONS FOR CBCT-SCANS: ONE-YEAR DATA FROM THE UNIVERSITY DENTAL HOSPITAL IN BERN, SWITZERLAND..... 174

OP1 - 1 | EXPLORING DENTAL-DEDICATED MRI (DDMRI) AS A RADIATION-FREE MODALITY FOR COMPREHENSIVE GENERAL ORAL HEALTH ASSESSMENT: A PILOT STUDY

R. Spin-Neto¹, L.-L. Kirkevang¹, L. Hauge Matzen¹, G. Salatino Liedke^{1,2}, J. Christensen¹

¹Aarhus University, Dentistry and Oral Health, Aarhus, Denmark

²Federal University of Santa Maria, Department of Stomatology, Santa Maria, Brazil

Aim: To evaluate the feasibility of dental-dedicated MRI (ddMRI) for general oral health (GOH) assessment and apical periodontitis screening (APS) in patients.

Materials and Methods: Two diagnostic tasks were independently investigated: GOH and APS. Ten consecutive healthy volunteers underwent ddMRI examination for GOH assessment. Ten other consecutive patients presenting clinical signs and/or symptoms of periapical inflammation and requiring CBCT for diagnosis and/or treatment planning were included and underwent ddMRI examination (APS). In these patients, the symptomatic tooth and one adjacent healthy tooth underwent standardized clinical testing and CBCT evaluation, which were combined to establish the standard diagnosis for AP. ddMRI was acquired using two pulse sequences: anatomy 3D overview and inflammation 3D overview for GOH, and inflammation 3D overview for APS. Three trained observers independently evaluated all ddMRI datasets for image quality (5-point Likert scale), anatomical conspicuity of eight structures (dichotomous scale, GOH), and presence/absence of hyperintense periapical edema (APS). Statistical analysis included inter-observer agreement, inter-modality agreement, and diagnostic accuracy metrics for APS relative to the standard diagnosis.

Results: For GOH assessment, the ddMRI anatomy protocol yielded good overall image quality, with all anatomical structures, except the periodontal ligament, consistently visible, and showed perfect inter-observer agreement. For APS, ddMRI provided acceptable image quality and substantial agreement with the standard diagnosis, with consensus accuracy of 0.89, sensitivity of 0.92, and specificity of 0.83.

Conclusion: ddMRI is a feasible diagnostic imaging modality for visualizing hard and soft dentomaxillofacial tissues with promising capabilities for periapical inflammation screening.

OP1 - 2 | MRI-BASED FRACTAL ANALYSIS OF THE TRIGEMINAL NERVE FOR IDENTIFYING SYMPTOMATIC NEUROVASCULAR CONTACTS IN TRIGEMINAL NEURALGIA

N. Khosravifard¹

¹Guilan University of Medical Sciences, Oral and Maxillofacial Radiology, Rasht, Iran, Islamic Republic of

Aim: MRI plays a central role in the evaluation of neurovascular contact (NVC) in patients with trigeminal neuralgia (TN). This study aimed to assess whether fractal dimension (FD) analysis of the trigeminal nerve, alone and in combination with an MRI-based NVC grading system, improves imaging-based discrimination between symptomatic and asymptomatic trigeminal nerves.

Material and Methods: High-resolution 3D MRI examinations of the posterior fossa were retrospectively analyzed in patients with clinically diagnosed TN who subsequently underwent surgical exploration. A total number of 70 trigeminal nerves, including symptomatic and contralateral asymptomatic nerves, were evaluated. NVC severity was graded by three radiologists. Furthermore, trigeminal nerves were segmented and subjected to fractal analysis to calculate FD values.

Results: Interobserver agreement for NVC grading was excellent (Fleiss $k=0.904$) and FD measurements demonstrated perfect reproducibility (ICC=1). FD values showed a significant inverse association with increasing NVC grade. Both NVC grading and FD analysis demonstrated good diagnostic performance individually. The combined model integrating morphologic grading and FD achieved the highest diagnostic accuracy, with an area under the receiver operating characteristic curve (AUC) of 0.963, significantly outperforming NVC grading alone ($p = 0.01$).

Conclusion: Fractal dimension provides a reproducible quantitative descriptor of trigeminal nerve morphology that correlates with MRI-based NVC severity. When combined with NVC grading, FD improves discrimination between symptomatic and asymptomatic neurovascular contacts. This study introduces a novel complementary approach for evaluation of trigeminal neuralgia by augmenting conventional MRI assessment with quantitative fractal-based information to detect symptomatic neurovascular contacts.

OP1 - 3 | EVALUATION OF THE RELATIONSHIP BETWEEN MANDIBULAR THIRD MOLARS AND THE MANDIBULAR CANAL USING MAGNETIC RESONANCE IMAGING

E. Karahan¹, M. Önder¹, C. Evli¹

¹Ankara University Faculty of Dentistry, Oral and Maxillofacial Radiology, Ankara, Turkey

Aim: The aim of this study was to evaluate the relationship between mandibular third molars and the mandibular canal using different MRI sequences and to compare the results with CBCT to investigate the diagnostic reliability of MRI.

Material and Methods: A total of 920 MRI scans obtained for TMJ imaging at the Department of Oral and Maxillofacial Radiology, Faculty of Dentistry, Ankara University, were reviewed via the Fujifilm Synapse PACS. After applying the exclusion criteria, 99 patients (170 teeth) with CBCT images of the mandibular impacted tooth region and impacted or semi-impacted mandibular third molars were included. CBCT was used as the gold standard for assessing the relationship between mandibular third molars and the mandibular canal. MRI evaluations were conducted using seven imaging sequences, and inter- and intra-observer agreement was assessed using kappa statistics.

Results: High agreement with CBCT was observed in all sequences. The 3D PDS sagittal sequence showed the highest consistency in both contact and no-contact cases. PD coronal and T2 GRE sagittal sequences also demonstrated high accuracy, whereas PD sagittal showed lower agreement in certain positions. Overall, inter- and intra-observer agreement was high, supporting the reliability of MRI.

Conclusion: MRI provides a strong alternative to CBCT for assessing the relationship between mandibular third molars and the mandibular canal. The absence of ionizing radiation is a major advantage, particularly for young adults and radiation-sensitive individuals. These findings suggest that MRI may serve as a complementary modality to CBCT or, in selected cases, as an alternative in the future.

OP1 - 4 | FEASIBILITY OF DENTAL-DEDICATED MAGNETIC RESONANCE IMAGING IN THE DEPICTION OF OSTEOMYELITIS AND OSTEONECROSIS-RELATED LESIONS OF THE JAWS

***J. Davies^{1,2}, S. O'Toole³, J. Hajnal⁴, Z. Ning⁴, K. Colford⁴, V. Patel⁵, O. Addisson⁶,
R. Spin Neto⁷***

¹King's College London, St Thomas' Hospital, Faculty of Life Sciences & Medicine, London, United Kingdom

²Guy's & St Thomas' NHS Foundation Trust, Guy's Hospital, Department of Dental Radiology, London, United Kingdom

³King's College London, Faculty of Dentistry, Oral & Clinical Sciences, London, United Kingdom

⁴King's College London, Faculty of Life Sciences & Medicine, London, United Kingdom

⁵Guy's & St Thomas' NHS Foundation Trust, Guy's Hospital, Department of Oral Surgery, London, United Kingdom

⁶King's College London, Faculty of Dentistry, Oral & Craniofacial Sciences, London, United Kingdom

⁷Aarhus University, Department of Dentistry and Oral Health, Aarhus, Denmark

Aim: To investigate dental-dedicated MRI (ddMRI) as a feasible imaging modality depicting osteomyelitis- (OM) and osteonecrosis- (ON) related lesions of the jaws.

Material and Methods: This prospective, single-centre feasibility study (clinical trials registration NCT07008014), 10 patients with a clinical diagnosis of OM or ON were recruited. ddMRI images were acquired using a Magnetom FreeMax (Siemens Healthcare GmbH, Erlangen, Germany) equipped with a dental-dedicated coil (Rapid-Biomedical GmbH, Rimplar, Germany), using a set of dedicated pulse sequences.

Cone Beam CT images were also acquired using a 3D Accuitomo 170 (J Morita Mfg Corp, Kyoto, Japan).

Two trained maxillofacial radiologists visually assessed the images comparing extent, image characteristics and diagnostic indicators of the pathology.

Results: 5 of the 11 recruited patients were excluded from the study due to the presence of metallic clips in the soft tissue that impeded the acquisition of ddMRI.

In the remaining patients, ddMRI was successfully obtained and findings correlated with the CBCT images in the diagnosis of OM and ON. Specific features observed on the ddMRI images included pathognomonic double lines at the periphery of disease, regions of high signal in the area of bone turnover, no signal in the area of bone sequestration. Low signal demonstrating the extent of ON within the alveolar bone could also be assessed.

Conclusion: In this prospective, feasibility study, ddMRI provided sufficient diagnostic image quality to properly depict the anatomic features needed to define OM- and ON-related lesions of the jaws. A diagnosis could have been obtained without CBCT in all cases.

OP1 - 5 | LINGUAL NERVE VISUALIZATION WITH DENTAL-DEDICATED MRI: FEASIBILITY AND OBSERVER REPRODUCIBILITY

R. Spin-Neto¹, L. Hauge Matzen¹, J. Christensen¹

¹Aarhus University, Dentistry and Oral Health, Aarhus, Denmark

Aim: To evaluate the feasibility of lingual nerve visualization using dental-dedicated magnetic resonance imaging (ddMRI), with emphasis on observer reproducibility in a patient series.

Materials and Methods: Twenty consecutive healthy volunteers underwent a ddMRI examination of the lower third molar region. ddMRI was acquired focusing on anatomic and inflammatory tissue characteristics, based on 2D proton-density-weighted image slabs, with and without fat suppression. Three trained observers independently evaluated all ddMRI datasets for image quality (very poor / poor / acceptable / good / optimal) and the anatomical conspicuity of the lingual nerve (visible / not visible). Statistical analysis included the frequency of possible lingual nerve visualization and the inter-observer agreement for that diagnostic task (kappa statistics).

Results: Overall image quality ranged from acceptable to optimal (average good). The axial plane provided the most consistent visualization of the lingual nerve, which was identifiable in most cases (ranging from 85 to 95% of the cases among observers), although substantial inter-observer reproducibility was observed (kappa values ranging from 0.46 to 0.77, average 0.62).

Conclusion: ddMRI enables lingual nerve visualization, predominantly in the axial plane. The wide range of inter-observer reproducibility and the lack of clinical validation must be further addressed in larger clinical trials.

OP1 - 6 | FEASIBILITY OF DENTAL-DEDICATED MAGNETIC RESONANCE IMAGING IN THE EVALUATION OF DENTAL TRAUMA IN A PAEDIATRIC COHORT

***J. Davies^{1,2}, S. O'Toole³, J. Hajnal¹, Z. Ning¹, K. Colford¹, M. Vaidyanathan⁴, M. Kabban⁴,
O. Addisson³, R. Spin Neto⁵***

¹King's College London, Faculty of Life Sciences & Medicine, London, United Kingdom

²Guy's & St Thomas' NHS Foundation Trust, Guy's Hospital, Department of Dental Radiology, London, United Kingdom

³King's College London, Faculty of Dentistry, Oral & Clinical Sciences, London, United Kingdom

⁴Guy's & St Thomas' NHS Foundation Trust, St Thomas' Hospital, Department of Paediatric Dentistry, London, United Kingdom

⁵Aarhus University, Department of Dentistry and Oral Health, Aarhus, Denmark

Aim: To investigate dental-dedicated MRI (ddMRI) in the assessment of dental trauma in a paediatric cohort.

Material and Methods: This prospective, single-centre feasibility study (clinical trials registration NCT07008014), 7 patients with a clinical diagnosis of dental trauma affecting the anterior teeth were recruited.

ddMRI images were acquired on a Magnetom FreeMax (Siemens Healthcare GmbH, Erlangen, Germany) equipped with a dental-dedicated coil (Rapid-Biomedical GmbH, Rimpar, Germany), using a set of dedicated pulse sequences.

Intra oral digital 2D planar radiography (Durr VistaScan, Bietigheim-Bissingen

Germany) and Cone Beam CT images were acquired using a VeraView X800 (J Morita Mfg Corp, Kyoto, Japan).

All images were reviewed by 2 trained maxillofacial radiologists visually assessing the scans comparing any movement artefact, extent of any dental pathology and the imaging characteristics affecting the injured teeth.

Results: 7 patients with a mean age of 12 years were imaged, only 1 ddMRI scan suffered from movement artefact.

3D multiplanar and 2D slab ddMRI images demonstrated the pulp signal and the presence of inflammation in the injured teeth and surrounding oral tissues.

The most significant findings were of apical inflammation and pulpal necrosis, where CBCT and sensibility testing had given equivocal results.

Conclusion: In this study, ddMRI demonstrated that 85% of young patients can tolerate an MRI scan of the teeth without movement artefact impeding the image acquisition. ddMRI was also able to reliably demonstrate the pulp signal and inflammation affecting the traumatised teeth giving further clinical information, that may alter the clinical management of the patient.

OP2 - 2 | THE ROLE OF CBCT IN THE LOCALIZATION OF IMPACTED MAXILLARY CANINES AND DETECTION OF INCISOR ROOT RESORPTION

C. Antohi¹, R.E. Cernei², G. Zegan², L. Golovceanco², D. Anistoroaei²

¹UMF "Grigore T. Popa", Endontology, Iasi, Romania

²UMF "Grigore T. Popa", Surgery, Iasi, Romania

Aim: The aim of this study was to evaluate the benefits of three-dimensional imaging using cone-beam computed tomography (CBCT) in the localization of impacted maxillary canines and the detection of root resorption in adjacent incisors, compared with conventional two-dimensional (2D) imaging methods.

Material and Methods: A review of relevant literature was performed to analyze the diagnostic value of CBCT in cases of impacted maxillary canines and associated incisor root resorption. Data obtained from conventional 2D radiographic techniques were compared with findings obtained from three-dimensional CBCT imaging, focusing on the accuracy of canine localization and the detection of the degree and location of root resorption in maxillary incisors.

Results: The analyzed studies indicate that CBCT provides more precise localization of impacted canines in relation to adjacent anatomical structures and allows improved detection of the presence, extent, and exact location of root resorption in maxillary incisors. In addition, CBCT imaging increases clinicians' confidence in diagnosis and treatment planning. However, the literature presents conflicting evidence regarding the routine use of CBCT as a first-line imaging method in all patients with impacted maxillary canines.

Conclusions: CBCT represents a valuable diagnostic tool for three-dimensional assessment of impacted maxillary canines and associated incisor root resorption. Its use should be considered particularly in cases where conventional 2D imaging does not provide sufficient diagnostic information for accurate localization and treatment planning.

OP2 - 3 | A NOVEL CBCT-BASED SCALE FOR EVALUATING THE SEVERITY OF TEMPORO- MANDIBULAR JOINT DISORDERS

***A.-M.-C. Arcaș¹, A.M. Frățilă², A.-E. Cîrstian¹, C.-V. Arcaș², R.-E. Bîrlă-Coroiu^{3,1},
R.M. Manea^{3,1}***

¹Emergency County Hospital, Radiology, Brasov, Romania

²Faculty of Medicine, Lucian Blaga University of Sibiu, Department of Dental Medicine and Nursing, Sibiu, Romania

³Transilvania University, Faculty of Medicine, Brasov, Romania

Aim: The temporo-mandibular disorder (TMD) is a collective term for a spectrum of functional and structural alterations of the temporo-mandibular joint. Current classifications, such as the one proposed by Piper and Wilke, rely mainly on Magnetic Resonance disc assessment, limiting their applicability in routine clinical practice. The aim of this research is to propose a novel Cone Beam Computed Tomography (CBCT) based classification for TMD.

Materials and Methods: CBCT images of 61 patients were analyzed to identify common structural changes seen in TMD, evaluating condylar morphology, joint space, glenoid fossa morphology and inclination. This system was validated by assessing inter- and intra-observer reliability using Cohen's kappa coefficients and by evaluating construct validity through Spearman correlation analysis between radiologic stages and clinical manifestations.

Results: Inter-observer agreement confirmed four distinct CBCT-based stages: stage I (n = 18) showed normal condylar dimensions, intact cortical bone, normal glenoid fossa morphology and centered joint space; stage II (n = 16) presented anterior and medial condylar displacement with reduced joint space and fossa inclination changes, while cortical bone remained intact; stage III (n = 17) demonstrated condylar dimensional changes with direct bone contact and cortical thinning; stage IV (n = 10) revealed severe condylar deformation, persistent bone contact and cortical lesions with marked cortical disruption. There was a positive statistically significant correlation between disease severity and imagistic changes.

Conclusion: The proposed four-stage CBCT-based classification offers a reliable tool for evaluating TMJ structural progression, with a potential to guide therapeutic decision-making in TMD patients.

OP2 - 4 | CLINICAL OBSERVATION AND CONSIDERATION ON THE CLOSE SPATIAL RELATIONSHIP BETWEEN MANDIBULAR CANAL BRANCHES AND IMPACTED THIRD MOLARS

H. Yang¹, W. Xu¹, H. Yu¹

¹Kunming Medical University, Kunming, China

Aim: To investigate the occurrence, emergency management, and preventive measures of sudden massive hemorrhage caused by injury to branches of the mandibular canal during the extraction of impacted mandibular third molars.

Material and Methods: A retrospective analysis was performed on the clinical data of five patients who experienced intraoperative bleeding during the extraction of impacted mandibular third molars. Cone-beam computed tomography (CBCT) images were reviewed.

Results: In all five patients, branches of the mandibular canal were identified on CBCT images, showing a close spatial relationship with the impacted third molars. Among them, four cases involved injury to the mandibular canal branch, while one case exhibited exposure of the branch through an opening. Hemostasis was achieved in all extraction sites using absorbable gelatin sponges or collagen packing with tight suturing. One patient, who was on anticoagulant therapy, was placed under emergency observation.

Conclusion: Sudden massive hemorrhage due to injury to branches of the mandibular canal during impacted mandibular third molar extraction is rare and often overlooked clinically; however, once it occurs, the bleeding can be rapid and severe, potentially becoming life-threatening if not managed properly. Preoperative evaluation of the spatial relationship between the impacted third molar and the branches of the mandibular canal using CBCT is crucial for risk control during extraction. The widespread use of CBCT has significantly improved the detection rate of mandibular canal branches, providing strong support for preoperative planning in the removal of impacted third molars.

OP2 - 5 | RADIOLOGICAL ASSESSMENT OF MAXILLARY SINUSITIS WITH EMPHASIS ON ODONTOGENIC ETIOLOGY: A RETROSPECTIVE CBCT-BASED STUDY OF 36 CASES

N. Alkhatib¹, A. Carp¹, D. Sulea¹, A. Manolache¹, F. Sava¹, M.-L. Ciofu¹, O. Boisteanu¹, V.-V. Costan¹

¹Gr.T.Popa University of Medicine and Pharmacy Iasi, Chirurgicale, Iasi, Romania

Aim: To assess the radiological features of maxillary sinusitis and determine the prevalence of odontogenic etiologies using CBCT.

Material and Methods: A retrospective study was conducted on 36 patients with maxillary sinusitis. All cases were evaluated using panoramic radiography and CBCT. Imaging parameters included mucosal thickening (>3 mm), sinus opacification, air-fluid levels, cortical bone status, and odontogenic factors such as periapical lesions and periodontal disease. The diagnostic value of CBCT was compared to conventional imaging.

Results: Odontogenic origin was identified in 32 cases, predominantly associated with periapical osteitis of posterior maxillary teeth. Total sinus opacification was observed in 9 cases, while the remaining cases presented partial opacification. In 4 cases, sinus pathology was associated with additional findings, including nasal polyps, septal deviation, and turbinate hypertrophy. CBCT provided superior visualization of dental–sinus relationships and detected lesions not evident on panoramic radiographs.

Conclusion: Odontogenic factors play a major role in maxillary sinusitis and may be missed on conventional imaging. CBCT is essential for accurate diagnosis and improved treatment planning.

OP2 - 6 | THE ROLE OF THREE-DIMENSIONAL IMAGING IN CHILDREN'S CRANIOFACIAL ANOMALY DIAGNOSIS AND TREATMENT PLANNING

***D.M. Preda¹, S. Seyedin Kharrazi¹, S.I. Stoicescu², C. Popița³, R.A. Popița³, M.C. Hedeșiu⁴,
C.I. Chiriac Babei², R. Bălănescu¹***

¹"Grigore Alexandrescu" Emergency Hospital for Children, Bucharest, Romania

*²"Grigore Alexandrescu" Emergency Hospital for Children, "Carol Davila" University of Medicine and Pharmacy,
Bucharest, Romania*

³"Ion Chiricuță" Oncological Institute, Cluj-Napoca, Romania

⁴"Iuliu Hațieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania

Aim: Accurate diagnosis and individualized treatment planning are critical in managing craniofacial anomalies such as cleft lip and palate.

This study aimed to evaluate the clinical utility of 3D imaging in the assessment and treatment planning of pediatric patients presenting with cleft-related craniofacial anomalies.

Methods: Our retrospective review involved 28 patients aged 4 to 15 years, diagnosed with cleft lip and/or palate at a tertiary care center. Depending on clinical indication, imaging included prenatal 3D ultrasound and fetal MRI for cases diagnosed in utero, as well as postnatal CBCT scans, 3D facial photography, surface scanning, and digital models with AI-assisted surgical simulation. Data were analyzed to assess the impact of advanced imaging on anatomical visualization, modifications of treatment plans, interdisciplinary communication, and patient engagement. Clinicians documented whether 3D datasets influenced the timing, sequencing, or type of planned interventions.

Results: 3D imaging enabled detailed assessment of skeletal structures, alveolar morphology, and soft tissue symmetry, facilitating early detection of subtle asymmetries and alveolar defects. In 85% of cases, 3D datasets led to modifications of treatment protocols, including adjustments to the surgical approach or orthodontic strategy. The use of 3D models improved interdisciplinary discussion and enhanced caregiver understanding and acceptance of proposed treatments. No adverse events related to imaging procedures were reported.

Conclusion: Integration of 3D imaging into routine care improves diagnostic accuracy and treatment planning for cleft-related anomalies in pediatric patients. These findings support the broader adoption of 3D technologies to optimize outcomes and enhance communication with families.

OP3 - 1 | THE ACCURACY OF COMPUTER AIDED DETECTION OF PERIAPICAL RADIOLUCENCIES ON CBCT IMAGES USING ARTIFICIAL INTELLIGENCE DEEP LEARNING MODEL

Y. Youssef[†]

[†]Cairo University, Oral and Maxillofacial Radiology Department, Cairo, Egypt

Aim: To assess the accuracy of deep learning models in the automatic detection of periapical radiolucent lesions of upper and lower jaws by comparing it with experienced radiologists' opinion, which represents the ground truth.

Methodology: CBCT scans of 91 patients were imported into Blue sky bio software to be cropped and annotated for detection of periapical Radiolucencies. The annotated data were sent to computer science expert to use the data in training, validation and testing to evaluate the performance of a Bayesian Convolutional Neural Network (Bayesian CNN) models for the automatic detection of periapical radiolucent lesions within maxillary and mandibular cone-beam computed tomography (CBCT) images. This was done by developing 2 Bayesian deep learning architectures, namely , Bayesian ResNet-18 and Bayesian MedNet that were evaluated for their accuracy in detection of periapical lesions on CBCTscans and were also compared to human detection.

Results: Both Bayesian ResNet-18 ensembles achieve expert-level detection of periapical radiolucent lesions on CBCT images with reliable probabilistic outputs. These architectures attain ROC-AUC exceeding 96%, sensitivity above 0.98. MedNet architecture reached more moderate discrimination performance with AUC of 87,18%, Sensitivity 97%.

Conclusion: Our study concluded that the periapical radiolucent lesions detection in CBCT scans can be accurately detected by Bayesian CNN based 2 different model architectures. The low inference times across all architectures (under 32 ms per image) indicate that real-time clinical deployment is feasible even for complete CBCT volumes.

OP3 - 2 | DEEP LEARNING–BASED PREDICTION OF IMPACTED THIRD MOLAR EXTRACTION DIFFICULTY FROM PANORAMIC RADIOGRAPHS

F. Arab Zadeh¹, S. Aksoy¹, A. Kurbanova¹, K. Orhan²

¹Near East University, Dentomaxillofacial Radiology, Nicosia, Cyprus

²Ankara University, Dentomaxillofacial Radiology, Ankara, Turkey

Aim: This study aimed to develop an artificial intelligence model to predict the extraction difficulty of impacted and partially impacted teeth using panoramic radiographs. Radiographic parameters including angulation, depth of impaction, and relationships with adjacent anatomical structures were used as predictors of surgical complexity.

Materials and Methods: Panoramic radiographs were retrospectively collected and labeled. Four classification tasks were defined: eruption status (impacted, partially impacted, fully erupted), ramus relation according to the Pell–Gregory classification (Class 1, 2, 3), depth according to the Pell–Gregory classification (Level A, B, C), and angulation according to Winter’s classification (mesioangular, distoangular, horizontal-transverse, vertical). A ResNet-20 CNN was trained for each task using Adam optimization and cross-entropy loss (50 epochs, batch size=32). Data were divided into training, validation, and test sets using a 70/15/15 split. Performance was evaluated using accuracy, precision, recall, and F1-score.

Results: The eruption status classifier achieved the highest performance with 88.39% accuracy, 85.68% precision, 85.73% recall, and 85.71% F1-score. The ramus relation classifier showed 82.64% accuracy, 80.01% precision, 79.89% recall, and 79.89% F1-score. The depth classifier achieved 81.88% accuracy, 81.06% precision, 79.46% recall, and 79.57% F1-score. The angulation classifier demonstrated 76.64% accuracy, 75.79% precision, 75.55% recall, and 75.58% F1-score.

Conclusion: The proposed deep learning models demonstrated promising performance in identifying radiographic parameters related to third molar extraction difficulty. These findings suggest that artificial intelligence may support preoperative assessment and surgical planning.

OP3 - 3 | AI-ASSISTED AUTOMATIC DETECTION OF HIGH-RISK CAROTID VARIANTS ON CERVICAL CT ANGIOGRAPHY: SURGICAL IMPLICATIONS FOR ENT AND MAXILLOFACIAL PROCEDURES

***B.I. Dobrovat¹, E.A. Marciuc¹, I.A. Danciu¹, R.M. Popescu¹, C. Chirica¹, D. Pomohaci¹,
D.-A. Ilinca¹, D. Andres¹, D. Haba¹, I.B. Dobrovat²***

¹"Grigore T. Popa" University of Medicine and Pharmacy, Radiology, Iasi, Romania

²Private Practice Endodontics, Iasi, Romania

Aim: To evaluate the feasibility of an AI-assisted prototype for automatic detection of surgically relevant carotid variants on cervical CT angiography (CTA) and to assess their potential implications for ENT and maxillofacial procedures.

Materials and Methods: Cervical CTA examinations performed at our institution were retrospectively analyzed. An in-house prototype was developed to automatically segment the carotid arteries, extract vascular centerlines and identify high-risk anatomical variants. The algorithm evaluated vessel course, curvature and proximity to the pharyngeal wall. Variants considered surgically relevant included medialized or retropharyngeal internal carotid artery, marked tortuosity, kinking/coiling and high carotid bifurcation. Automated detections were reviewed and compared with expert radiologist assessment.

Results: The prototype successfully generated automated carotid mapping and highlighted vascular variants in the analyzed CTA studies. Medialized internal carotid artery and marked tortuosity were the most frequently identified variants. The automated analysis showed good agreement with expert evaluation and allowed rapid visualization of surgically relevant vascular anatomy.

Conclusion: AI-assisted vascular mapping on cervical CTA may facilitate detection of high-risk carotid variants relevant for ENT and maxillofacial surgery. Integration of automated detection tools into routine radiological workflow could improve preoperative risk assessment and reporting consistency.

OP3 - 4 | ARTIFICIAL INTELLIGENCE–BASED SEVERITY CLASSIFICATION OF ATLANTO-ODONTOID JOINT OSTEOARTHRITIS ON CONE-BEAM COMPUTED TOMOGRAPHY

H. Yahn Özdemir¹, A. Altındağ², Ö. Çelik³, İ.Ş. Bayrakdar⁴, K. Orhan⁵

¹Necmettin Erbakan University, Faculty of Dentistry, Department of Dentomaxillofacial Radiology, Konya, Turkey

²Necmettin Erbakan University, Department of Dentomaxillofacial Radiology, Konya, Turkey

³Anadolu University, Department of Mathematics-Computer, Eskişehir, Turkey

⁴Eskişehir Osmangazi University, Department of Dentomaxillofacial Radiology, Eskişehir, Turkey

⁵Ankara University, Department of Dentomaxillofacial Radiology, Ankara, Turkey

Aim: To develop and evaluate an artificial intelligence model for automated severity classification of atlanto-odontoid joint osteoarthritis on CBCT images and to assess its potential for supporting standardized radiological evaluation.

Materials and Methods: This retrospective study included 1,345 CBCT examinations from adult patients. A total of 2,465 two-dimensional images of the atlanto-odontoid joint were analyzed, including 1,188 axial and 1,277 sagittal slices. Images were classified into four osteoarthritis severity grades (Grades 0–3) according to established radiological criteria. Axial and sagittal sections were evaluated as separate classification tasks. A YOLOv8x-cls deep learning model was trained using patient-level separation of the training, validation, and test sets. Diagnostic performance was assessed on an independent test set using accuracy, precision, recall, F1-score, and receiver operating characteristic analysis with area under the curve (AUC) values.

Results: In axial images, the model achieved an overall test accuracy of 82.6%, with particularly strong performance for advanced osteoarthritis (Grade 3), reaching AUC values of up to 0.99. Misclassifications were limited to adjacent severity grades. In sagittal images, overall test accuracy was 70.2%. Although performance for intermediate grades was lower, advanced osteoarthritis was still identified with high discriminative ability. Comparative analysis showed better overall performance in axial sections, while sagittal images provided complementary diagnostic information.

Conclusion: Automated AI-based classification of atlanto-odontoid joint osteoarthritis on CBCT is feasible and demonstrates clinically meaningful diagnostic performance, particularly in axial sections. This approach may support more standardized, objective, and reproducible assessment of degenerative changes.

OP3 - 5 | PANORAMIC IMAGE QUALITY AND AI-BASED TOOTH DETECTION: A PERFORMANCE ANALYSIS

J. Issa¹, R. Hoogveen¹, E. Berkhout¹

¹Academic Center for Dentistry Amsterdam (ACTA), University of Amsterdam & Vrije Universiteit Amsterdam, Department of Oral Radiology & Digital Dentistry, Amsterdam, Netherlands

Aim: Reliable artificial intelligence (AI) tooth detection depends on radiographic image quality, yet this relationship remains insufficiently quantified. This study evaluated the influence of panoramic radiograph quality on the performance of AI-based tooth detection.

Methods: A total of 424 panoramic radiographs were retrospectively analyzed. Image quality was assessed using a modified Clinical Image Evaluation Chart encompassing positioning, anatomical coverage, and exposure-related parameters. Automated tooth detection was performed using a Mask R-CNN deep learning model (SynbrAIⁿ, Italy) and validated against expert human evaluation. Spearman's rank correlations assessed associations between quality criteria and AI detection errors.

Results: Detection errors decreased significantly with increasing numbers of visible teeth ($\rho = -0.311$, $p < 0.001$), presence of a bite block ($\rho = -0.248$, $p < 0.001$), reduced patient movement ($\rho = -0.204$, $p < 0.001$), and correct anteroposterior positioning ($\rho = -0.165$, $p < 0.001$). Conversely, anterior air gaps ($\rho = 0.099$, $p = 0.042$) and overlapping contact points ($\rho = 0.122$, $p = 0.012$) increased errors. Other parameters showed no significant influence.

Conclusions: AI-based tooth detection performance is influenced by panoramic radiograph quality, particularly factors reflecting anatomical completeness and patient positioning. Although the system demonstrated resilience to minor radiographic imperfections, maintaining standardized acquisition protocols remains essential to optimize AI diagnostic reliability in clinical practice.

OP3 - 6 | SEGMENTATION OF IDIOPATHIC OSTEOSCLEROSIS WITH AUTOMATIC DEEP LEARNING ON PANORAMIC RADIOGRAPHS: AN ARTIFICIAL INTELLIGENCE STUDY

M. Firinciogullari¹, N. Akkaya²

¹Cyprus International University, Dentomaxillofacial Radiology, Nicosia, Cyprus

²Dentmetria A.Ş, Istanbul, Turkey

Aim: Idiopathic osteosclerosis refers to localized radiopaque areas in the jaws with an unknown cause. These radiopaque lesions are typically discovered incidentally on dental panoramic radiographs that were taken for other diagnostic purposes. The aim of this study is to evaluate the diagnostic accuracy of an artificial intelligence (AI) model based on the U²-Net architecture for detecting idiopathic osteosclerosis in dental panoramic radiographs.

Materials and Methods: A total of 3000 panoramic radiographs were retrospectively analysed. In these anonymised images, 288 idiopathic osteosclerosis were manually annotated by two independent examiners. The annotated radiographs were then used to train an artificial intelligence (AI) model based on the U²-Net architecture using a deep supervision algorithm.

Results: The implemented model achieved a Dice score of 0.80 on the validation set, and on the test set it obtained a precision of 0.80, recall of 0.79, and an F1-score of 0.79.

Conclusion: These findings demonstrate that AI-enhanced deep learning models can accurately detect idiopathic osteosclerosis lesions, offering the potential to improve diagnostic consistency, reduce unnecessary invasive procedures, and support more effective treatment planning in clinical practice.

OP3 - 7 | ACCELERATING DATA ACQUISITION IN DENTAL MRI WITH DEEP LEARNING-BASED IMAGE RECONSTRUCTION TECHNIQUES

C. Hayes¹, A. Greiser¹, J. Haag¹, J. Christensen², R. Spin-Neto²

¹Siemens Healthineers AG, Erlangen, Germany

²Aarhus University, Department of Dentistry and Oral Health, Aarhus, Denmark

Aim: To investigate how deep learning-based image reconstruction techniques may be used to shorten dental-dedicated MRI acquisition times and improve diagnostic image quality.

Materials and Methods: A prospective study of 6 healthy volunteers undergoing dental-dedicated MRI examinations at 0.55 T (MAGNETOM Free.Max, Siemens Healthineers AG, Forchheim, Germany) was performed. During each examination, multiple 3D volumes of the dentomaxillofacial region were acquired, adjusting the image acquisition and reconstruction schemes to a) increase nominal spatial resolution without increasing scan duration; or b) shorten scan duration by accelerating data acquisition. This approach was tested for acquisitions configured to assess dental anatomy and inflammation. Three observers independently assessed the volumes regarding overall diagnostic image quality (5-point scale). The assessments were compared to reference volumes obtained using established acquisition and reconstruction methods.

Results: 3D volumes were acquired with a nominal spatial resolution of 0.5 mm³ or 0.4 mm³ for anatomical assessments and 0.5 mm³ for inflammation assessments. Scan durations ranged from 135 – 220 s. In all 6 volunteers image quality was deemed satisfactory with all novel acquisition strategies, with either improved or unchanged image quality compared to the reference technique. Deep learning-based reconstruction techniques did not introduce new artefacts; pulp and landmark visualization were rated on average similarly to reference acquisitions.

Conclusion: Deep learning-based image reconstruction techniques enabled acceleration of 3D dental-dedicated MRI, allowing for increased flexibility in examination optimization, to either shorten scan duration or improve spatial resolution. These techniques warrant further evaluation to assess their clinical performance.

OP3 - 8 | DYNAMIC TMJ MR IMAGING USING DEEP-LEARNING BASED IMAGE RECONSTRUCTION

A. Greiser¹, C. Hayes¹, J. Haag¹, J. Mugler², J. Christensen³, R. Spin-Neto³

¹Siemens Healthineers, Erlangen, Germany

²University of Virginia, School of Medicine, Charlottesville, United States

³Aarhus University, Section for Oral Radiology and Endodontics, Aarhus, Denmark

Aim: To assess feasibility and overall image quality (IQ) of dynamic (i.e., multi-shot) MRI of the TMJ employing deep-learning (DL) based image reconstruction.

Material and Methods: TMJ images were obtained on a 0.55T scanner (MAGNETOM Free.Max, Siemens Healthineers AG, Forchheim, Germany) using a dental-dedicated surface coil and proton density-weighted TSE sequences with different scan techniques: 2:36 minutes duration at 0.23mm in-plane resolution with DL, 2.5mm slice-thickness (stat2D), 0:40-1:00 minute duration, multi-frame with DL and 0.32 seconds per frame at 0.44mm in-plane resolution, 7mm slice-thickness (dyn2D), 3:36 minutes duration with 0.5mm isotropic resolution (stat3D). Subjects were instructed to successively open their mouth from frame-to-frame in the dynamic acquisitions. In total, 41 image stacks from 7 healthy volunteers were reviewed by 3 dentists with MRI expertise. Conspicuity of structures (2-point scale) and IQ parameters (5-point scale) were assessed.

Results: Relevant structures needed to assess disc function (condylar disc, condylar head) could be visualized in all frames of the dynamic series and quality for dynamic disc assessment was rated very good by all observers. Overall IQ was rated the highest for static 2D images, but still acceptable-good in the dynamic series (av. stat2D: 1.41, stat3D: 2.31, dyn2D: 2.77).

Conclusion: DL based image reconstruction using multi-shot TSE is feasible and enables dynamic TMJ imaging with short shot times and good delineation of relevant structures. Robustness and sensitivity in detecting pathologies of the dynamic approach must be further investigated.

OP4 - 1 | MAGNETIC RESONANCE IMAGE ARTEFACTS RELATED TO RESTORATIVE DENTAL MATERIALS: A SYSTEMATIC LITERATURE REVIEW

T. Gonzalez-Passos^{1,2}, M. Sampaio-Oliveira¹, M.L. Oliveira¹, R. Spin-Neto²

¹Piracicaba Dental School, University of Campinas, Division of Oral Radiology, Departament of Oral Diagnosis, Piracicaba, Brazil

²Aarhus University, Section for Oral Radiology and Endodontics, Department of Dentistry and Oral Health, Aarhus C, Denmark

Aim: Understanding how artefacts generated by dental materials affect magnetic resonance image (MRI) quality is a relevant topic, especially due to the expanding applications of this imaging modality in dentistry. The aim of the present study was to undertake a systematic review of the literature regarding MRI artefacts related to restorative dental materials.

Materials and Methods: The PubMed/MEDLINE, Web of Science, and Scopus bibliographic databases were searched using a search string focusing on artefacts, MRI, and restorative dental materials. The search was limited to studies published in English. The studies were assessed independently by two reviewers, focusing on the MRI field-strength, sequences, tested materials, and presence/characteristics of the artefacts.

Results: After duplicates were removed, 524 titles and abstracts were screened, from which 19 were selected for full-text reading. Finally, 12 studies were included. The included studies demonstrated that MRI artefact severity varies significantly according to the field-strength, sequence, and tested material. Cobalt–chromium restorations produced the largest artefacts, whereas ceramic restorations generated only minimal artefacts. Artefact extent also correlated with metal alloy composition. Advanced artefact-reduction techniques were efficient to varying degrees depending on material combinations.

Conclusion: MRI artefacts associated with restorative dental materials are highly material-dependent. Metallic alloys, particularly cobalt–chromium and titanium-based materials, generate more pronounced artefacts than ceramic-based restorations.

OP4 - 2 | BEYOND THE TEETH: INCIDENTAL SELLAR REGION FINDINGS ON DENTAL-DEDICATED MRI

G. Liedke^{1,2}, M. Probst³, J. Christensen², L. Maracci⁴, J. Pivetta⁴, G. Savegnago⁴, W. Mello⁴, R. Spin-Neto²

¹Federal University of Santa Maria, Section for Oral Radiology, Department of Stomatology, Santa Maria, Brazil

²Aarhus University, Section for Oral Radiology and Endodontics, Department of Dentistry and Oral Health, Aarhus, Denmark

³Technical University of Munich, Institute of Neuroradiology, Munich, Germany

⁴Federal University of Santa Maria, Postgraduate Program in Dental Sciences, Santa Maria, Brazil

Aim: To retrospectively assess the prevalence of incidental findings in the sellar region on dental-dedicated MRI (ddMRI), emphasizing their clinical relevance for dental practitioners.

Material and methods: This observational study was approved by the ethics committee, and all participants provided informed consent. The sample comprised all ddMRI (n = 236) examinations from patients referred due to diverse dental and osseous indications. All DICOM datasets were systematically reviewed for abnormalities in the sellar region by a dentomaxillofacial radiologist, with cases of uncertainty jointly evaluated by a certified neuroradiologist. Data were analyzed using descriptive statistics and interpreted in conjunction with a narrative review of sellar anatomy and pathology, focusing on clinical implications and the diagnostic responsibilities of dental professionals.

Results: Incidental sellar findings were identified in two patients (0.85%), both diagnosed with Rathke cleft cysts. Neither reported symptoms or prior awareness, and both were referred for medical evaluation. As the sellar region may be included within ddMRI fields of view, dentists and oral radiologists must recognize its normal anatomy and MRI signal characteristics, as pathology is often associated with changes in size, shape, and/or signal. These findings confirm that ddMRI extends dental imaging beyond the dentoalveolar region to anatomically complex areas such as the skull base, reinforcing the need for systematic review of the entire image volume.

Conclusion: As MRI becomes increasingly integrated into dental practice, familiarity with sellar anatomy, common pathologies, and basic MRI interpretation is essential to enable timely recognition and appropriate interdisciplinary management of clinically relevant incidental findings.

OP4 - 3 | ASSESSING THE OVERALL PERFORMANCE OF A DENTAL-DEDICATED MRI (DDMRI) SOLUTION

J. Haag¹, C. Hayes¹, A. Greiser¹, R. Spin-Neto², J. Christensen²

¹Siemens Healthineers, Erlangen, Germany

²Aarhus University, Department of Dentistry and Oral Health, Aarhus, Denmark

Aim: To assess performance aspects of a dental-dedicated MRI (ddMRI) solution on a 0.55T platform (MAGNETOM Free.Max, Siemens Healthineers AG, Forchheim, Germany) using a dental coil and optimized software, focusing on efficient examinations (i.e., short scan times, optimal dental coverage, and high patient comfort).

Materials & Methods: 34 volunteers underwent ddMRI scans for different clinical tasks, resulting in 116 examinations, each assessed as one case. Exam duration was measured for all examinations (scanning and table time). “Dental dedication” (i.e., diagnostic quality limited to dentomaxillofacial tissues relevant to dentists) was assessed by a neuroradiologist reviewing 20 ddMRI cases to assess anatomical coverage achieved by the dentomaxillofacial-focused acquisition. Two observers compared 20 TMJ and orthodontic cases acquired with and without dental dedication to rate anatomical structure conspicuity and overall image quality. Patient comfort (dental coil, positioning aids and overall comfort) was evaluated using a 5-point Likert scale (1 = very good, 5 = very poor)

Results: Mean scan time across 116 examinations was 16 minutes and table time remained <30 minutes in all cases. ddMRI provided focused dentomaxillofacial imaging while largely avoiding coverage outside the target volume. Image comparisons showed equivalent anatomical conspicuity and overall image quality with and without dental dedication, with all structures visible and high inter-observer agreement (Cohen’s Kappa = 1). Patient comfort was very good, with an average rating of 1.3.

Conclusion: ddMRI with dental dedication provided very good clinical performance, as assessed by efficient examinations, reliable dentomaxillofacial coverage, and high patient comfort.

OP4 - 4 | INDICATIONS FOR 0.55 T LOW-FIELD MRI IN PAEDIATRIC DENTISTRY AND ORTHODONTICS

L. Willershausen¹, P. Hoss¹, A. Greiser², M. Uder³, Y. Xia¹, M. Kopp³, L. Götz¹

¹Friedrich-Alexander-University Erlangen-Nürnberg, Department of Orthodontics and Orofacial Orthopedics, Erlangen, Germany

²Siemens Healthineers, Erlangen, Germany

³Friedrich-Alexander-University Erlangen-Nürnberg, Department of Radiology, Erlangen, Germany

Aim: Recent advancements in magnetic resonance imaging (MRI) technology have resulted in the development of novel 0.55T low-field systems equipped with dedicated dental coils. The aim was to investigate the feasibility of dental MRI for paediatric dentistry and orthodontics.

Materials and Methods: Paediatric patients with ectopic teeth, orofacial clefts, bone pathologies and craniofacial anomalies in need of routine orthodontic 3D imaging have been included in this study. All patients were examined using a 0.55T MRI scanner (MAGNETOM Free.Max, Siemens Healthineers AG, Forchheim, Germany) with a dedicated 7-channel receive coil. The following 3D sequences were conducted: T1w Flash as the clinical standard (TA 9:47 min), a fat-suppressed short-tau inversion recovery (STIR) T2 weighted space (iSPACE, TA 3:42 min) and a T1 weighted vibe (iVibe, TA 4:36 min) prototype sequences with deep-learning based reconstruction.

Results: The majority of paediatric dental indications can be addressed with dental-dedicated MRI with clinically acceptable image quality. iVibe and iSPACE sequence are a valuable addition to routine T1w Flash. Nevertheless, the techniques as applied were more vulnerable to motion artefacts, which are more frequent in the paediatric patient collective.

Conclusion: Dental MRI represents a promising technique that enables three-dimensional imaging without the use of ionising radiation. Further studies are required to reduce scan time in paediatric patients and to validate this new technique in a larger patient collective.

OP4 - 5 | THREE-DIMENSIONAL EVALUATION OF CONDYLAR AND ARTICULAR EMINENCE MORPHOLOGY IN DIFFERENT SKELETAL MALOCCLUSIONS

A. Kurbanova¹, Ş. Hasoğlu², S. Aksoy¹, K. Orhan³

¹Near East University, Maxillofacial radiology, Nicosia, Turkey

²Near East University, Orthodontics, Nicosia, Turkey

³Ankara University, Maxillofacial radiology, Ankara, Turkey

Aim: This study aimed to evaluate the effects of sagittal skeletal malocclusion and sex on three-dimensional mandibular condyle morphology, including condylar volume, surface area (SA), articular eminence (AE) height and inclination, and mandibular asymmetry, using cone-beam computed tomography.

Materials and Methods: Ninety patients were retrospectively analyzed and classified into skeletal Class I, II, and III malocclusion groups. Bilateral condylar volume, SA, AE height, and AE inclination were measured using 3D Slicer software. Condylar and articular eminence morphologies were categorized. Mandibular asymmetry was quantified using a relative asymmetry index. Group comparisons were performed using non-parametric tests, and multiple linear regression analysis identified predictors of condylar volume adjusted for sex.

Results: No significant differences were observed among skeletal malocclusion classes for bilateral condylar volume, SA, AE height, AE inclination, or asymmetry index ($p>0.05$). Mean bilateral condylar volumes were approximately 2060 mm³ in Class I, 2010 mm³ in Class II, and 1915 mm³ in Class III, with corresponding SA values of 1130 mm², 1055 mm², and 1180 mm², respectively. In contrast, sex significantly influenced all morphometric parameters, with male patients demonstrating greater condylar volume, SA, and AE dimensions than females ($p<0.01$). Regression analysis confirmed sex as the strongest independent predictor of bilateral condylar volume, whereas skeletal malocclusion class was not significant after adjustment for sex ($p=0.471$).

Conclusion: Three-dimensional condylar morphology and articular eminence dimensions are primarily influenced by sex rather than sagittal skeletal malocclusion, indicating that biological factors outweigh occlusal classification in temporomandibular joint morphology overall consistently.

OP4 - 6 | UPPER AIRWAY MORPHOLOGY IN JUVENILE IDIOPATHIC ARTHRITIS: A SYSTEMATIC REVIEW AND SYNTHESISED ANALYSIS

C. Lu¹, B. Li², H. Chen³, X. Feng⁴, K. Hellén-Halme^{1,5}, K. Rosendahl^{6,7}, X.-Q. Shi¹

¹University of Bergen, Section of Oral and Maxillofacial Radiology and Oral Diagnostics, Department of Clinical Dentistry, Bergen, Norway

²Longgang Otorhinolaryngology Hospital, Shenzhen, China

³Shandong University, Department of Orthodontics, School and Hospital of Stomatology, Cheeloo College of Medicine, Jinan, China

⁴Akershus University Hospital, Oslo, Norway,

⁵Malmö University, Department of Oral and Maxillofacial Radiology, Malmö, Sweden

⁶UiT The Arctic University of Norway, Department of Clinical Medicine, Tromsø, Norway

⁷University Hospital of North Norway, Department of Radiology, Tromsø, Norway

Aim: Juvenile idiopathic arthritis (JIA) frequently involves the temporomandibular joint and may affect craniofacial growth. Whether JIA is associated with alterations in upper airway morphology remains uncertain. We systematically reviewed image-based studies and, where feasible, performed a quantitative synthesis of outcomes to characterise upper airway morphology in paediatric JIA.

Material and Methods: A systematic search of seven electronic databases and trial registers up to January 14, 2026, was conducted to identify studies assessing upper airway morphology in paediatric JIA. Data on airway volumes and minimal cross-sectional area (MCSA) were extracted and, where comparable, pooled to obtain quantitative summary estimates across studies.

Results: Two studies met the eligibility criteria, both used cone-beam computed tomography (CBCT). In individual studies, both reported smaller MCSA values in JIA patients compared with controls, different reporting approaches were used. Quantitative synthesis was performed for upper airway volume outcomes and showed no statistically significant differences between JIA patients and healthy controls.

Conclusion: Across the two CBCT-based studies, the quantitative synthesis did not show a statistically significant difference in upper airway volumes between paediatric JIA and healthy controls. Given the limited evidence base and methodological heterogeneity, the current literature is insufficient to establish an association between JIA and reduced upper airway dimensions at the group level.

OP5 - 1 | THE ORDER OF AI SUPPORT IN THE WORKFLOW OF MAXILLOFACIAL RADIOLOGY ASSESSMENT: IS IT MORE EFFECTIVE BEFORE OR AFTER TRADITIONAL OBSERVATION?

S. Satir¹, O. Koca¹, H. Yildirim^{2,3}

¹Karamanoglu Mehmetbey University, Faculty of Dentistry, Oral and Maxillofacial Radiology, Karaman, Turkey

²Karamanoglu Mehmetbey University, Faculty of Science, Data Science and Analytics, Karaman, Turkey

³Karamanoglu Mehmetbey University, Faculty of Science, Mathematics, Karaman, Turkey

Aim: To evaluate the effect of presenting the panoramic radiography (OPG) and the image created by AI analysis from the same radiography (AI-PG) to observers in different orders on the accuracy performance of approximal caries diagnosis.

Material and Methods: Fifteen panoramic radiographs including 8 premolars were included in the study. AI-PG images of each were created with an AI system (Craniocatch, Turkey). A total of 24 dentistry students who were candidates for graduation were divided into two groups. Group 1 (n=12) participants were asked to diagnose approximal caries on premolars by observing with the AI-PG+OPG workflow, and group 2 (n=12) with the OPG+AI-PG+OPG workflow. The Independent Samples t-test (two-tailed) was used to compare all outcome variables between Group 1 (AI + Radiography; “Priming” workflow) and Group 2 (Radiography + AI + Re-evaluation; “Second Opinion” workflow).

Results: Students in Group 1 demonstrated statistically significantly higher overall accuracy compared to Group 2 ($t = 2.725$, $p = .012$, Cohen’s $d = 1.112$, 95% CI [0.237, 1.966]). Consistently, the absolute number of correct diagnostic decisions was significantly higher in Group 1 (103.08 ± 2.57) than in Group 2 (99.58 ± 3.63).

Conclusion: The group that utilized AI-PG before observing the OPG demonstrated higher diagnostic accuracy performance than the group that was given the opportunity to evaluate the OPG twice. Determining the appropriate workflow for the use of artificial intelligence support in the field of DMFR shows that efficiency will increase in both time usage and diagnostic accuracy performance.

OP5 - 2 | PREDICTING DENTAL IMPLANT FAILURE: A MULTIMODAL DEEP LEARNING APPROACH USING CBCT AND CLINICAL DATA

T. Tran^{1,2}, S. Maes³, T. Van Doorn³, J. Meeus¹, Y. Sun^{1,2}, J. Van Dessel^{1,2}

¹University Hospitals Leuven, Department of Oral and Maxillofacial Surgery, Leuven, Belgium

²KU Leuven, OMFS-IMPACT Research Group, Department of Imaging and Pathology, Leuven, Belgium

³KU Leuven, Department of Oral Health Sciences, Leuven, Belgium

Aim: Dental implant failure occurs in 5–10% of cases and remains difficult to predict preoperatively due to complex interactions between anatomical and clinical factors. Cone-Beam Computed Tomography (CBCT) is routinely used for implant planning and may contain predictive information on peri-implant bone conditions. This study evaluated whether deep learning applied to CBCT imaging can predict implant failure and whether integrating CBCT features with clinical variables improves predictive performance.

Material and Methods: CBCT images from 150 implant sites were analyzed and classified as failure or non-failure based on clinical follow-up. Transfer learning was implemented using four ImageNet-pretrained convolutional neural networks (VGG16, ResNet50, ResNet152, InceptionV3) to automatically extract radiological features. Clinical variables were encoded as structured features. Radiological-only, clinical-only, and multimodal models were evaluated. Class imbalance was addressed using weighted cross-entropy and focal loss. Performance was assessed using accuracy, AUC, precision, recall, and F1-score. Model explainability was explored using SHapley Additive exPlanations (SHAP).

Results: ResNet50 achieved the best radiological performance with 97.79% precision for failure prediction, 70.74% recall for failures, and 98.80% recall for non-failures (F1-score 0.82; AUC 0.94). VGG16 showed early overfitting, while ResNet152 and InceptionV3 performed slightly worse. Multimodal models integrating CBCT and clinical data significantly outperformed clinical-only models. SHAP identified postoperative complications, anatomical region, and smoking status as key predictors.

Conclusion: Deep learning applied to CBCT can predict implant failure with high precision. Combining radiological and clinical data improves predictive performance and may support AI-assisted risk assessment in implant planning.

OP5 - 3 | DEEP LEARNING–BASED AUTOMATED DIAGNOSTIC CHARTING ON PANORAMIC IMAGES: COMPARISON OF NEXT-GENERATION DEEP LEARNING ARCHITECTURES

E. Aslan¹, O. Muthu², A. Mert³

¹Izmir Tinaztepe University, Department of Oral and Maxillofacial Radiology, Izmir, Turkey

²Karadeniz Technical University, Department of Computer Science, Trabzon, Turkey

³Izmir Katip Celebi University, Department of Engineering Sciences, Izmir, Turkey

Aim: This study aims to evaluate the performance of two next-generation deep learning architectures, YOLOv11 and YOLOv12, for the automated detection of thirteen dental conditions on digital panoramic images and to determine the more robust model capable of supporting diagnostic charting.

Materials and Methods: A total of 2,297 anonymized panoramic images, consisting of 1,579 internally and 718 externally sourced, were included in the study. Thirteen dental conditions—attrition, bone loss, braces, caries, crowns, fillings, fractured teeth, furcation, impacted teeth, implants, root-canal treatment, root pieces, and unerupted teeth—were annotated. Internal dataset was split into training (85%), validation (10%), and an initial test (5%) sets, while all external images were included in the final test set. YOLOv11 and YOLOv12 were trained under identical hyperparameter settings. Model performance was evaluated using precision, recall, F1-score, and [mAP@0.5](#).

Results: YOLOv11 consistently outperformed YOLOv12 across nearly all metrics. On the validation set, YOLOv11 achieved higher metrics (precision 0.868, recall 0.831, mAP@0.5 0.863) compared with YOLOv12 (precision 0.812, recall 0.809, mAP@0.5 0.824). YOLOv11 also demonstrated strong generalization on the test sets, with mAP@0.5 values of 0.857 (internal) and 0.806 (external). The highest detection performance was observed in impacted teeth, root-canal treatment, and unerupted teeth, while bone loss, furcation, and fractured teeth demonstrated the lowest metrics.

Conclusion: YOLOv11 demonstrated superior diagnostic performance compared with YOLOv12, indicating strong potential as a decision-support tool for automated diagnostic charting on panoramic images.

OP5 - 5 | AUTOMATED MULTICLASS SEGMENTATION OF DENTOMAXILLOFACIAL STRUCTURES ON CONE BEAM COMPUTED TOMOGRAPHY

İ.Ş. Bayrakdar¹, A. Kuran², M. Uğurlu³, Ö. Çelik⁴, K. Orhan⁵

¹Faculty of Dentistry, Eskişehir Osmangazi University, Oral and Maxillofacial Radiology, Eskişehir, Turkey

²Faculty of Dentistry, Kocaeli University, Oral and Maxillofacial Radiology, Kocaeli, Turkey

³Faculty of Dentistry, Eskişehir Osmangazi University, Orthodontics, Eskişehir, Turkey

⁴Anadolu University, Artificial Intelligence Research and Application Center, Eskişehir, Turkey

⁵Faculty of Dentistry, Ankara University, Oral and Maxillofacial Radiology, Ankara, Turkey

Aim: To evaluate the accuracy and clinical applicability of an nnU-Net v2-based deep learning model for the automatic multiclass segmentation of 27 anatomical structures on cone beam computed tomography scans.

Material and Methods: This retrospective study analyzed scans from 106 adult patients. A multiclass segmentation algorithm was developed using the nnU-Net v2 framework to identify 27 distinct dentomaxillofacial structures. The dataset was divided into 96 scans for training and 10 for testing. Model performance was quantitatively assessed by comparing the automated predictions against ground truth manual annotations using the Dice score and Jaccard index.

Results: The model demonstrated robust performance for major bony structures and paranasal sinuses. The highest Dice scores were achieved for the maxillary sinus (0.977), mandible (0.976), and sphenoid sinus (0.976). Conversely, the segmentation accuracy was lower for smaller, complex anatomical spaces and structures lacking distinct cortical borders, such as the mandibular canal (0.653) and pterygopalatine fossa (0.376).

Conclusion: The deep learning model provides highly accurate automated segmentation for major dentomaxillofacial structures, supporting the development of patient-specific digital twins for precision dentistry. While highly effective for prominent regions, the accurate multiclass segmentation of small, complex anatomical spaces remains challenging and requires further methodological optimization.

OP5 - 6 | CHRONOLOGICAL AGE ESTIMATION IN DENTISTRY USING FUSED EXTRAORAL RADIOGRAPHS: A SWIN TRANSFORMER V2-BASED DEEP REGRESSION APPROACH

S. Karacan Çelebi¹, Z.İ. Öztürk Barut¹, A.K. Yüksel², H. Amasya³, M.S. Güzel², K. Orhan¹

¹Ankara University, Department of DentoMaxillofacial Radiology, Ankara, Turkey

²Ankara University, Department of Computer Engineering, Division of Computer Science, Ankara, Turkey

³Istanbul University-Cerrahpaşa, Oral and Dentomaxillofacial Radiology, Istanbul, Turkey

Aim: This study aims to develop a fusion-based deep regression framework capable of simultaneously analyzing three commonly used digital radiographic modalities in dentistry (hand-wrist, panoramic, and lateral cephalometric images) for chronological age estimation.

Material and Methods: In this retrospective research, panoramic, cephalometric, and hand-wrist images from a total of 751 patients aged 6-18 years were saved by a maximum of 6 months interval between imaging. A fusion-based deep learning approach using three Swin Transformer V2 Large backbones was developed to estimate chronological age from hand-wrist, panoramic, and lateral cephalometric radiographs. Models were initialized with ImageNet-22K pre-trained weights, and their features were integrated through a fusion module for the final prediction. Training was conducted using stratified 5-fold cross-validation with a patient-level split and MAE loss. Implementation on NVIDIA A100 GPUs using TensorFlow/Keras with mixed-precision training ensured efficient computation, while the validation strategy provided an unbiased performance assessment.

Results: The model achieved an average absolute error (MAE) of 0.73 ± 0.05 years (approximately 8.8 months) in predicting the chronological age, and an accuracy rate of 41.67% for predictions with an error of less than three months, 71% for predictions with an error of less than six months, and 92% for predictions with an error of less than twelve months.

Conclusion: The proposed fusion model demonstrated performance above the average reported in the literature. Increasing the size of the dataset, as we expect, may result in an improved regression performance.

OP6 - 1 | COMPARISON OF LOW-, STANDARD- AND HIGH-DOSE PROTOCOLS OF CBCT ASSESSING ANATOMICAL LANDMARKS AND PATHOLOGY RELATED TO THIRD MOLARS: AN EX VIVO STUDY

E. Rezaei¹, L.H. Matzen¹, L. Kaaber¹, L. Schropp¹

¹Aarhus University, Department of Dentistry and Oral Health, Section for Oral Radiology and Endodontics, Aarhus, Denmark

Aim: To investigate whether lowering cone-beam computed tomography (CBCT) dose influences reproducibility in the radiological assessment of maxillary and mandibular third molars.

Material and Methods: Nine anonymized human skulls containing 25 third molars were included. Each tooth was scanned using low- (LD), standard- (SD), and high-dose (HD) protocols in three CBCT units (Axeos, X1, and NewTom 5G XL), resulting in 225 scans. Four observers evaluated predefined anatomical and pathological parameters related to third molars, adjacent teeth, and surrounding anatomical structures. Inter- and intra-observer reproducibility were assessed using percentage agreement and Cohen's kappa (κ) statistics.

Results: Inter-observer reproducibility varied across units and protocols, yet absence of any trend indicated that unit or protocol did not affect inter-observer reproducibility. For parameters evaluating relation between the third molar and anatomical structures, higher κ values were seen in general. E.g., the presence of bony separation between the third mandibular molar and the mandibular canal as well as bucco-lingual position of the mandibular canal relative to the mandibular third molar roots ranged from fair to excellent agreement. This also applied to evaluation of bone level at the second molar in relation to both maxillary and mandibular third molars. Moreover, the κ -values for intra-observer reproducibility ranged from fair to good or excellent for three of the observers.

Conclusion: Lowering CBCT dose did not consistently influence reproducibility in the assessment of maxillary or mandibular third molars. These findings support the use of low-dose CBCT protocols for selected third molars in accordance with radiation protection and dose optimization principles.

OP6 - 2 | KNOWLEDGE DISTILLATION FOR FAST AND EFFECTIVE DEEP LEARNING-BASED DENOISING OF CONE-BEAM COMPUTED TOMOGRAPHY VOLUMES

K. Naveed¹, R. Pauwels¹

¹Aarhus University, Department of Dentistry and Oral Health, Aarhus, Denmark

Aim: Low-dose cone-beam CT (CBCT) imaging often suffers from high noise, limiting the detectability of small, low-contrast structures. Our previous work introduced the Hybrid Attention Residual U-Net (HARU-Net), which combines transformer-based representational power with convolutional architectures to achieve state-of-the-art CBCT denoising. In this follow-up study, we propose a lightweight denoising model using a knowledge distillation framework (KD), where HARU-Net serves as the teacher to train a standard residual U-Net (ResU-Net) as the student model.

Material and Methods: A high-resolution cadaver CBCT dataset was processed into 69,459 image patches, to which artificial noise was added to form input-output pairs. The data was divided into training, validation and test sets using an approximate 70/15/15 split. A joint loss function was employed to emphasize learning directly from the data in the first half of the training, while facilitating effective knowledge transfer from the teacher to student in the later stage.

Results: The proposed KD-ResU-Net achieved denoising performance comparable to the high-capacity HARU-Net, attaining a test peak signal-to-noise ratio of 36.29 dB, compared to 35.03 dB for the baseline ResU-Net and 37.43 dB for HARU-Net. Importantly, it reduced processing time for a 3D CBCT scan of 512×512×512 voxels from approximately 2 min (for HARU-Net) to about 11 s on a consumer-grade GPU, substantially reducing computational demands while maintaining high image quality.

Conclusion: The proposed knowledge distillation framework enables fast, effective CBCT denoising with reduced computational demands, supporting practical integration of trained models under realistic hardware constraints.

OP6 - 3 | DO FACIAL HARD AND SOFT TISSUE CHANGES CORRELATE IN TERMS OF SYMMETRY? LONG-TERM LONGITUDINAL ANALYSIS IN A COHORT WITH SKELETAL CLASS III

***T. Jindanil^{1,2,3}, I. Tsiklin^{1,2}, M. Cadenas de Llano P rula⁴, J. Meyns^{1,5},
R. Cavalcante Fontenele^{1,6}, R. Jacobs^{1,7}***

¹KU Leuven, Department of Imaging and Pathology, Leuven, Belgium

²KU Leuven, Department of Oral and Maxillofacial Surgery, Leuven, Belgium

³Chulalongkorn University, Department of Radiology, Bangkok, Thailand

⁴KU Leuven, Department of Oral Health Sciences - Orthodontics, Leuven, Belgium

⁵General Hospital St-Jan Genk, Department of Oral and Maxillofacial Surgery, Genk, Belgium

⁶University of S o Paulo, Department of Stomatology, Public Health and Forensic Dentistry, Ribeir o Preto, Brazil

⁷Karolinska Institute, Department of Dental Medicine, Stockholm, Sweden

Aim: (1) To evaluate if facial soft tissue mirrors hard tissue changes and symmetry in skeletal class III patients before, at, and after mandibular growth peak. (2) To identify anatomical reference in growing patients.

Materials and Methods: Previously acquired low-dose computed tomography scans from 22 patients who underwent surgical-interceptive treatment, taken at baseline, 1- and 5-year follow-up, were categorized as before, at, or after mandibular growth peak using cervical vertebral maturation and preregistered in Amira. Hard and soft tissues were segmented with Mimics, and surface distances were measured in 3-Matic for overall and regional (frontal, orbital, maxillary, and mandibular) analysis. Right-to-left symmetry, short-term (before and at) and long-term (at and after peak) changes, and hard-soft tissue correlations were assessed.

Results: Soft tissues consistently showed <0.5 mm mean distance differences and more symmetry than hard tissues in frontal, orbital, and maxillary regions ($p < 0.01$). Mandibular hard and soft tissue symmetry was comparable ($p > 0.05$). Symmetry predominated in maxillary soft tissues before peak, and in frontal soft tissue after peak ($p < 0.05$). A strong positive correlation between hard-soft tissues was found in maxilla after peak ($r = 0.72$, $p < 0.01$). Over time, hard tissues generally protruded and soft tissues retruded, with orbital and maxillary regions showing the most change ($p < 0.01$), while frontal and mandibular regions remained stable ($p > 0.05$).

Conclusion: Over 5-year observation, orofacial soft tissues were more symmetrical than underlying hard tissues, particularly in frontal, orbital, and maxillary regions, suggesting compensatory growth mechanism.

OP6 - 4 | EVALUATION OF THE RELATIONSHIP BETWEEN CRISTA GALLI CLASSIFICATIONS USING CONE-BEAM COMPUTED TOMOGRAPHY

S. Uzun¹, K.N. Çakan¹, G. Mağat²

¹Bilecik Şeyh Edebali University, Department of Oral and Maxillofacial Radiology, Bilecik, Turkey

²Necmettin Erbakan University, Department of Oral and Maxillofacial Radiology, Konya, Turkey

Aim: To evaluate the relationships between different crista galli (CG) classification systems using cone-beam computed tomography (CBCT) images.

Material and Methods: This retrospective observational study included 150 CBCT scans (75 males, 75 females; age range: 8–84 years). CG morphology was classified as teardrop, tubular, or ossified. The depth of the olfactory fossa was assessed using the Keros classification, and the vertical position of the CG relative to the lamina cribrosa was evaluated according to the Hajjioannou classification. The presence of CG pneumatization was also recorded. All images were independently evaluated by two experienced oral and maxillofacial radiologists. Associations between classification systems, sex, and age were analyzed using chi-square tests and logistic regression analysis ($p < .05$).

Results: The tubular CG morphology was the most common type (60.7%). Keros Type II (41.3%) and Hajjioannou Type II (50.7%) were the most frequently observed categories. Significant associations were found between CG morphology and Keros classification ($p < .05$), as well as between Keros and Hajjioannou classifications ($p < .05$). Ossified CG morphology was observed more frequently in Keros Type I cases. CG pneumatization was present in 10% of cases and showed a higher prevalence in males ($p < .05$), while no significant associations were observed with age or other classification systems.

Conclusion: CG morphology, olfactory fossa depth, and vertical CG position demonstrate significant interrelationships rather than independent anatomical features. Integrated evaluation of multiple CG classification systems using CBCT may enhance radiological assessment and support safer surgical planning in the anterior skull base region.

OP6 - 5 | COMPARISON OF VOLUMETRIC AND SURFACE-BASED ANALYSES OF MANDIBLE ON CBCT USING TWO SEGMENTATION SOFTWARES

T. Yilmaz¹, D. Yildirim¹, E.S. Sargin¹

¹Süleyman Demirel University, Department of Oral and Maxillofacial Radiology, Isparta, Turkey

Aim: This study aims to compare volumetric and surface-based measurements of mandible with two different semi-automatic segmentation softwares on CBCT.

Material and Methods: CBCT images of 70 adults were retrospectively analyzed. CBCT (Planmeca, VisoG7, Helsinki, Finland) images were evaluated and semi-automatic segmentation of mandible performed on the Romexis 7 software, volumetric 3D mandible models were obtained. CBCT DICOM images uploaded to 3D Slicer software for semi-automatic mandibular segmentation. 3D mandible models obtained from both the Romexis 7 and 3D Slicer were transferred to CloudCompare for root mean square (RMS) analysis. Surface-to-surface distance analysis, mandibular volume, dice score, average distance were calculated in 3D Slicer. Intraobserver reliability was assessed, statistical analysis was performed.

Results: Volumetric measurements of mandible with 3D Slicer ($43.50 \pm 7.03 \text{ mm}^3$) and Romexis ($42.00 \pm 7.46 \text{ mm}^3$) softwares demonstrated significant difference ($p=0.005$). A strong positive correlation was observed between two softwares for volume measurements ($r=0.822$, $p<0.001$). The median dice score was 0.88, median average distance was 0.41mm, and median RMS was 0.45mm. Males demonstrated significantly higher mandibular volumes than females in both softwares ($p<0.001$). Intraobserver reliability was excellent for Romexis ($\text{ICC}=0.990$) and good for 3D Slicer ($\text{ICC}=0.767$).

Conclusion: Despite the statistically significant difference in volumetric measurements of mandible, both softwares demonstrated high dice score and spatial agreement with clinically acceptable limits. Semi-automatic segmentation softwares might be helpful for 3D evaluation of anatomical structures for treatment planning procedures.

OP6 - 6 | A DEEP LEARNING MODEL FOR OVERBITE ASSESSMENT ON INTRAORAL SCANS

***B.N. de Freitas^{1,2}, T. Sørensen³, E.V. Sparsø³, C.B. Olesen³, K.Ø. Noe², S. Vassis⁴,
P.B.S. Stoustrup⁴, R. Pauwels²***

¹Aarhus University, Aarhus Institute of Advanced Studies, Aarhus, Denmark, ²Aarhus University, Department of Dentistry and Oral Health, Aarhus, Denmark, ³Aarhus University, Department of Mathematics, Aarhus University, Aarhus, Denmark, ⁴Aarhus University, Section of Orthodontics, Department of Dentistry and Oral Health, Aarhus, Denmark

Aim: To develop and evaluate a deep learning (DL) model for automated classification of overbite using 2D renderings derived from 3D intraoral scans (IOS).

Material and Methods: 3D IOS meshes from a public dataset were converted into orthogonal 2D lateral hemi-jaw views with a pixel size of 0.08 mm, and divided into training (1580 images), validation (100 images) and test (300 images) datasets. Pixels corresponding to the incisal edge of the central incisor were labeled on each 2D view by an experienced observer, and verified by a second observer. A Keypoint Region-based Convolutional Neural Network (Detectron2) was trained with a ResNeXt-101 architecture and a Feature Pyramid Network. A pixel-matrix refinement step was implemented to improve landmark localization. Model performance for keypoint detection was assessed using mean radial error (MRE) and successful detection rate (SDR). In addition, the model's performance for overbite classification was evaluated on 750 cases with various degrees of simulated overbite; classification accuracy and weighted Cohen's kappa (of the predicted class vs. the true class) were assessed.

Results: The final model achieved an MRE of 0.12 mm and SDRs of 89%, 96%, and 99% at 0.5, 1, and 2 mm thresholds, respectively. Overbite classification accuracy was 95.34%, with a weighted Cohen's kappa of 0.989.

Conclusion: The proposed DL-based pipeline enables accurate automatic detection of overbite landmarks and classification of overbite severity from 2D renderings of IOS data, with a potential integration into digital orthodontic workflows.

OP6 - 7 | THREE-DIMENSIONAL CBCT EVALUATION OF PRP-ENHANCED BONE HEALING IN CHILDREN WITH MAXILLOFACIAL CLEFTS

D.M. Preda¹, S. Seyedin Kharrazi¹, C. Popița², M.C. Hedeșiu³, S.I. Stoicescu⁴, R.A. Popița², B.Ș. Olteanu⁴, R. Bălănescu¹

¹"Grigore Alexandrescu" Emergency Hospital for Children, Bucharest, Romania

²"Ion Chiricuță" Oncological Institute, Cluj-Napoca, Romania

³"Iuliu Hațieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania

⁴"Grigore Alexandrescu" Emergency Hospital for Children, "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

Background: Regenerative approaches are increasingly integrated into the surgical management of craniofacial clefts in children. Platelet-rich plasma (PRP) has been proposed as a biological adjunct capable of enhancing bone regeneration and soft-tissue healing. Objective imaging assessment of these regenerative processes remains essential for treatment planning and follow-up.

Purpose: To evaluate the role of cone beam computed tomography (CBCT) in the three-dimensional assessment of bone regeneration following PRP-assisted surgical reconstruction in pediatric patients with maxillofacial clefts.

Materials and Methods: A prospective observational study was conducted in a cohort of pediatric patients with cleft lip and/or palate undergoing staged surgical management combined with PRP therapy. Cone beam CT examinations were performed selectively using limited field-of-view protocols and pediatric exposure settings. Imaging datasets were analyzed using multiplanar reconstructions and three-dimensional rendering to evaluate bone defect morphology, graft integration, cortical continuity, and trabecular reorganization.

Results: Preliminary imaging findings demonstrate progressive reduction of cleft defect volume and improved trabecular organization in grafted areas following PRP-assisted reconstruction. CBCT provided detailed three-dimensional visualization of bone remodeling and graft stability, allowing objective assessment of regenerative changes beyond clinical inspection.

Conclusion: CBCT represents a valuable imaging modality for monitoring regenerative outcomes in pediatric cleft reconstruction. When used selectively and according to pediatric radiation protection principles, CBCT contributes to improved understanding of bone healing dynamics following PRP-assisted therapy and supports individualized surgical planning.

OP7 - 1 | DOES CBCT DOSE REDUCTION AFFECT AI-BASED MANDIBULAR SEGMENTATION ACCURACY? AN EX VIVO STUDY

L. Kaaber¹, L. Schropp¹, R. Pauwels¹, R. Spin-Neto¹, L. Hauge Matzen¹

¹Aarhus University, Department of Dentistry and Oral Health, Aarhus C, Denmark

Aim: To assess whether reduction of radiation dose affects the geometric accuracy of AI-based segmentation of mandibular specimens scanned by CBCT.

Materials and Methods: Human cadaveric mandibular specimens were scanned using three CBCT units (AXEOS; Dentsply Sirona, VISO; Planmeca, X1; Copenhagen Imaging) and low-, standard-, and high-dose protocols. All datasets were automatically segmented using AI-driven software (Relu Creator, Relu BV). The segmented three-dimensional surface models of the diverse resolutions were aligned and compared using surface-based distance analyses without assuming a gold standard, for each CBCT unit separately. Mean surface distance (MSD) and root-mean-square deviation (RMSD) were calculated. Dose-protocol comparisons were performed using model-based analyses of RMSD with contrasts of estimated marginal means.

Results: Across CBCT units, MSDs between segmentations obtained at different dose levels were <0.3 mm, while mean RMSD values were <0.6 mm, indicating high overall geometric agreement. No systematic segmentation deviations were seen at reduced dose levels. In model-based analyses of RMSD, two CBCT units (VISO, X1) showed no statistically significant differences between dose protocols. One CBCT unit (AXEOS) demonstrated statistically significant differences for RMSD; however, absolute pairwise RMSD difference was <0.12 mm.

Conclusion: AI-based segmentation of mandibular CBCT scans demonstrated similar geometric accuracy across dose levels in an *ex vivo* setting. While scanner-dependent statistical differences may occur, the present findings suggest that CBCT dose reduction does not inherently compromise AI-driven three-dimensional segmentation accuracy at a clinically relevant level, under idealized conditions.

OP7 - 2 | DO ARTEFACTS FROM DENTAL IMPLANTS IMPAIR THE DIAGNOSIS OF SIMULATED INTERNAL ROOT RESORPTION IN CONE-BEAM COMPUTED TOMOGRAPHY?

M. Sampaio-Oliveira^{1,2}, F.B. Fagundes¹, L.E. Marinho-Vieira³, R. Spin-Neto², M.L. Oliveira¹

¹Piracicaba Dental School, University of Campinas (UNICAMP), Department of Oral Diagnosis, Division of Oral Radiology, Piracicaba, Brazil

²Aarhus University, Department of Dentistry and Oral Health, Section for Oral Radiology and Endodontics, Aarhus, Denmark

³State University of Paraíba, Department of Dentistry, Campina Grande, Brazil

Aim: To evaluate the influence of artefacts generated by dental implants of varying numbers and material compositions on the diagnosis of simulated internal root resorption (IRR) in cone-beam computed tomography (CBCT).

Materials and Methods: Thirty-five single-rooted teeth were allocated into two groups: with ($n = 15$) and without simulated IRR ($n = 20$). IRR was simulated using 37% hydrochloric acid for three hours. Teeth were inserted into a human maxilla and scanned with two CBCT units (Axeos and X1) under three conditions: control, one adjacent implant, and two adjacent implants composed of either titanium or zirconia. Three blinded observers independently assessed the CBCT volumes for the presence of IRR using a 5-point scale. After 30 days, 15% of volumes were re-evaluated. Sensitivity, specificity, and area under the curve (AUC) were calculated. Two-way ANOVA with Tukey post-hoc tests were applied to analyse the effects of implant number and composition on the diagnosis of IRR ($\alpha = 0.05$). Intra- and interobserver agreements were assessed using weighted Kappa.

Results: Intra- and interobserver agreements ranged from 0.84–0.93 and 0.83–0.84, respectively. For Axeos, two zirconia implants significantly reduced sensitivity and AUC compared with control ($p < 0.05$) and two titanium implants ($p < 0.05$). For X1, two zirconia implants reduced sensitivity and AUC ($p < 0.05$), while two titanium implants reduced specificity compared with control, one titanium, and two zirconia implant conditions ($p < 0.05$).

Conclusion: The presence of dental implants, particularly two zirconia implants, reduces the detection of IRR in CBCT.

OP7 - 3 | RADIOGRAPHICALLY AND ANATOMICALLY ACCURATE PATIENT-SPECIFIC 3D-PRINTED MAXILLOFACIAL PHANTOM FOR IMAGING RESEARCH

N. Oliveira-Santos¹, S. Bracher², P. Wili², P. Zysset², R. Schulze¹

¹University of Bern / School of Dental Medicine, Oral Diagnostic Sciences, Bern, Switzerland

²University of Bern / ARTORG Centre for Biomedical Engineering Research, Bern, Switzerland

Aim: To develop a 3D-printed anthropomorphic maxillofacial phantom with modified resin to represent a patient both anatomically and radiographically.

Material and Methods: Different 3D printing and casting materials were combined with radiodensity-modifying powders to simulate the radiographic properties of craniofacial tissues. Clear and white resins, flexible resin, urethane rubber, and epoxy resin were modified using calcium carbonate, strontium carbonate, and glass bubbles to achieve targeted Hounsfield Unit (HU) values. Cylindrical samples were produced using stereolithography printing and imaged with radiography and multidetector CT. HU values were measured using ImageJ/Fiji and material compositions were iteratively adjusted to approach the expected HU values. A patient CBCT scan was segmented to design a maxillofacial 3D model. The mandible model was printed with clear resin for anatomical validation of the phantom geometry.

Results: Material-powder combinations from printed cylinders achieved HU values close to the expected values for several craniofacial tissues, particularly cortical bone, vertebral bone, and fat-equivalent soft tissue. Optimization of powder mixing improved material homogeneity. The 3D-printed mandible model demonstrated high anatomical fidelity, including clear cortical and trabecular bone separation, alveolar crest definition, and mandibular canal delineation.

Conclusion: This ongoing study demonstrates that radiopacity-modified resins enable the fabrication of anatomically accurate and radiographically representative 3D-printed maxillofacial phantoms, supporting their use for imaging research and protocol optimization in dentomaxillofacial radiology.

OP7 - 4 | ARTIFICIAL INTELLIGENCE FOR CARIES DETECTION IN PRIMARY AND PERMANENT TEETH: A CROSSOVER RANDOMIZED CONTROLLED TRIAL

F. Dağdeviren¹, E. Berkhout¹, C. Serrano¹

¹Academic Centre for Dentistry Amsterdam (ACTA), Department of Oral Radiology & Digital Dentistry, Amsterdam, Netherlands

Aim: Artificial intelligence(AI) for caries detection on dental radiographs is mainly trained on radiographs of permanent teeth and shows promising results there. However, its performance on primary teeth is understudied and may be hampered due to its training on permanent teeth. Therefore, this study aimed to assess the influence of AI assistance on observers' diagnostic accuracy for detecting proximal caries on bitewing radiographs of primary teeth and permanent teeth.

Material and Methods: In this crossover RCT, eight dentists and eight dental students independently evaluated 75 bitewings with and without AI assistance (dentalXrai Pro 3.0). 379 proximal surfaces of primary molars and 369 proximal surfaces of permanent teeth were scored for caries depth. Observer scores were compared with an expert consensus reference standard, and diagnostic performance metrics were calculated.

Results*: AI assistance increased overall diagnostic accuracy by 1.3% for primary molars and 1.7% for permanent teeth. This improvement was attributed to increased specificity at the cost of slightly lower sensitivity. This was primarily the case for enamel lesions; more surfaces were classified as 'sound' with AI assistance. For dentin lesions, both sensitivity and specificity increased. This improvement was more prominent for primary molars than for permanent teeth. Students benefited most from AI assistance.

Conclusion: AI assistance slightly improves the diagnostic accuracy of proximal caries on bitewings, with comparable performance between primary molars and permanent teeth. However, scores become more conservative, with a risk of underdiagnosing enamel lesions. AI support appears particularly helpful for less experienced clinicians.

OP7 - 5 | LEARNING TO SEE BETTER: THE IMPACT OF AI-ASSISTED DENTAL CHARTING IN DENTAL EDUCATION

R.S. Gracea^{1,2}, Y.-H. Li^{1,3}, D. Papasratorn^{1,4}, L. Etiennot⁵, R.C. Fontenele^{1,6}, R. Jacobs^{1,7}

¹KU Leuven, Department of Imaging and Pathology, Leuven, Belgium

²Universitas Gadjah Mada, Department of Dentomaxillofacial Radiology, Yogyakarta, Indonesia

³National Yang Ming Chiao Tung University, Institute of Biomedical Informatics, Taipei, Taiwan

⁴Mahidol University, Department of Oral and Maxillofacial Radiology, Bangkok, Thailand

⁵KU Leuven, Department of Oral Health Sciences, Leuven, Belgium

⁶University of São Paulo, Department of Stomatology, Public Health, and Forensic Dentistry, Ribeirão Preto, Brazil

⁷Karolinska Institutet, Department of Dental Medicine, Stockholm, Sweden

Aim: To evaluate the impact of artificial intelligence (AI)-assisted dental charting based on panoramic radiographs on undergraduate dental students' accuracy and time efficiency compared with manual charting.

Materials and methods: A total of 113 third-year KU Leuven dental students completed a two-session charting exercise on a web-based platform using a restricted set of findings (tooth presence, fillings, root canal fillings, crowns, bridges and implants). On Day 1, all participants performed manual charting on 15 anonymised panoramic radiographs. Two months later, students were randomly allocated to a manual group (n = 57) or an AI-assisted group (n = 56) and completed 15 matched cases of graded difficulty within the Dentomaxillofacial Radiology and Radioprotection course. Between sessions, students received weekly radiology teaching supported by a digital teaching platform, e-book, and reading materials. Accuracy (percentage of correctly identified findings per case) and time per case (seconds) were recorded. Independent-samples and paired t-tests were used.

Results: Baseline Day-1 accuracy was comparable between groups (p=0.43). Accuracy increased from Day-1 to Day-2 in both groups (both p<0.001), with a larger improvement under AI assistance (+8.7 vs +5.9 percentage points; p=0.015). For Day-2, AI-assisted charting achieved higher accuracy than manual charting (0.962 vs 0.924; p<0.001) and faster completion time (84.7 s vs 142.0 s per case; p<0.001).

Conclusion: AI-assisted dental charting improved accuracy and time efficiency and reduced inter-student variability, supporting its use as an educational support tool in dentomaxillofacial radiology training.

OP7 - 6 | PATIENT RADIATION DOSE IN PANORAMIC RADIOGRAPHY: HOW FAR HAVE WE COME?

***D. Papasratorn^{1,2}, D.M. Brasil^{1,3}, K. Merken⁴, J. Binst⁵, R. Pauwels⁶, H. Bosmans^{4,5},
F. Haiter Neto³, R. Jacobs^{1,7}***

¹KU Leuven, Department of Imaging and Pathology, Leuven, Belgium

²Mahidol University, Department of Oral and Maxillofacial Radiology, Bangkok, Thailand

³UNICAMP, Department of Oral Diagnosis, Piracicaba, Brazil

⁴KU Leuven, Department of Imaging and Pathology, Division Medical Physics, Leuven, Belgium

⁵UZ Leuven, Department of Radiology, Leuven, Belgium

⁶Aarhus University, Department of Dentistry and Oral Health, Aarhus, Denmark

⁷Karolinska Institutet, Department of Dental Medicine, Stockholm, Sweden

Aim: To estimate effective doses in patients undergoing panoramic radiography (PR), and to derive age- and unit-specific conversion coefficients from phantom measurements.

Methods: Dose-area product (DAP) values for 1,178 patients aged 3-7 and 8-12 years were retrieved from the University Hospital of Leuven using DOSE monitoring system (Qaelum NV, Belgium), covering two PR units: Unit 1, ProMax 2D (Planmeca, Finland) and Unit 2, VistaPano 2D (Dürr Dental, Germany). Unit-specific DAP calibration factors were derived from annual quality-control measurements. Thermoluminescent dosimeters were placed in anthropomorphic head phantoms representing 5- and 10-year-old patients (ATOM Model, CIRS), and each phantom was irradiated 30 times to obtain stable mean organ dose estimates. Effective dose was calculated from corrected organ doses using ICRP 103 tissue weighting factors. Age- and unit-specific conversion coefficients were derived as the ratio of phantom effective dose to phantom-corrected DAP and applied to patient-corrected DAP to estimate effective doses.

Results: Conversion coefficients were 0.38 and 0.32 $\mu\text{Sv}/\text{mGycm}^2$ for the 5- and 10-year-old phantoms on Unit 1, and 0.44 and 0.35 $\mu\text{Sv}/\text{mGycm}^2$ on Unit 2. Estimated patient effective doses were 15.6 μSv (3-7 years) and 15.8 μSv (8-12 years) for Unit 1, and 19.6 μSv and 23.4 μSv for Unit 2, with Unit 2 yielding generally higher doses.

Conclusion: The newer PR unit delivered higher effective doses across both paediatric age groups. These findings highlight the importance of unit-specific dosimetry, continuous dose monitoring, and protocol optimisation in paediatric dental imaging.

OP8 - 1 | MULTI-CLASS ANATOMICAL LANDMARK DETECTION IN PERIAPICAL RADIOGRAPHS WITH DEEP LEARNING

C. Buyuk¹, A. Saruhan², F. Yuce³, O. Celik⁴, E. Bilgir⁴, I.S. Bayrakdar⁴

¹Istanbul Okan University, Dentomaxillofacial Radiology, Istanbul, Turkey

²Private Practice, Izmir, Turkey

³Istanbul Kent University, Istanbul, Turkey

⁴Eskisehir Osmangazi University, Eskisehir, Turkey

Aim: To develop a deep learning model for the detection and segmentation of multiple anatomical landmarks on periapical radiographs from the maxilla and mandible.

Materials and Methods: In total, 1930 paralleling-technique periapical radiographs with 21 annotated anatomical landmarks were divided into training (80%), validation (10%), and test (10%) sets. Geometry-preserving preprocessing was applied before dataset splitting, while appearance-based augmentation was performed exclusively on the training subset after the split. A YOLOv8x-seg architecture was trained for multi-class detection and instance segmentation. Performance was evaluated using precision, recall, F1-score, Dice coefficient, Intersection-over-Union, mean average precision, and receiver operating characteristic analysis.

Results: The model demonstrated stable training and consistent performance. Overall precision, recall, and F1-score were 0.820, 0.725, and 0.769, respectively, with an overall Dice coefficient of 0.621. High detection accuracy was achieved for well-defined structures such as the maxillary sinus, nasal fossa, nasal fossa floor, and nasal septum, whereas low-contrast landmarks showed reduced performance. Confidence-dependent analysis indicated optimal performance at low confidence thresholds (approximately 0.05–0.10).

Conclusion: The model effectively detects major anatomical landmarks on periapical radiographs while demonstrating expected limitations for low-contrast structures. These findings support the use of deep learning as an assistive tool in routine dental anatomy interpretation.

OP8 - 2 | IMPACT OF BRUXISM ON MANDIBULAR CONDYLAR STRUCTURES: A RADIOMICS-BASED PANORAMIC RADIOGRAPHIC ANALYSIS

K. Dinç Başar¹, S. Uzun², G. Mağat³

¹Selçuk University, Faculty of Dentistry, Dentomaxillofacial Radiology, Konya, Turkey

²Bilecik Şeyh Edebali University, Faculty of Dentistry, Dentomaxillofacial Radiology, Bilecik, Turkey

³Necmettin Erbakan University, Faculty of Dentistry, Dentomaxillofacial Radiology, Konya, Turkey

Aim: This study aimed to quantitatively evaluate the impact of bruxism on mandibular condylar structural characteristics using radiomic analysis derived from panoramic radiographs.

Material and Methods: Panoramic radiographs from 128 individuals (bruxism, n = 64; controls, n = 64) were retrospectively analyzed. The right and left mandibular condyles were segmented separately on panoramic images according to standardized anatomical boundaries, and regions of interest were defined. Radiomic feature extraction was performed using PyRadiomics implemented in 3D Slicer. A total of 26 radiomic features from five classes—first-order, gray-level co-occurrence matrix (GLCM), gray-level run-length matrix (GLRLM), gray-level size zone matrix (GLSZM), and neighboring gray tone difference matrix (NGTDM)—were evaluated. Group comparisons were conducted using the Mann–Whitney U test, with statistical significance set at $p < 0.05$.

Results: Significant group differences were observed in the right mandibular condyle for GLRLM gray-level non-uniformity ($p = 0.007$), NGTDM busyness ($p = 0.011$), and NGTDM coarseness ($p = 0.015$), with higher GLRLM gray-level non-uniformity and NGTDM busyness and lower NGTDM coarseness in the bruxism group.

Conclusion: Radiomic analysis revealed subtle texture-related differences in mandibular condylar structures between individuals with and without bruxism. Radiomics may provide a sensitive quantitative approach for detecting bruxism-related condylar alterations on panoramic radiographs.

OP8 - 3 | MANDIBULAR TRABECULAR BONE ALTERATIONS IN BREAST CANCER PATIENTS: A FRACTAL ANALYSIS OF PANORAMIC RADIOGRAPHS

Y. Oztoprak¹, K. Aydin¹, A. Tas¹, M.I. Oztoprak², T. Celikkol¹, D. Sumer³

¹Istanbul Medipol University, Department of Oral and Maxillofacial Radiology, Faculty of Dentistry, Istanbul, Turkey

²Marmara University, Department of Bioengineering, Faculty of Engineering, Istanbul, Turkey

³Istanbul Medipol University, Faculty of Dentistry, Istanbul, Turkey

Aim: This study evaluated the effects of breast cancer (BC), tamoxifen citrate (TC), and chemotherapy/radiotherapy (CT/RT) on mandibular bone structure using fractal dimension (FD) analysis.

Materials and Methods: Sixty panoramic radiographs were divided into three groups (n=20 each): Group 1 (BC patients treated with TC), Group 2 (BC patients who did not receive TC), and Group 3 (age-gender-matched healthy controls). Groups 1 and 2 included CT, RT, and CT+RT subgroups. FD measurements were performed in the bilateral TMJ, angulus, and premolar regions using ImageJ software. Data distribution was analyzed using Shapiro-Wilk, Wilcoxon and Kruskal-Wallis tests were used for abnormal distributed data. Multiple Linear Regression evaluated variable interactions. R software is used for analysis ($p < 0.05$).

Results: Control group FD values were significantly higher in the left angulus ($p=0.003$), right angulus ($p=0.033$), and right premolar ($p=0.038$) regions compared to BC groups. Regarding treatment modalities, patients receiving RT exhibited significantly lower FD values in the left angulus compared to control and CT-only groups ($p=0.033$). Combined CT+RT group revealed significant FD change in the right TMJ compared to the CT-only group ($p=0.032$). TC users had significantly higher FD values compared to non-users ($p=0.014$). Increasing age showed a tendency to decrease FD values in right angulus ($p=0.052$).

Conclusion: BC history and radiotherapy significantly alter mandibular bone microarchitecture. These findings should be carefully considered during the dental and maxillofacial follow-up of oncology patients.

OP8 - 4 | INVESTIGATION OF CHANGES IN THE MANDIBLE IN FEMALE PATIENTS WITH HASHIMOTO'S THYROIDITIS

F. Aşantoğrol¹, A. Artas¹, M.S. Çelebi¹, S. Koyuncu¹

¹Gaziantep University, Faculty of Dentistry, Gaziantep, Turkey

Aim: This study aimed to evaluate mandibular alterations in female patients with Hashimoto's thyroiditis (HT), hypothesizing that impaired bone metabolism leads to reduced bone mineral density (BMD), using dental panoramic radiographs.

Material and Methods: A total of 42 female patients were selected from our clinic records from 2023 to 2024, including 21 patients diagnosed with HT and 21 age- and sex-matched controls without thyroid dysfunction. Panoramic radiographs were analyzed for fractal dimension (FD) and mandibular cortical width (MCW), which reflect bone quality and thickness, respectively. The mandibular cortical index (MCI) was also assessed to categorize cortical bone types (C1, C2, or C3). Descriptive statistics were calculated for each parameter, and comparisons were conducted using the Independent t-test or Mann-Whitney U test for continuous variables and the chi-square test for categorical variables.

Results: The mean FD values were 1.384 ± 0.108 in the HT group and 1.403 ± 0.167 in the controls ($p = 0.268$). For MCW, the HT group had a mean $\pm$ standard deviation of 3.12 ± 0.59 mm, while the controls had 3.26 ± 0.46 mm ($p = 0.418$). In addition, the distribution of MCI types showed no significant difference between the two groups ($p = 0.074$), indicating a similar pattern of cortical bone types.

Conclusion: The results suggest that mandibular bone changes in HT may not significantly differ from controls in terms of BMD or cortical bone type, as assessed by FD, MCW, and MCI.

OP8 - 5 | FRANKFORT-MANDIBULAR PLANE ANGLE ASSESSMENT ON PANORAMIC RADIOGRAPHS; PERSPECTIVES ON AI-ASSISTED ANALYSIS

M.E. Meilă¹, D. Epistatu¹, A.D. Safta², F. Dogioiu¹, C. Ghiuță¹, E. Solomon¹, M.T. Epistatu³

¹"Carol Davila" University of Medicine and Pharmacy, Faculty of Dentistry, Dental Radiology, Bucharest, Romania

²UPB, Faculty of Automatic Control and Computer Science, Bucharest, Romania

³Dental Institute, General Dentistry, Bucharest, Romania

Aim: To assess the reliability of Frankfort-mandibular plane angle (FMA) measurements on panoramic radiographs and to integrate AI machine learning models for automated determination of FMA angle, an angle of importance in evaluating facial divergence, growth pattern, bite-force and also prosthodontic prognosis.

Materials and Methods: A retrospective analysis was performed on 88 patients with both panoramic radiographs (both in occlusion and disocclusion) and lateral cephalograms. FMA was measured bilaterally on panoramic images and the average was compared with cephalometric values. Patient head positioning was taken into account. Based on these findings, an ongoing study was developed for validating an AI-based model dedicated to automatically identify cephalometric landmarks and calculate FMA on panoramic radiographs, having manual clinician measurements used as reference.

Results: No statistically significant difference was found between FMA angle measured on panoramic radiographs taken in occlusion, in comparison to the lateral cephalogram measurements, showing a very high correlation. For panoramic radiographs taken in disocclusion, an average overestimation of approximately 2° was recorded for the measurement of FMA. Preliminary results of the AI-based model indicate accurate landmark detection with FMA angle predictions within clinically acceptable limits.

Conclusion: Panoramic radiographs allow for reliable FMA measurement assessment, in spite of minor positioning errors that can occur. AI-based models show a promising future regarding automated detection of landmarks and angle measurement, potentially offering clinicians an additional tool to support clinical decision-making.

OP8 - 6 | BISECTED ANGLE AND PARALLELING TECHNIQUES WITH PORTABLE RADIOGRAPHIC EQUIPMENT USING 0° VERTICAL ANGULATION

E. Parraguez¹, C. Baltera¹, A.M. Rodriguez²

¹Universidad Mayor, Oral Radiology, Santiago, Chile

²Hospital de Carabineros, Oral Radiology, Santiago, Chile

Aim: To compare the taking of radiographs and resulting images between the bisected angle and paralleling techniques when using portable radiographic equipment with 0° vertical angulation, ensuring greater protection to the operator with the backscatter disc.

Materials and Methods: A radiographic phantom and a fixed intraoral X-ray equipment were used to simulate the bisected angle and paralleling techniques in a patient. To comply with safety recommendations for portable equipment operators, X-rays were taken with the central X-ray beam parallel to the ground (0° vertical angulation). In the bisected angle technique, the position of the phantom head was adjusted and recorded for each dental group to align the bisector vertically, allowing a 90° incidence of the X-ray beam. For the paralleling technique, the position of the phantom head was adjusted so the stem of the positioning device was in a horizontal position. The resulting images were analyzed for distortions and technical issues.

Results: Radiographs obtained with the bisected angle technique using a vertical angulation of 0° have a higher percentage of unacceptable images for diagnosis (due to distortions and technical issues) compared to the paralleling technique. The positions of the phantom's head to perform both techniques are not very ergonomic, unusual and possibly uncomfortable; moreover, for the bisected angle technique the positions are more forced than in the paralleling technique.

Conclusion: The paralleling technique would be the alternative of choice to the bisected angle technique when using portable radiographic equipment with 0° vertical angulation to ensure greater protection for the operator.

OP8 - 7 | DIAGNOSTIC RELIABILITY AFTER EDUCATION IN DETECTION OF CAROTID ARTERY CALCIFICATIONS ON PANORAMIC RADIOGRAPHS

M. Bladh¹, N. Gustafsson¹, E. Levring Jäghagen¹

¹Umeå University, Oral and Maxillofacial Radiology, Umeå, Sweden

Aim: Cardiovascular diseases (CVD) represent the major cause of death worldwide. Panoramic radiographs (PR) are frequently used in dentistry. Carotid artery calcification (CAC) is a sign of CVD and can be detected on PR as an incidental finding. The aim of the study was to investigate diagnostic reliability after a short education in CAC on PR among general dental practitioners (GDP).

Material and Methods: In total, 61 GDPs and students in their last semester of the Dentistry programme were divided into either a control group (n=28) or an intervention group (n=33). The intervention group underwent a concise education in neck diagnostics on PR including CAC. Both groups assessed 100 PR for presence of CAC. The assessment was performed at three occasions: I) at baseline, II) after the education, and III) at 1-year follow-up. The consensus of two specialists in Oral and maxillofacial radiology (OMFR) was used as gold standard. Measures of diagnostic accuracy were compared between the two groups and the OMFRs.

Results: Preliminary results show a significant increased mean difference in specificity between the intervention group (6,8%) and the control group (1,0%) ($P<0,001$). The intervention group continued to show a higher specificity at 1-year follow-up. More results will be presented.

Conclusion: The preliminary results indicates that a concise education can increase specificity among GDPs when determining CAC on PR. This is important if GDPs recommend the patients to seek medical evaluation when detecting CAC on PR, as false positive diagnosis of CAC decreases.

OP9 - 1 | DENTIHUB: AN AI-INTEGRATED PLATFORM FOR DENTAL EDUCATION AND RESEARCH

S. Eftimie¹, L. Iacob², E. Olariu², R. Pop³, L. Dioşan⁴, R. Roman¹, A. Ban¹, R. Jacobs⁵, M. Hedeşiu¹

¹Iuliu Haţieganu University of Medicine and Pharmacy, Department of Maxillofacial Surgery and Radiology, Cluj-Napoca, Romania

²Technical University of Cluj-Napoca, Cluj-Napoca, Romania

³Iuliu Haţieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

⁴Babeş-Bolyai University, Cluj-Napoca, Romania, ⁵KU Leuven, Leuven, Belgium

Aim: To present the development of DentiHub, a digital platform integrating AI-based diagnostic tools, case-based learning, and a conversational clinical training tool for dental education and research.

Material and Methods: DentiHub is a secure web platform supporting storage, sharing, and annotation of multimodal dental imaging, alongside a curated library of clinical cases. Three AI components are integrated: (1) a YOLOv8 object detector trained on 1,628 annotated panoramic radiographs for 12 dental conditions classified into three clinical risk tiers, validated on radiographs from multiple external centers; (2) a MobileNetV3Large classifier for maxillofacial cysts and tumors, trained on histopathologically confirmed cases across 8 classes; (3) DentalSim, an LLM which enables dental students to practice anamnesis through conversation with an AI patient, covering 15 diagnostic categories.

Results: The panoramic detection model achieved mAP50 0.60 on internal testing, with reduced performance on external validation (mAP50 0.451), consistent with known generalization challenges in single-center AI models. High-risk lesions, including periapical lesions and root fragments, were detected reliably across both sets. The cyst and tumor classifier reached an overall accuracy of 0.88, while DentalSim demonstrated stable training convergence and has been used in 30 training sessions.

Conclusion: DentiHub is an early-stage yet functional integration of imaging infrastructure, case-based learning, and AI-assisted tools into a single educational platform. The individual AI models show promising preliminary performance, but external validation on larger and more diverse datasets is needed. An evaluation of educational outcomes across student cohorts is underway and will inform future platform development.

OP9 - 2 | EFFECT OF AI-ASSISTED DECISION SUPPORT ON DENTAL STUDENTS' RADIOGRAPHIC DIAGNOSIS OF CARIES

A. Delantoni¹, I. Siska², S. Davidopoulou², F. Dovinou², D. Dionysopoulos², K. Tolidis²

¹Aristotle University of Thessaloniki, Oral Surgery and Radiology, Thessaloniki, Greece

²Aristotle University of Thessaloniki, Operative Dentistry, Thessaloniki, Greece

Aim: Radiographic diagnosis of dental caries is a challenging skill for dental students, particularly when using panoramic radiographs, which are known to have inherent diagnostic limitations. Artificial intelligence (AI)-based decision support systems have been proposed as adjunctive tools to enhance diagnostic accuracy and support dental education.

Materials and methods: To evaluate AI-assisted reporting as decision supporting tool. It involved dental students' radiographic caries diagnosis performance on panoramic radiographs. This prospective study included 20 fifth-year undergraduate dental students. Ten panoramic radiographs comprising 293 teeth were evaluated. Students independently assessed the radiographs for the presence or absence of caries and repeated the evaluation two weeks later with access to AI-generated diagnostic reports. A reference standard was established by consensus between an experienced restorative dentistry professor and a maxillofacial radiologist. Diagnostic performance metrics were calculated. Paired comparisons were performed using the Wilcoxon signed-rank test.

Results: AI-assisted consultation resulted in a statistically significant improvement (mean Cohen's kappa increased from 0.43 to 0.49; $p = 0.023$). Specificity, accuracy, and PPV also improved significantly ($p \leq 0.003$), indicating a reduction in false-positive diagnoses, while sensitivity and NPV remained stable. Diagnostic agreement improved in 65% of students, whereas 35% showed decreased agreement, highlighting individual variability in response to AI assistance.

Conclusion: AI-assisted decision support modestly but significantly improved dental students' radiographic caries diagnostic performance, primarily by enhancing specificity and diagnostic consistency. These findings support the supervised and structured integration of AI as a complementary educational tool rather than a replacement for conventional training.

OP9 - 3 | DIAGNOSTIC ACCURACY OF A COMMERCIAL AI-BASED PLATFORM IN EVALUATING RADIOGRAPHIC QUALITY OF ROOT CANAL OBTURATION ON PERIAPICAL RADIOGRAPHS

A. Delantoni¹, E. Papadopoulou², M.E. Kalaitzoglou², A. Fardi¹, K. Kodonas², N. Economides²

¹Aristotle University of Thessaloniki, Oral Surgery and Radiology, Thessaloniki, Greece

²Aristotle University of Thessaloniki, Endodontics, Thessaloniki, Greece

Aim: To evaluate the radiographic quality of root canal obturation and to assess agreement between human observers from different dental specialties and a commercial artificial intelligence (AI)-based system in evaluating obturation length and density

Materials and Methods: Two hundred periapical radiographs of endodontically treated teeth were retrospectively evaluated by three experienced observers (two endodontists and one oral radiologist). Obturation quality was classified by length (adequate, overfilled, underfilled) and density (voids present or absent). The same radiographs were analyzed using an AI-based platform (Diagnocat 1.0), which provided quantitative estimates of obturation length deviation relative to the radiographic apex and density. These outputs were converted into categorical classifications for comparison with human assessments. The reference standard was defined as observer consensus (agreement of at least two). Inter-observer agreement was assessed using Fleiss' kappa, and agreement between the AI system and human consensus using Cohen's kappa

Results: Inter-observer agreement for obturation length was almost perfect ($\kappa = 0.82$; $p < .001$). Agreement between the AI system and human consensus for length was substantial ($\kappa = 0.67$; $p < .001$). For obturation density, inter-observer agreement was moderate ($\kappa = 0.59$; $p < .001$), while agreement between the AI system and human consensus was poor ($\kappa = 0.32$; $p < .001$).

Conclusion: Human observers showed high reliability in assessing obturation length on periapical radiographs. The AI system demonstrated substantial agreement with expert consensus for length assessment, supporting its use as an adjunctive tool. However, limited agreement for density assessment highlights current challenges in AI-based detection of voids on two-dimensional radiographs.

OP9 - 4 | IMPACT OF SIMULATION RADIOGRAPHY TRAINING ON X-RAY POSITIONING ABILITY: A PILOT STUDY

M. Rodak¹, J. Mikołajczak¹, M. Bobrowska¹, T. Kulczyk², M. Dyszkiewicz Konwińska²

¹Poznan University of Medical Sciences, Student Research Group of Maxillofacial Radiology, Department of Diagnostic Imaging, 60-812, Poland

²Poznan University of Medical Sciences, Department of Diagnostic Imaging, 60-812, Poland

Background: Accurate X-ray positioning is essential for high image quality and radiation safety in dental radiology. Preclinical students often struggle with spatial aspects of radiographic geometry. Simulation tools offer a radiation-free environment that may support skill acquisition.

Aim: To evaluate the effect of Qbion virtual radiography training on X-ray positioning accuracy and to assess the relationship between spatial ability and radiographic performance before and after training.

Materials and Methods: Spatial ability was measured using the Purdue Spatial Visualization Test–Rotation (PSVT:R). Eight preclinical dental students without prior radiography experience participated. After standardized theoretical instruction, students performed intraoral radiographs on a phantom head using the paralleling technique. Performance was evaluated independently by two dentists using a 3-point scale across four criteria: beam angulation, receptor placement, anatomical coverage, and technical errors. Median scores were analyzed. Following a 30-minute Qbion simulation session, students repeated the procedure under identical conditions.

Results: A strong positive correlation was found between spatial ability and initial radiographic performance (Spearman's $\rho = 0.81$, $p = 0.028$). No correlation was observed between spatial ability and Qbion performance ($\rho = -0.04$, $p = 0.94$), nor between pre- and post-training performance ($\rho = 0.00$, $p \geq 0.99$).

Conclusions: Simulation training mainly benefited students with lower baseline performance, reducing disparities in X-ray positioning ability. Limitations include small sample size and short training duration.

OP9 - 5 | INFLUENCE OF IMAGE PROCESSING AND FILE FORMAT ON THE DIAGNOSTIC OUTPUT OF A COMMERCIAL DENTAL AI SYSTEM (DIAGNOCAT) : A CONTROLLED ROBUSTNESS STUDY

D. Apostolakis¹, G. Michelinakis²

¹Dental Radiology in Crete, Private Practice, Chania, Greece

²Crete Implants, Private Practice, Heraklion, Greece

Aim: To evaluate the robustness of a commercial dental radiology artificial intelligence (AI) system (Diagnocat) when identical panoramic radiographs are submitted under different file formats and image processing conditions.

The null hypothesis was that image format and post-processing conditions do not influence the diagnostic output of the AI system.

Materials and Methods: Sixty (60) panoramic radiographs acquired using a Planmeca Classic device were exported into 4 distinct editions per case: (1) .jpg format with simple imaging filters applied using Romexis software; (2) the identical filtered image exported as .tiff; (3) the native Romexis rendering (defined as “original” by Romexis) without additional filters (.tiff); and (4) an enhanced version processed using third-party image processing software by an experienced clinician (.jpg).

All editions were independently analyzed by the same commercial AI platform (Diagnocat). Per-tooth findings and associated confidence scores were extracted. The per-tooth conditions analyzed were limited to diagnostically relevant findings that influence clinical decision-making and typically require radiographic evaluation for detection. Robustness analysis will include pooled per-edition detection counts, comparison of label distributions, confidence score dispersion, and inter-edition agreement using repeated-measures statistical analysis and bootstrap estimation.

Results: Data analysis is currently in progress. The study will quantify the degree of variability in AI diagnostic outputs across different image formats and processing conditions.

Conclusions: This study aims to determine whether variations in image format and post-processing influence the diagnostic output of Diagnocat AI system.

OP9 - 6 | FOETAL DOSE OF CONE-BEAM COMPUTED TOMOGRAPHY: A COMPREHENSIVE MONTE CARLO EVALUATION

R. Pauwels¹

¹Aarhus University, Department of Dentistry and Oral Health, Aarhus, Denmark

Aim: To assess the foetal dose of cone-beam computed tomography (CBCT) examinations under various exposure settings, in order to provide further evidence regarding the risk of scanning pregnant patients and the potential need for shielding.

Material and Methods: A total of 24,384 CBCT protocols were simulated using PCXMC 2.0 (STUK, Finland). The protocols varied in tube voltage, filtration, beam dimensions, and source-isocenter distance, representing the wide range of CBCT scanners on the market. Absorbed dose to the uterus was recorded to represent the foetal dose during early gestation (D_{EARLY}). Absorbed dose to the urinary bladder was recorded as a proxy for foetal dose during later pregnancy stages (D_{LATE}). All doses were normalized to dose-area product values of 250 mGy.cm², 1250 mGy.cm², and 2500 mGy.cm² to reflect the range in exposure used in clinical CBCT imaging. Third quartile and maximum dose values were calculated.

Results: For D_{EARLY}, third-quartile values ranged from 0.009 µGy to 0.087 µGy, and maximum values from 0.079 µGy to 0.792 µGy. For D_{LATE}, third-quartile values ranged from 0.018 µGy to 0.182 µGy, and maximum dose values from 0.593 µGy to 5.929 µGy.

Conclusion: Even in a ‘worst case scenario’, the foetal dose resulting from a CBCT exposure is equivalent to less than one day of average worldwide background radiation. The results could support future guidelines regarding the use of CBCT during pregnancy.

OP9 - 7 | CHALLENGES IN DOSIMETRY PROTOCOLS FOR DENTAL RADIOLOGY

G. Manousaridis¹, C.J. Hourdakis², E. Carinou³

¹Greek Atomic Energy Commission, Ionizing Radiation Unit, Agia Paraskevi, Greece

²Greek Atomic Energy Commission, Head, Ionizing Radiation Unit, Agia Paraskevi, Greece

³Greek Atomic Energy Commission, Director, Directorate of Licensing and Regulatory Inspections, Agia Paraskevi, Greece

Aim: Several dosimetry quantities are being used in dental radiology for patient dose assessments, depending on modality, dosimetry protocol and available QA equipment. The most common are kerma area product (KAP, also referred to as Dose Area Product, DAP), kerma length product (KLP, also referred to as Dose Area Product, DLP), incident air kerma ($K_{a,i}$) and computed tomography dose index (CTDI)

This study aims to identify challenges in the application of existing dosimetry protocols for dental radiology equipment audits across intraoral, panoramic, and CBCT modalities.

Material and Methods: A comparative review was conducted on dosimetry protocols from national and international organizations. The study evaluated the feasibility of recommended metrics, identified measurement obstacles, and proposed technical solutions for the quality audits.

Results: Intraoral and cephalometric radiography are forms of simple projection radiography and measurements provide no significant challenge. $K_{a,i}$ and KAP are the applicable metrics.

However, challenges are identified in other modalities. In panoramic radiography, $K_{a,i}$ measurement is feasible but challenging due to narrow field shape while KLP and KAP are not.

In Dental CBCT, $K_{a,i}$, KAP and CTDI can be used. Direct KAP measurement is highly sensitive to environmental factors, particularly for air density and energy dependent detector response, requiring rigorous correction factors.

Conclusion: For dental radiology, $K_{a,i}$, and KAP are the most suitable dose evaluation parameters. Direct KAP measurement must be compensated for air density and beam energy in order for the results to be accurate.

OP9 - 8 | EVALUATING THE METHODOLOGICAL QUALITY OF DENTAL CBCT DRLS: A SYSTEMATIC REVIEW

B. Arunmani¹, M. McGuigan¹, I. Fleischmann¹, K. Horner², R. Coleman³

¹Dublin Dental University Hospital, School of dental science, Dublin, Ireland

²The University of Manchester, Division of Dentistry, School of Medical Sciences, Manchester, United Kingdom

³St James's Hospital, Dublin, Ireland

Objective: To evaluate the methodological quality of dental cone beam CT (CBCT) diagnostic reference levels (DRL) studies and reports, identify factors that limit DRL comparison, assess the level and methods of dose optimisation and clarify obstacles, both in dose optimisation and DRL establishment.

Methods: A systematic search was applied across five databases and grey literature with International Atomic Energy Agency (IAEA) member countries contacted, to identify dental CBCT DRL studies and national reports. Studies/reports containing DRL establishment procedures, insufficient methodological detail, and adopted DRLs were excluded. Methodological quality was assessed using modified Effective Public Health Practice Project tool, aligned with a checklist developed in accordance with ICRP 135.

Results: Of 320 reports screened, 19 were included. DRLs were clinical indication or field-of-view (FOV) based, using dose/kerma-absorbed-product (DAP/KAP) metrics. Overall, 63% of studies had moderate methodological quality, DRL comparability was limited due to inconsistencies in reporting of exposure parameters, FOV, and heterogeneous indication grouping. Substantial dose variability was observed within the same clinical indications (2–10-fold) and FOV categories (3–10-fold), reflecting routine use of large FOVs irrespective of indication, reliance on manufacturer default protocols, limited understanding/education/training of exposure settings or optimisation strategies, non-standardized system FOV settings, and unauthorised CBCT operators.

Conclusion: The majority of CBCT DRL studies are not high quality. Improving DRL reporting quality requires interdisciplinary collaboration; digitised-dose recording with retrospective management of protocols, dose, indications; national dose registries for periodic dose audit; improved clinician education/engagement, strengthened regulatory oversight and international standardised frameworks.

OP10 - 1 | EVALUATION OF THE RELIABILITY OF PANORAMIC RADIOGRAPHY IN THE DIAGNOSIS OF CAROTID ARTERY CALCIFICATION USING ULTRASONOGRAPHY

M. Edik¹, Z.F. Sönmez¹, B. Canpolat¹, M. Etöz¹, A. Çukurluoğlu¹

¹Erciyes University, Oral and Maxillofacial Radiology, Kayseri, Turkey

Aim: The aim of this study is to evaluate the diagnostic reliability of panoramic radiography in detecting carotid artery calcifications (CAC), in comparison with ultrasonography findings.

Material and Methods: This prospective study was conducted on patients who applied to the Faculty of Dentistry for various reasons and agreed to participate in the study. Ethical approval and informed consent were obtained. Panoramic radiographs obtained as part of routine dental evaluation were assessed for the presence of carotid artery calcification. A total of 55 preliminary diagnoses of CAC were made in 41 individuals (12 men, 29 women, the average age is 64.5) (14 bilateral). Ultrasonography was performed on all individuals who received a preliminary diagnosis of CAC on panoramic radiographs. Positive Predictive values have been calculated to determine the accuracy of panoramic radiography.

Results: Of the 55 arteries preliminarily diagnosed with CAC, 36 were found to have CAC when examined by ultrasound. The positive predictive value was calculated as 65.5%. Panoramic radiography yielded false positive results in 34.5% of cases. It was observed that false positive findings may be due to the confusion between CAC and anatomical and pathological calcified structures such as laryngeal cartilage calcifications, tracheal cartilage calcifications, lymph node calcifications, myositis ossificans, and tonsillar calcifications in differential diagnosis.

Conclusion: Panoramic radiography is a convenient screening tool for carotid artery calcification but requires ultrasonography confirmation due to a high false positive rate. With a positive predictive value of 65.5%, it offers a reasonable preliminary assessment but is not reliable alone.

OP10 - 2 | DISINFECTION PRACTICES IN INTRAORAL ULTRASONOGRAPHY: A COMPARATIVE SURVEY STUDY

Ü. Aydın¹, N. Bağcı², İ. Peker², D. Kaymak¹, B. İncebeyaz¹

¹Ankara Medipol University School of Dentistry, Department of Oral and Maxillofacial Radiology, Ankara, Turkey

²Gazi University School of Dentistry, Department of Oral and Maxillofacial Radiology, Ankara, Turkey

Aim: To investigate the disinfection and reprocessing routines applied to intraoral ultrasound (US) probes by oral and maxillofacial radiology (OMR) specialists and residents.

Material and Methods: A literature review was conducted to outline current recommendations and methods for endocavity probe reprocessing, and the findings were used to develop a questionnaire consisting of 35 items addressing various aspects of the intraoral US probe disinfection process. The questionnaire link was distributed through the national OMR association email group, and responses from specialists and residents were compared after data collection.

Results: A total of 84.4% (103/123) indicated that disinfection of intraoral US probes is required. Although 88.0% reported performing intraoral US, only 38.2% indicated that high-level disinfection is required for probes. Additionally, 78.1% reported always or mostly following manufacturer recommendations for probe disinfection. Disposable probe covers were always or mostly used by 81.2%, with no significant difference between specialists and residents ($p>0.05$). Notably, 63.4% reported receiving no training on probe reprocessing, and most participants (88.6%) indicated that written guidelines are needed.

Conclusion: These findings suggest broad awareness and a clear perceived need for disinfection of intraoral ultrasound probes, although agreement on the appropriate disinfection level has not yet been fully established. Many participants also reported lacking both training and written resources, underscoring the importance of developing accessible guidance and educational support to promote more consistent and safe reprocessing practices in OMR settings.

OP10 - 3 | THE IMPACT OF DOMINANT-SIDE TRAPEZIUS MASSAGE ON MASSETER HEMODYNAMICS: A DOPPLER ULTRASONOGRAPHY STUDY

G. Haksayar^{1,2}, F. Gülcan³, N. Karataş³, C. Evli¹, M. Önder¹, K. Orhan¹, M. Eray Kolsuz¹

¹Ankara University - Faculty of Dentistry, Department of Oral and Maxillofacial Radiology, Ankara, Turkey

²Ankara University - Institute of Health Sciences, Department of Oral and Maxillofacial Radiology, Ankara, Turkey

³Gazi University - Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation, Ankara, Turkey

Aim: The hemodynamic effects of trapezius massage on masseter muscle perfusion remain unexplored. This study evaluated the effect of dominant-side trapezius massage on masseter blood flow using Doppler ultrasonography.

Material and Methods: Fifteen healthy volunteers underwent bilateral masseter Doppler ultrasonography at rest and during contraction, before and after dominant-side trapezius massage. Peak systolic velocity (PS), end-diastolic velocity (ED), mean diastolic velocity (MD), time-averaged maximum velocity (TAMAX), pulsatility index (PI), resistivity index (RI), PS/ED, ED/PS, acceleration, and acceleration time were recorded. Wilcoxon signed-rank test was applied ($p < 0.05$).

Results: At baseline, the TAMAX and PI were considerably higher at rest ($p = 0.038$ and $p = 0.048$, respectively), and that PI was higher during contraction ($p = 0.041$) on the non-dominant side. Following massage, ED/PS ratio increased significantly on the dominant side at rest ($p = 0.047$), and MD was significantly higher on the dominant side during contraction compared to the non-dominant side ($p = 0.003$).

Conclusion: Dominant-side trapezius massage induces measurable hemodynamic changes in the ipsilateral masseter muscle, suggesting a functional neurovascular link between these muscles. These findings may have clinical implications in temporomandibular disorder management.

OP10 - 4 | DIAGNOSTIC UTILITY OF INTERVAL ULTRASOUND SCREENING USING OMERACT SCORING FOR MALT LYMPHOMA IN SJÖGREN'S DISEASE: A 19- YEAR RETROSPECTIVE ANALYSIS

C. Zerafa¹, B. Thomas¹, J. Davies¹

¹Guy's and St Thomas' NHS Trust, Dental and Maxillofacial Radiology, London, United Kingdom

Aim: To assess the effectiveness of interval salivary gland ultrasound in detecting MALT lymphoma in patients with Sjögren's disease and identify key sonographic features using OMERACT scoring.

Materials and Methods: A retrospective review of electronic records identified patients with confirmed Sjögren's disease and salivary gland MALToma seen between 2007 and 2026. Data collected included demographics, diagnosis and treatment methods, anatomical sites, ultrasound use and findings, common sonographic features, and the contribution of additional imaging modalities.

Results: Twenty-one patients met the inclusion criteria. Most were diagnosed in their fifth decade, and core biopsy was the main diagnostic method. The parotid gland was the most frequent site of MALToma, followed by minor salivary glands. Most patients presented with symptoms such as facial swelling or a persistent lump. Ultrasound examination was the most frequent initial imaging modality. Further investigations for MALT lymphoma were initiated in most cases due to suspicious findings on interval ultrasound imaging, while the remaining cases were prompted by the development of new clinical symptoms. Common sonographic features included increased vascularity and well-defined hypoechoic lymph nodes. PET-CT identified additional disease sites in a subset of cases. Low-dose radiotherapy was the primary treatment modality, and recurrences were managed with further radiotherapy.

Conclusion: Interval ultrasound is an effective surveillance tool for early detection of salivary gland MALToma in Sjögren's disease. Early recognition of suspicious sonographic features supports routine ultrasound monitoring in this high-risk population.

OP10 - 5 | IMAGING EVALUATION OF INFLAMMATORY PATHOLOGY ASSOCIATED WITH ERUPTED THIRD MOLARS

***C. Harasim¹, D. Şulea¹, A. Carp¹, A. Manolache¹, O. Boişteanu¹, F. Sava¹, A. Nicolau¹,
L. Cîrlescu¹, V. Sălceanu¹, V.V. Costan¹***

¹Spitalul "Sf. Spiridon" Iasi, Iasi, Romania

Aim: Inflammatory pathology associated with erupted third molars is frequently encountered in clinical practice and is often underestimated in the absence of detailed imaging evaluation. The aim of this study is to highlight the role of dento-maxillofacial imaging in identifying and characterizing pericoronal and periapical inflammatory processes, as well as their impact on adjacent anatomical structures.

Materials and Methods: A retrospective study was conducted on a group of patients who presented for imaging investigations due to symptoms associated with erupted third molars. Panoramic radiographs and CBCT examinations were analyzed, focusing on signs of local inflammatory pathology (widening of the periodontal space, bone rarefaction, cortical involvement), the presence of periapical lesions, involvement of adjacent structures (mandibular canal, maxillary sinus), and possible complications. Imaging findings were correlated with the clinical presentation.

Results: The results revealed a wide range of imaging findings, from early changes to well-defined periapical lesions and extensions to adjacent structures. CBCT demonstrated increased sensitivity in detecting subtle bone changes and in evaluating anatomical relationships, particularly in cases where panoramic radiography was limited. In a significant number of cases, the additional imaging information led to modifications in the therapeutic plan.

Conclusions: Imaging plays a crucial role in the comprehensive evaluation of inflammatory pathology associated with erupted third molars, contributing to early and accurate diagnosis. CBCT represents a valuable tool in selected cases, facilitating an individualized therapeutic approach and preventing progression to complications. Integration of imaging data with the clinical context remains essential for optimizing patient management.

OP11 - 1 | INCIDENTAL FINDINGS ON CONE-BEAM CT IN DENTAL IMAGING: PREVALENCE, CLINICAL SIGNIFICANCE, AND REPORTING GAPS—AN UPDATED SYSTEMATIC REVIEW (2018–2025)

O. Baydar¹

¹*Eskişehir Osmangazi University, Oral and Maxillofacial Radiology, Eskişehir, Turkey*

Aim. To systematically evaluate the prevalence, anatomical distribution, and clinical significance of incidental findings (IFs) on cone beam computed tomography (CBCT) scans obtained for dental indications.

Material and Methods. A PRISMA-compliant systematic review was conducted using PubMed/MEDLINE, Scopus, and Web of Science databases (2018–2025). Studies reporting IFs on CBCT scans with sample sizes ≥ 50 were included. Of 95 records identified, 22 eligible studies were included after deduplication and full-text screening. Subgroup analyses were performed according to field-of-view (FOV) size and imaging indication.

Results. Twenty-two retrospective cross-sectional studies involving 12,568 patients were included. IF prevalence ranged 21.1–100% (median 90.5%; IQR 72.2–99.1%). Maxillary sinus pathologies were the most frequently reported findings (18/22 studies), followed by cervical vertebral changes, soft-tissue calcifications, and airway alterations. Large FOV scans demonstrated higher median prevalence (95.5%) than small FOV scans (71.2%), confirming that FOV size substantially influences IF detection. Clinical significance grading was reported in only six studies (27.3%), with low-significance findings ranging from 27–58%, moderate 6–72%, and high 1–19.5%. Referral rates ranged from 0.01% to 16%, most commonly due to carotid artery calcifications.

Conclusion. IFs are highly prevalent in dental CBCT imaging, and FOV size is a major determinant of their detection. Clinical significance grading and referral outcomes remain inconsistently reported. Standardized reporting approaches may improve clinical interpretation and management of IFs. These findings highlight the importance of evaluating the entire CBCT volume beyond the primary diagnostic indication.

OP11 - 2 | IMPACT OF IMPLANT ARTIFACTS ON RADIOMORPHOMETRIC TRABECULAR BONE MEASUREMENTS

B. Sen¹, A. Mert², B.G. Baksi¹

¹Ege University / Faculty of Dentistry, Department of Oral and Maxillofacial Radiology, Izmir, Turkey

²Izmir Katip Celebi University / Faculty of Engineering and Architecture, Department of Engineering Sciences, Izmir, Turkey

Aim: To assess the impact of implant artifacts on radiomorphometric measurements of trabecular bone on clinical CBCT images, at varying radial distances from the implant surface and at cervical, middle, and apical levels along the implant length.

Materials and Methods: CBCT scans of thirteen patients with a single implant in the canine region were used to measure mesial and distal regions (ROI) adjacent to the implant, posterior to the hemimandible, in corresponding regions on the contralateral side, and in an anterior midline region. Fractal dimension (FD), mean gray value (MGV), bone area fraction (BA/TA), trabecular thickness (Tb.Th), trabecular separation (Tb.Sp), and signal-to-noise ratio (SNR) were calculated. Paired t-tests and ANOVA were used for comparisons.

Results: FD was higher on the implant side ($p < 0.05$). At the apical level in the distal ROI, MGV and Tb.Sp differed between sides ($p < 0.05$), while BA/TA and Tb.Th showed no side differences at any level ($p > 0.05$). SNR was markedly variable on the implant side. Anterior ROIs showed higher MGV, BA/TA, and Tb.Th than posterior ROIs at all levels. Cervically, Tb.Th (mesial) and Tb.Sp (mesial and distal) were higher than the anterior ROI ($p < 0.05$).

Conclusions: Trabecular bone measurements are variably affected by implant-induced artifacts. FD and SNR appear more susceptible to artifact-related variability, whereas MGV, BA/TA, Tb.Th, and Tb.Sp remain comparatively stable and may serve as more reliable indicators in the presence of a single implant.

OP11 - 3 | FRONTAL SINUSITIS GONE WRONG: MULTIMODALITY IMAGING OF POTT'S PUFFY TUMOR WITH INTRACRANIAL COMPLICATIONS

A.-M. Botez¹, E. Marciuc^{1,2}, R. Popescu^{2,1}, D.A. Droancă-Ilinca^{1,2}, I. Danciu^{1,2}, D. Haba^{2,1}

¹"Prof. Dr. Nicolae Oblu" Emergency Clinical Hospital in Iași, Radiology Department, Iasi, Romania

²"Grigore T. Popa" University of Medicine and Pharmacy of Iași, Dental and General Radiology, Iasi, Romania

Aim: Pott's puffy tumor (PPT) is a severe complication of frontal sinusitis characterized by osteomyelitis of the frontal bone with subperiosteal abscess formation. Although initially described as a complication of cranial trauma, PPT most commonly arises secondary to acute or chronic rhinosinusitis. Infection may spread from the frontal sinus through direct extension or hematogenous dissemination via valveless venous channels, leading to bone involvement and soft tissue abscess formation. Clinical presentation typically includes forehead swelling, headache, fever, and rhinorrhea, while orbital or neurological symptoms may indicate advanced disease. Because paranasal sinus disease may originate from sinonasal or odontogenic sources, early recognition of imaging findings is particularly important in dento-maxillofacial evaluation. The aim of this study is to review the imaging features of Pott's puffy tumor and highlight the role of multimodality imaging in detecting associated intracranial complications.

Materials: A brief literature review is complemented by the presentation of two cases encountered in our department. Imaging findings on computed tomography (CT) and magnetic resonance imaging (MRI) were analyzed with emphasis on paranasal sinus disease, frontal bone destruction, subperiosteal collections, and intracranial extension.

Results: CT plays a key role in the initial evaluation, allowing accurate assessment of sinus disease, osseous destruction, and subperiosteal abscess formation. MRI provides superior characterization of intracranial complications, including epidural or subdural empyema, cerebral abscesses, dural involvement, and venous sinus thrombosis.

Conclusion: Pott's puffy tumor remains a potentially life-threatening complication of frontal sinusitis. Awareness of CT and MRI findings allows early diagnosis of intracranial complications and prompt therapeutic management.

OP11 - 4 | SMALL FINDINGS, BIG CONSEQUENCES: NEUROVASCULAR IMPLICATIONS OF MAXILLOFACIAL TRAUMA

***E.A. Marciuc^{1,2}, B.I. Dobrovat^{1,2}, M.R. Popescu^{1,2}, D. Pomohaci¹, C. Chirica¹, I. Danciu¹,
D.-A. Ilinca¹, D. Haba^{1,2}***

¹University of Medicine and Pharmacy "Grigore T. Popa", Surgery, Iasi, Romania

²Emergency Hospital "Prof. Dr. N. Oblu", Radiology, Iasi, Romania

Aim: To emphasize the importance of detecting subtle skull base extensions in maxillofacial trauma and to highlight their potential neurovascular consequences.

Materials and Methods: We reviewed cases of midfacial trauma assessed with multidetector CT, focusing on fractures involving the posterior maxilla, pterygoid plates, sphenoid sinus walls, and orbital apex. Special attention was given to subtle extensions toward critical skull base structures, including the carotid canal, foramen rotundum, superior orbital fissure, and occipital condyle. In selected cases, additional vascular imaging was correlated with initial findings.

Results: Midfacial fractures frequently demonstrated minimal, easily overlooked extensions to the skull base. Fine fracture lines involving the pterygoid plates or sphenoid body, small foci of pneumocephalus, foraminal asymmetry, or discreet cortical interruptions represented key imaging clues. These subtle findings were occasionally associated with internal carotid artery injury, cranial nerve impairment, or early ischemic changes. In several cases, the initial CT examination identified the red flags that prompted further vascular evaluation.

Conclusion: In dentomaxillofacial imaging, small and difficult-to-detect findings may carry major neurovascular implications. Systematic evaluation of skull base landmarks in maxillofacial trauma is essential. Recognizing these subtle extensions allows timely referral, appropriate imaging escalation, and prevention of potentially devastating neurological outcomes.

OP11 - 5 | CHONDROBLASTIC OSTEOSARCOMA OF ANTERIOR MANDIBLE: A CASE REPORT

N. Deniz¹, A.S. Tanrıvermiş², S. Gün³, A.Z. Zengin¹

¹Ondokuz Mayıs University, Faculty of Dentistry, Oral and Maxillofacial Radiology, Samsun, Turkey

²Ondokuz Mayıs University, Faculty of Medicine, Department of Radiology, Samsun, Turkey

³Ondokuz Mayıs University, Faculty of Medicine, Department of Pathology, Samsun, Turkey

Aim: Osteosarcoma is a primary malignant bone tumor arising from abnormal proliferation of bone-forming mesenchymal cells. Chondroblastic osteosarcoma is a rare histological variant characterized by predominant chondroid matrix production and is associated with a higher recurrence rate and metastatic potential. This report aims to present a chondroblastic osteosarcoma case of the mandible and emphasize the importance of clinical, radiological, and histopathological correlation for early diagnosis.

Material and Methods: A 28-year-old female patient presented with pain and swelling persisting for four weeks. Clinical examination included extraoral and intraoral assessment. Imaging evaluation was performed using superficial ultrasonography, cone beam computed tomography (CBCT), and contrast-enhanced computed tomography (CECT). The patient was referred for surgical management based on radiological findings. Histopathological examination of the surgical specimen was conducted to establish the definitive diagnosis.

Results: Extraoral examination revealed tender left-sided facial swelling without skin changes. Intraorally, a hard swelling involving both buccal and lingual aspects was observed. Ultrasonography showed a heterogeneously hypoechoic solid mass with focal hyperechoic areas. CBCT demonstrated a mixed radiolucent–radiopaque lesion causing buccolingual expansion and tooth displacement. CECT revealed a hypodense mass with scattered radiopaque areas, poorly defined margins, and minimal contrast enhancement. Histopathological evaluation demonstrated malignant pleomorphic fusiform to ovoid plasmacytoid cells within a predominantly chondroblastic matrix with focal osteoid formation, confirming chondroblastic osteosarcoma.

Conclusion: Chondroblastic osteosarcoma of the mandible is a malignancy that may mimic benign lesions clinically and radiographically. Accurate diagnosis requires careful correlation of clinical, radiological, and histopathological findings to prevent diagnostic delay and ensure appropriate management.

OP11 - 6 | SMALL BLACK HOLES IN THE JAWS AND OTHER CBCT FINDINGS SUGGESTIVE OF MULTIPLE MYELOMA

A. Katsonis¹, A.S. Katsoni², E. Katsoni³

¹University of Medicine and Pharmacy "Grigore T. Popa", Iasi, Romania

²National and Kapodistrian University, Athens, Greece

³MSc in Oral Diagnosis and Radiology, Private clinic, Athens, Greece

Aim: Multiple myeloma is a hematologic malignancy with frequent involvement of the bones. Nearly one-third of affected patients exhibit jawbone lesions, which may present a variety of radiographic aspects. The aim of this presentation is to highlight the diagnostic value of Cone-Beam Computed Tomography (CBCT) in detecting radiographic features that raise suspicion of multiple myeloma affecting the maxillofacial region.

Material and Methods: CBCT examinations were evaluated for lesion number, location, borders, internal trabecular pattern, cortical integrity, and proximity to anatomical structures such as the mandibular canal and maxillary sinus. Lesion dimensions were recorded, and distribution patterns across the mandible and maxilla were compared. Relevant clinical information were reviewed to correlate imaging findings with the final diagnosis of multiple myeloma.

Results: Well-defined osteolytic 'punched-out' lesions represent the most characteristic finding and may occur as solitary or multiple defects. The mandible is more commonly affected than the maxilla, particularly in the body, angle, and ramus regions. Clinical manifestations may include orofacial pain, swelling, dental displacement, and root resorption.

Conclusion: CBCT provides critical diagnostic value in detecting early maxillofacial manifestations of multiple myeloma. Its ability to reveal subtle osteolytic changes enhances clinical awareness and supports timely referral for systemic evaluation. Dental imaging therefore plays an important role in the early recognition of underlying hematologic disease.

OP11 - 7 | THE INTRAVENTRICULAR INCIDENTALOMA: A DIAGNOSTIC DETOUR IN ENT IMAGING

D. Paduraru¹, G. Garcia¹, S. Ammari¹, C. Balleyguier¹, F. Bidault¹

¹Gustave Roussy Institute, Villejuif, France

Aim: To illustrate the diagnostic approach to an incidentally detected lesion of the fourth ventricle during imaging performed for suspected oncologic recurrence of an ENT neoplasia and to review the main differential diagnoses of intraventricular tumors in adults.

Material and Methods: We present the case of a 69-year-old patient with a history of clear cell carcinoma of the ethmoid sinus treated with surgery and radiotherapy 25 years earlier. The patient was referred for evaluation of right-sided exophthalmos, with suspicion of tumor recurrence subsequently confirmed by imaging and histopathology. An incidental intraventricular lesion was noted on follow-up MRI. Imaging findings were reviewed and correlated with the clinical history to establish a radiological differential diagnosis.

Results: An intraventricular mass was identified at the level of the fourth ventricle, raising several diagnostic considerations including subependymoma, ependymoma, central neurocytoma, subependymal giant cell astrocytoma, choroid plexus tumors, meningioma, colloid cyst, and metastasis. Patient age, lesion location, and oncologic history were key elements in narrowing the diagnosis.

Conclusion: Intraventricular lesions have overlapping imaging features. Integration of imaging characteristics with the clinical context, particularly oncologic history, is essential for guiding the differential diagnosis and appropriate management.

OP14 - 1 | DENTAL IMPLANT STRATEGIES IN THE PRESENCE OF MAXILLARY SINUS MUCOUS RETENTION CYSTS

X. Li^{1,2,3,4}, H. Wang^{1,2,3,4}

¹The Affiliated Stomatological Hospital of Chongqing Medical University, Chongqing, China

²Chongqing Key Laboratory of Oral Diseases, Chongqing, China

³Chongqing Municipal Key Laboratory of Oral Biomedical Engineering of Higher Education, Chongqing, China

⁴Chongqing Municipal Health Commission Key Laboratory of Oral Biomedical Engineering, Chongqing, China

Aim: The increasing use of cone-beam computed tomography (CBCT) has led to a higher detection rate of maxillary sinus mucous retention cysts (MSMRCs), creating a common clinical dilemma regarding their impact on the success of sinus floor augmentation and implant placement. This study aimed to clarify their clinical impact and establish an evidence-based, graded management strategy through retrospective analysis.

Material and Methods: This retrospective study analyzed over 100 implant cases involving concomitant MSMRCs that underwent maxillary sinus floor augmentation. The researchers systematically evaluated cyst imaging characteristics, their spatial relationship to the implant site, and clinical outcomes following three intraoperative management techniques performed concurrently with implant placement: gentle displacement using the implant, aspiration of cystic fluid, or cyst removal/ligation via a lateral window approach.

Results: Radiographic and clinical follow-up at 6-8 months postoperatively demonstrated an overall implant survival rate exceeding 95%. The vast majority of MSMRCs had no significant negative impact on implant success.

Conclusion: MSMRCs are not an absolute contraindication for implant therapy. Based on the findings, the researchers propose a graded management strategy: for small, asymptomatic cysts, conservative intraoperative measures (displacement or aspiration) are adequate; for larger cysts or those likely to interfere with the procedure, removal or ligation via a lateral window is recommended. Precise preoperative CBCT assessment and strategy selection based on cyst-specific features (size and location) enable safe and effective simultaneous implant treatment. This study provides operable, evidence-based guidance for managing this common radiographic finding.

OP14 - 2 | RETROMOLAR CANAL CHARACTERISTICS IN A TURKISH CYPRIOT POPULATION: CBCT STUDY

M. Beyköylü¹

¹Near East University, Oral Diagnosis and Radiology, Nicosia, Cyprus

Aim: To evaluate the prevalence, morphological characteristics, and laterality of the retromolar canal (RMC) in a Turkish Cypriot population using cone-beam computed tomography (CBCT) and to assess possible associations between RMC presence and demographic variables including age and sex.

Materials and Methods: In this retrospective cross-sectional study, CBCT scans of 300 patients were reviewed. RMC presence was recorded. In RMC-positive cases, morphological type (A1, A2, B, C), laterality (unilateral/bilateral) and side distribution (right-only/left-only) were documented. Age was analyzed as a continuous variable. The Mann–Whitney U and chi-square tests were used for comparisons. An exact binomial test assessed right–left predominance among unilateral cases, and logistic regression estimated adjusted odds ratios for age and sex.

Results: Among the 300 patients, 52.3% were female and 47.7% were male, with a mean age of 46.43 ± 17.02 years. The RMC was identified in 26.3% of patients. RMC presence was not associated with age or sex. Type A1 was the most common morphology (51.9%), followed by A2 (32.9%), C (11.4%), and B (5.1%). RMCs were predominantly unilateral (96.2%), with no right–left predominance. Logistic regression analysis confirmed that age and sex were not significant predictors.

Conclusion: The RMC was observed in approximately one-quarter of patients. Type A1 was the predominant morphology, and unilateral canals were far more common than bilateral presentations. These findings emphasize the importance of CBCT in the preoperative evaluation of the retromolar region due to potential surgical implications.

OP14 - 3 | INTRAOPERATIVE SURGICAL NAVIGATION IS AS EFFECTIVE AS CONVENTIONAL SURGERY FOR ZYGOMATICOMAXILLARY COMPLEX FRACTURE REDUCTION: META-ANALYSIS

M. Banarescu¹, B. Golzio Navarro Cavalcante², B. Szabo², P. Hegyi², G. Gerber², V.V. Costan¹

¹University of Medicine and Pharmacy Grigore T. Popa Iasi, Oral and Maxillofacial Surgery, Iasi, Romania

²Semmelweis University, Centre for Translational Medicine, Budapest, Hungary

Zygomaticomaxillary complex (ZMC) fractures are the second most common of all facial bone fractures, and the conventional treatment represents a challenge even for experienced surgeons. The aim of this systematic review and meta-analysis was to compare Intraoperative Surgical Navigation (ISN) with conventional surgery in the treatment of ZMC fractures.

The electronic search was conducted on 3 December 2022 in three databases (PubMed, Embase, and The Cochrane Library). Randomized controlled trials and observational studies were included. The outcome variables were accuracy, operative time, maximum mouth opening, postoperative stay, amount of bleeding, and cheek numbness. The random-effects model was used for the analysis and the results were given as mean differences (MD) and odds ratios (OR) with 95% confidence intervals (CI).

After duplicate removal, 1336 articles were found. After the selection procedure, 5 studies were found to be eligible for qualitative and quantitative analysis. There were no statistically significant differences between ISN and conventional surgery regarding the outcomes investigated, except in postoperative average deviation of the zygomatic bone. Our results showed an improvement of 0.64 mm [CI: 0.32, 0.92] zygomatic bone deviation when ISN was used.

In conclusion, the results suggest that ISN is as effective as the conventional technique in the treatment of ZMC fractures. However, because of the low number of eligible studies, further randomized controlled trials are necessary to strengthen the level of evidence on this matter.

OP14 - 4 | ORAL CAVITY AND OROPHARYNGEAL SQUAMOUS CELL CARCINOMA: A REVIEW OF IMAGING FINDINGS

Erick Neştianu¹, François Bidault², Gabriel Garcia²

¹Agrippa Ionescu" Emergency Clinical Hospital Bucharest, Romania

²Gustave Roussy Institute, Villejuif, France

Introduction: Squamous cell carcinoma (SCC) of the oral cavity and the oropharynx is a common malignancy, mostly seen in patients with an alcohol and tobacco background. HPV infection is also involved in pathogenesis and prognostic more frequently. Initial staging and post-therapeutic follow-ups are essential in choosing the appropriate treatment. Imaging is a key element in evaluating local extension.

Material and Methods: We followed several patients from their initial presentation to late follow-up, with a focus on pre and post-therapeutic imaging features. Inclusion criteria were patients with confirmed SCC of the oral cavity of the oropharynx that was already treated and currently in surveillance.

Results: We aim to present the main radiological findings for the correct assessment of local extension. These features are mandatory for accurate initial staging. Surveillance of these patients, using magnetic resonance imaging and computer tomography follow-up, can be difficult as normal anatomy can greatly change after treatment. Familiarizing young radiologists with common pre- and post-therapeutic aspects will improve the diagnostic process and help in choosing a good therapeutic protocol.

Conclusions: Good clinical and radiological assessment in patients with SCC of the oral cavity and the oropharynx is challenging. We present a brief but comprehensive description of pre and post-therapeutic features to familiarize radiologists with this topic.

OP14 - 5 | MANAGEMENT OF MEDICATION-RELATED OSTEONECROSIS OF THE JAW: CURRENT STRATEGIES FOR DIAGNOSIS AND TREATMENT

***I.-A. Grigoraș¹, C. Harasim¹, L. Cîrlescu¹, A. Manolache¹, M.-L. Ciofîr¹, A. Carp¹, D. Sulea¹,
R. Dragomîr¹, D. Agop Forna¹, V.-V. Costan¹***

¹Universitatea de Medicina si Farmacie Grigore T. Popa, Iași, Romania

Medication-related osteonecrosis of the jaw (MRONJ) is a serious adverse effect associated with antiresorptive and antiangiogenic therapies, characterized by exposed necrotic bone in the maxillofacial region in the absence of prior radiotherapy. The condition presents significant therapeutic challenges and may negatively impact patients' quality of life.

This study aims to evaluate the management of MRONJ through a retrospective analysis conducted over a 3-year period. Clinical data, including patient demographics, underlying conditions, type and duration of medication, lesion characteristics, and treatment modalities, were reviewed to assess outcomes and therapeutic effectiveness.

Particular attention was given to surgical management, with sequestrectomy being employed as a radical treatment method in selected cases. This approach involves the removal of necrotic bone tissue to promote healing and reduce the risk of disease progression. Outcomes following sequestrectomy were analyzed in comparison with conservative treatment methods.

The results highlight the importance of appropriate case selection and timely surgical intervention, alongside conservative measures, in achieving favorable outcomes. Interdisciplinary collaboration and individualized treatment planning remain essential in optimizing patient care.

In conclusion, MRONJ management requires a comprehensive approach, with sequestrectomy representing an effective radical treatment option in advanced cases, contributing to improved clinical outcomes when applied judiciously.

OP14 - 6 | MAXILLOMANDIBULAR ADVANCEMENT: BRIDGING FACIAL AESTHETICS AND AIRWAY FUNCTION

***S.-O. Stelea¹, F.-P. Sava¹, A. Manolache¹, E.-P. Stelea¹, A.-L. Platon¹, O. Butnaru¹, D. Sulea¹,
D. Vasincu¹, V.-V. Costan¹***

¹Grigore T. Popa University of Medicine and Pharmacy Iasi, Surgical, Iasi, Romania

Aim: This study evaluates maxillomandibular advancement (MMA) as a dual-purpose intervention, aiming both to restore dentofacial harmony and to provide surgical treatment for severe forms of obstructive sleep apnea (OSA).

Materials and Methods: The study is based on a critical analysis of recent literature and meta-analyses employing three-dimensional diagnostic technologies, particularly cone-beam computed tomography (CBCT), along with functional assessments using polysomnography (PSG). These methods enable precise airway segmentation and quantitative evaluation of respiratory parameters, such as the apnea-hypopnea index (AHI).

Results: Three-dimensional imaging analysis confirms that MMA produces a significant expansion of the skeletal framework, leading to increased airway volume in the nasopharyngeal, oropharyngeal, and hypopharyngeal regions through tensioning of the surrounding soft tissues. Meta-analyses report a surgical success rate of 85.5%, associated with a substantial reduction in AHI (from a mean of 63.9 to 9.5 events/hour) and improved oxygenation parameters. Patient satisfaction exceeds 85%, correlating with enhanced facial profile and significant psychosocial benefits. In contrast, isolated mandibular setback may reduce pharyngeal volume, necessitating careful treatment planning to prevent the risk of iatrogenic OSA.

Conclusions: Modern orthognathic surgery has evolved beyond purely aesthetic considerations, with MMA emerging as a key reconstructive procedure for optimizing airway architecture. The integration of three-dimensional morphological analysis using CBCT provides superior accuracy compared to two-dimensional methods and is essential for aligning aesthetic and functional objectives to achieve stable long-term outcomes.

OP14 - 7 | ODONTOGENIC CYSTS WITH SINUS EVOLUTION: EVALUATION OF MODERN DIAGNOSTIC AND TREATMENT METHODS

***L.-E. Cîrlescu¹, A. Carp¹, D. Șulea¹, A. Manolache¹, F. Sava¹, A. Nicolau¹, C. Harasim¹,
V. Sălceanu¹, O. Boișteanu¹, V.V. Costan¹***

¹Spitalul "Sfantul Spiridon" Iasi, Iasi, Romania

Aim: To evaluate the imaging features of odontogenic cysts with extension into the paranasal sinuses and to highlight the role of computed tomography (CT) and cone beam computed tomography in differential diagnosis and treatment planning.

Materials and Methods: This retrospective study included patients diagnosed with odontogenic cysts involving the paranasal sinuses, investigated using CBCT and CT. The following parameters were analyzed: lesion location (predominantly maxillary), size, relationship to dental structures, degree of sinus extension, associated bone changes, and density/signal characteristics. Imaging findings were correlated with clinical data and histopathological results, when available.

Results: The most frequently identified lesions were radicular cysts and dentigerous cysts, predominantly located in the maxilla with extension into the maxillary sinus. CT accurately demonstrated cortical bone erosion and the relationship with dental roots. Complications such as secondary sinusitis or expansile remodeling were observed.

Conclusions: Odontogenic cysts with sinus extension present characteristic imaging features, and the combined use of CT and CBCT is essential for accurate diagnosis and differentiation from other sinonasal pathologies. Imaging plays a key role in guiding therapeutic management and preventing complications.

OP15 - 1 | EXPLORING MANDIBULAR SEXUAL DIMORPHISM USING 3D CBCT RECONSTRUCTIONS: A PROMISING RADIOLOGICAL APPROACH

N. Christoloukas¹, A. Mitsea¹, L. Kovatsi², C. Angelopoulos¹

¹*School of Dentistry, National and Kapodistrian University of Athens, Oral Diagnosis and Radiology, Goudi ATHENS, Greece*

²*School of Medicine, Aristotle University of Thessaloniki, Laboratory of Forensic Medicine and Toxicology, Thessaloniki, Greece*

Aim: To investigate the utility of mandibular measurements derived from CBCT reconstructions for potential sex estimation in a Greek adult population.

Material and Methods: CBCT scans of 204 adult individuals (102 males and 102 females) were retrospectively analyzed. Three-dimensional mandibular surface reconstructions were generated, and a standardized mandibular reference plane was established. Selected posterior mandibular landmarks were identified, and linear distances projected onto this plane were recorded. Statistical analysis included univariate testing and multivariate binary logistic regression to evaluate sex-related differences and predictive performance.

Results: All linear measurements demonstrated statistically significant differences, with consistently higher values observed in males. A multivariate regression model based on selected linear parameters achieved high predictive accuracy for sex classification.

Conclusion: The observed differences in linear mandibular measurements indicated their promising potential for sex estimation. These findings supported the use of CBCT-derived linear measurements as a reliable supplementary tool in forensic contexts.

OP15 - 2 | PRE-PROCEDURAL ANXIETY IN DENTAL RADIOLOGY: A COMPARISON BETWEEN ORTHOPANTOMOGRAPHY AND CONE BEAM COMPUTED TOMOGRAPHY

S. Telsiz¹, A. Pınarbaşı¹, A. Çukurluoğlu¹

¹Erciyes University, Oral and Maxillofacial Radiology, Kayseri, Turkey

Aim: This study aimed to compare pre-procedural anxiety levels between patients undergoing orthopantomography (OPG) and cone beam computed tomography (CBCT).

Material and Methods: This observational study included 198 patients referred for dental imaging at Erciyes University Faculty of Dentistry, with 99 patients in OPG group and 99 in CBCT group. The groups consisted of different individuals. Pre-procedural anxiety was assessed immediately before imaging using the State-Trait Anxiety Inventory-State form (STAI-1) and Corah's Dental Anxiety Scale (CDAS). Demographic data, including age and sex, were recorded. Normality was assessed using the Shapiro-Wilk test. Group comparisons were performed using the Mann-Whitney U test. Multivariable linear regression analyses were conducted to adjust for age and sex. Correlations between anxiety scales were evaluated using Spearman's correlation coefficient.

Results: Patients undergoing CBCT demonstrated significantly higher anxiety levels than those undergoing OPG. The mean STAI-1 score was 36.25 ± 9.92 in the OPG group and 39.38 ± 7.36 in the CBCT group ($p = 0.009$). Similarly, the mean CDAS score was 7.73 ± 2.69 for OPG and 8.78 ± 3.27 for CBCT ($p = 0.040$). No significant difference was found between the indications for CBCT imaging and anxiety levels ($p > 0.05$). A moderate positive correlation was observed between STAI-1 and CDAS scores ($r \approx 0.43$, $p < 0.001$).

Conclusion: Pre-procedural anxiety levels were significantly higher in patients undergoing CBCT compared with OPG. Awareness of increased anxiety in CBCT patients may help clinicians improve patient comfort before radiographic procedures.

OP15 - 3 | DEEP LEARNING APPLICATIONS IN CONE-BEAM COMPUTED TOMOGRAPHY FOR MAXILLARY SINUS PATHOLOGY: A SYSTEMATIC REVIEW

V. Venianakis¹, N. Christoloukas¹, A. Mitsea¹, C. Angelopoulos¹

¹School of Dentistry, National and Kapodistrian University of Athens, Clinic of Oral Diagnosis & Radiology, Goudi Athens, Greece

Aim: To systematically review the international literature on the application of deep learning models for the assessment of maxillary sinus pathology using cone-beam computed tomography (CBCT) images.

Material and Methods: A systematic literature search was conducted in four electronic databases for studies published from 2016 onwards. Eligible studies applied deep learning algorithms directly to CBCT images for automated detection, segmentation, or classification of maxillary sinus pathology. Study selection followed predefined inclusion criteria, and a qualitative assessment of risk of bias was performed.

Results: Eight studies met the inclusion criteria. Most studies employed convolutional neural network architectures, including U-Net, V-Net, YOLO, and cascade frameworks. Deep learning tasks included lesion segmentation and binary or multiclass classification, most frequently addressing mucosal thickening and mucosal retention cysts. Overall, the reported models demonstrated high performance, with segmentation accuracy exceeding accepted reliability thresholds and diagnostic performance achieving area under the curve values above 0.90.

Conclusion: Deep learning-based image analysis demonstrates strong potential for supporting the assessment of maxillary sinus pathology on CBCT images. Further validation using larger datasets and standardized methodologies is required before routine clinical implementation.

OP15 - 4 | WHY CBCT IN ENDODONTOLOGY? DIAGNOSTIC ADVANTAGES IN ODONTOGENIC SINUSITIS AND PERIAPICAL LESIONS

**C. Antohi¹, M. Salceanu¹, A.C. Concita¹, T. Hamburda¹, C.L. Giuroiu¹, R.E. Cernei²,
R.M. Popescu², B.I. Dobrovat², I. Nica³, A. Gheorghe³, G. Pancu³, C. Topoliceanu³**

¹UMF "Grigore T. Popa", Endontology, Iasi, Romania

²UMF "Grigore T. Popa", Surgery, Iasi, Romania, ³UMF "Grigore T. Popa", Cariology, Iasi, Romania

Aim: The aim of this study was to emphasize the diagnostic value of cone-beam computed tomography (CBCT) in endodontology for the evaluation of odontogenic sinusitis and symptomatic or asymptomatic periapical lesions, and to compare the information obtained from conventional two-dimensional (2D) radiography with that provided by three-dimensional CBCT imaging.

Material and Methods: A comparative analysis was performed based on clinical cases and relevant literature regarding patients with suspected odontogenic sinusitis and periapical lesions of endodontic origin. Conventional 2D imaging techniques, including periapical and panoramic radiographs, were compared with CBCT examinations in order to assess differences in lesion detection, localization, and spatial extension, as well as their relationship with adjacent anatomical structures.

Results: CBCT imaging demonstrated superior diagnostic accuracy in identifying periapical lesions and assessing their real dimensions and spatial relationships. In cases of odontogenic sinusitis, CBCT allowed detailed visualization of the maxillary sinus, including mucosal thickening, sinus floor discontinuities, and the odontogenic source of infection. Conventional 2D radiography was useful as an initial diagnostic tool but frequently underestimated lesion size or failed to reveal early pathological changes due to anatomical superimposition.

Conclusions: CBCT provides significant additional diagnostic information in endodontology, particularly in complex cases involving periapical pathology and odontogenic sinusitis. While 2D radiography remains the first-line imaging method, CBCT should be considered when a more accurate three-dimensional assessment is necessary for diagnosis and treatment planning.

OP15 - 5 | THE ROLE OF PET/CT IN EVALUATING IMAGING CHARACTERISTICS OF HODGKIN LYMPHOMA WITH MAXILLOFACIAL AND ENT INVOLVEMENT

C. Antohie¹, D. Haba^{2,3}, A.I. Diana^{3,2}, D. Chetan¹

¹Regional Institute of Oncology, Nuclear Medicine, Iasi, Romania

²University of Medicine and Pharmacy "Gr. T. Popa", Surgery Department, Iasi, Romania

³Emergency Hospital "Prof. Dr. Nicolae Oblu", Radiology and Medical Imaging, Iasi, Romania

Aim: Hodgkin lymphoma is a malignant lymphoproliferative disorder of B-cell origin with high curative potential when accurately diagnosed and appropriately staged. In maxillofacial and ENT pathology, lymphadenopathies involving the region from the palatine tonsils to the supraclavicular area, may represent the initial clinical manifestation. 18F-FDG PET/CT plays a key role in evaluating disease extent, staging, and treatment response in clinical practice.

Materials and Methods: This study included 55 patients with histopathologically confirmed Hodgkin Lymphoma, presenting with nodal involvement from the palatine tonsils to the supraclavicular region, who underwent 18F-FDG PET/CT. Diagnosis was established by excisional lymph node biopsy and immunohistochemical analysis according to WHO criteria. PET/CT was used for initial staging, assessment of bone marrow involvement, and evaluation of interim and end-of-treatment response.

Results: The cohort comprised 55 patients (30 females, 25 males), with peak incidence in the 20–30-year age group and a second peak over 50 years. 18F-FDG PET/CT enabled accurate detection of nodal and extranodal involvement, as well as bone marrow infiltration, reducing the need for invasive biopsy in most cases. It proved essential for staging, prognostic stratification, and therapy adaptation. Semiquantitative parameters (SUV) supported objective response assessment and prognosis estimation.

Conclusions: 18F-FDG PET/CT is an essential imaging modality in Hodgkin lymphoma with maxillofacial and ENT involvement, with a central role in staging and treatment monitoring. Optimal management requires a multidisciplinary approach to improve diagnostic accuracy and enable personalized therapy strategies.

OP15 - 6 | PET/CT IMAGING ASPECTS IN NON-HODGKIN LYMPHOMAS OF THE HEAD AND NECK

D. Chetan¹, C.M. Antohie¹, R. Popescu², D. Haba^{3,2}

¹Regional Institute of Oncology, Nuclear Medicine Laboratory / PET-CT, Iasi, Romania

²Emergency Hospital "Professor Doctor Nicolae Oblu", Radiology and Medical Imaging, Iasi, Romania

³University of Medicine and Pharmacy "Gr.T.Popa", Surgery Department, Iasi, Romania

Aim: Non-Hodgkin lymphomas are malignant diseases, originating in the lymph nodes but also extranodal: bone marrow, spleen, tonsils, thymus, Peyer's patches, with multiple histopathological aspects and varied evolution.

Hybrid PET/CT imaging with 18F-FDG is the method of choice in the evaluation of non-Hodgkin lymphomas with FDG avidity.

Material and method: In the study we included 64 patients (27 women and 37 men), aged between 24 and 79 who had a diagnosis of non-Hodgkin lymphoma established using clinical, histopathological and imaging criteria, who were explored by PET-CT for lymph node enlargement and/or the appearance of extranodal tumor masses.

All patients were examined by 18F-FDG PET/CT, the scans being performed with a Discovery 710 GE PET/CT system.

Results: 42% of the patients examined were over 60 years old of age; the location of the disease was nodal, in the lymph nodes of the head and neck for 67% of the cases, and extranodal in 33% of the cases (maxillary sinus, base of the tongue, temporomandibular region, nasopharynx, inguinal region).

18F-FDG PET/CT allowed optimal staging of the disease, highlighting FDG-avid lesions that were not identified on the initial computed tomography.

Conclusions: PET/CT with 18F-FDG which, using qualitative and semi-quantitative SUVmax (standard uptake value) determination, is essential in identifying extranodal latero-cervical tumor masses, in staging and restaging, during therapy and at the end of treatment, to guide clinical management and provide prognostic information, contributing to the optimal management of non-Hodgkin lymphomas in the head and neck region.

OP15 - 7 | ANATOMICAL RELATIONSHIP OF ELONGATED STYLOIDS ON CBCT SCANS: VALIDATION OF DIAGNOSTIC LANDMARKS FOR SMALL-FIELD STUDIES.

S. Jauregui¹

¹Universitat Internacional de Catalunya (UIC), Radiology, Barcelona, Spain

Aim: Elongated styloid processes (ESP) can cause clinical complications like Eagle's syndrome. While CBCT is the diagnostic gold standard, small field-of-view (FOV) scans often exclude these structures. This study aimed to analyze styloid process (SP) morphometry and determine its anatomical relationship with the occlusal plane to establish reliable landmarks for small-field diagnostic protocols.

Material and methods: An observational retrospective study was conducted on 200 full-field CBCT scans. Morphological variations were classified using Langlais' criteria. Measurements included SP length, angulations, and the vertical relationship between the SP tip and the occlusal plane for all identified processes. Statistical analysis evaluated correlations between these measurements and demographic variables (age and sex).

Results: A significant anatomical correlation was found between SP length and the occlusal plane. While normal-length styloid processes did not reach the occlusal level, elongated processes (ESP) consistently surpassed the occlusal plane. This relationship remained stable regardless of the degree of elongation, providing a predictable vertical landmark. Additionally, type 1 (elongated) morphology was significantly more prevalent in older patients (mean age 52.8) compared to type 3 (segmented), which predominated in younger individuals ($p=0.003$). Coronal angulation was significantly higher in females than in males.

Conclusions: The occlusal plane serves as a critical diagnostic reference for identifying ESP. Since the occlusal plane is a standard landmark in dental CBCT, any styloid structure surpassing this level in a restricted FOV scan should be considered elongated. This finding provides a simplified and reliable screening method for Eagle's syndrome in routine dental imaging.

OP17 - 6 | A MULTI-STAGE DEEP LEARNING WORKFLOW FOR AUTOMATED DETECTION OF MAXILLARY SINUSITIS OF ENDODONTIC ORIGIN IN CBCT IMAGES

O. Ayman¹, A. Fahmi¹, H. Aqabat¹, N. Taha², S. Saber¹

¹The British University in Egypt, Elsherouk, Cairo, Egypt

²Cairo University, Cairo, Egypt

Aim: To develop and validate a novel, automated deep learning workflow for accurately detecting and differentiating Maxillary Sinusitis of Endodontic Origin (MSEO) from Normal Maxillary Sinus (NMS) and Maxillary Sinusitis of Non-Endodontic Origin (MS-NEO) in Cone-Beam Computed Tomography (CBCT) images.

Methods: A balanced dataset of retrospective CBCT scans was labeled for NMS, MSEO, and MS-NEO. Our custom workflow first performed anatomic classification of image orientation (coronal, sagittal, axial). This was followed by automated segmentation of tooth roots, sinus lining, and sinus regions. A feature extractor then analyzed radiographic characteristics from the segmented areas, and a final Multi-View classifier integrated the data to produce a diagnosis. Model performance was evaluated on both internal testing and external validation datasets using Accuracy, Precision, Recall, F1, and DICE scores.

Results: The anatomic classifier achieved Accuracy, Precision, Recall, and F1 scores of 0.99 and 0.98 on testing and external datasets, respectively. The segmentation models yielded high DICE scores across all views (0.8-1.0). The final Multi-View classifier demonstrated excellent performance, with overall Accuracy and F1 scores ranging from 0.9 to 1.0 for both testing and external datasets, confirming the model's robustness and generalizability.

Conclusions: The proposed multi-stage deep learning workflow provides a highly accurate and reliable method for the automated detection and classification of MSEO in CBCT scans. This tool has significant potential to enhance diagnostic efficiency and consistency in clinical practice, ultimately improving patient outcomes.

OP19 - 3 | GUIDED IMPLANTOLOGY - TIPS AND TRICKS

E. Dragan¹

¹Apollonia, Iasi, Romania

Introduction: Recent advances in dental implant technology have significantly improved the predictability and safety of implant procedures. Through theoretical concepts and case studies derived from clinical practice, this course aims to present the latest developments in dental implantology.

Materials and Methods: The course integrates theoretical instruction with clinical case analysis from the presenter's own practice. Digital imaging and planning technologies, including Cone-Beam Computed Tomography (CBCT) and specialized implant planning software, are used to illustrate the workflow of guided implantology. The training covers anatomical assessment using CBCT imaging, digital planning of implant placement, validation of three-dimensional treatment plans, and the use of surgical guides during implant insertion. The surgical protocol for guided implantology is also presented, together with strategies for managing potential complications.

Results: The digitalization of the entire dental implant insertion process enhances the accuracy of diagnosis, treatment planning, and surgical execution. Guided implant surgery allows for improved precision in implant positioning, reduced surgical risks, and more predictable clinical outcomes. The use of digital planning tools and surgical guides contributes to a higher success rate of implant procedures and increases overall treatment efficiency.

Conclusions: Guided implantology, supported by digital imaging and planning technologies, represents a significant advancement in modern dental practice. The integration of CBCT imaging, digital planning software, and surgical guides enables clinicians to achieve more predictable and safer implant placements. Understanding the surgical protocol, treatment planning validation, and complication management is essential for maximizing the success of implant therapy.

PP1 - 1 | DEVELOPMENT OF A PANORAMIC RADIOGRAPHIC SCORING SYSTEM FOR DENTAL STATUS ASSESSMENT

E. Solomon¹, F.C. Dogioiu¹, M.E. Meilă¹, E.C. Ghiuță¹, I.R. Sfeatcu², D. Epistatu¹

¹"Carol Davila" University of Medicine and Pharmacy, Faculty of Dental Medicine, Dental Radiology, Bucharest, Romania

²"Carol Davila" University of Medicine and Pharmacy, Faculty of Dental Medicine, Oral Health and Community Dentistry, Bucharest, Romania

Aim: Most epidemiological studies assessing oral health are primarily based on clinical examinations and questionnaires, while radiographic parameters are rarely incorporated, despite their potential to provide objective information for dental status evaluation. Therefore, the aim of this study is to propose a standardized panoramic radiographic scoring system based on measurable imaging parameters and to explore its potential applications in both clinical and research settings.

Materials and Methods: A panoramic radiographic scoring system will be defined a priori using a five-point ordinal scale based on measurable imaging parameters, including dental status and alveolar bone characteristics observable on panoramic radiographs. The proposed scoring system is intended to facilitate standardized assessment and may subsequently allow correlations with oral health behavior indicators measured using validated questionnaires, including the Dental Neglect Scale (DNS) and Oral Health Values Scale (OHVS).

Future studies are required to evaluate the reproducibility and validity of the proposed scoring system.

Results: The proposed scoring system may provide objective information for dental status assessment, enable correlations with oral health behavior indicators, and support patient evaluation in clinical practice.

Conclusion: The system may be useful for the analysis of panoramic radiographs in epidemiological studies, clinical settings, and retrospective research.

Integrating radiographic parameters with oral health behavior indicators could enhance risk assessment, preventive strategies, and patient management. Further clinical validation is needed to determine the applicability of the proposed scoring system in routine practice.

PP1 - 2 | ACCURACY OF CHATGPT AND GEMINI IN MANDIBULAR THIRD MOLAR TEETH IN PANORAMIC RADIOGRAPHS: COMPARISON OF UNCOMMANDED AND COMMANDED CASES

S. Aras¹, H. Solak¹, K. Demirezer¹, M. Kıranşal¹, E.N. Topaloğlu¹, E. Sobi¹, U.T. Göktürk¹

¹Inonu University, Oral and Maxillofacial Radiology, Malatya, Turkey

Aim: To compare the accuracy of ChatGPT and Gemini for Winter angulation classification of mandibular impacted third molars (#38, #48) on panoramic radiographs, and to evaluate whether prompted querying (standardized instruction) improves performance versus unprompted querying (no prior instruction), using an expert reference standard.

Materials and Methods: This retrospective study included 120 panoramic radiographs. Winter angulation of #38 and #48 was determined by an oral and maxillofacial radiology specialist (reference standard). ChatGPT and Gemini were queried under unprompted and prompted conditions; in the prompted condition, a brief standardized description of Winter categories was provided immediately before querying. Outputs were coded as correct (1) or incorrect (0). Each radiograph yielded four evaluations per condition (ChatGPT-38, Gemini-38, ChatGPT-48, Gemini-48), resulting in 480 paired evaluations per condition. Prompted vs unprompted performance was tested with the exact McNemar test (two-sided $\alpha=0.05$). To account for within-case clustering, a sensitivity analysis used GEE logistic regression with robust standard errors (condition, model, tooth, and condition $\times$ model).

Results: Accuracy increased from 52.5% (252/480) unprompted to 57.5% (276/480) prompted (+5.0 percentage points), but was not significant (McNemar $p=0.129$; OR 1.23, 95% CI 0.95–1.60). GEE showed no significant condition effect ($p=0.269$) and no condition $\times$ model interaction. Gemini outperformed ChatGPT overall (GEE OR 1.40; 95% CI 1.06–1.84; $p=0.018$).

Conclusion: Prompting produced a modest, non-significant improvement, whereas model selection significantly affected accuracy, with Gemini performing better than ChatGPT.

PP1 - 3 | CARIES DIAGNOSIS IN PANORAMIC RADIOGRAPHS ACCORDING TO THE ICDAS-RSS: COMPARISON OF THE DIAGNOSTIC ACCURACY OF LED AND LCD MONITORS

E. Sobi¹, H. Solak¹, M. Kıranşal¹, E.N. Topaloğlu¹, S. Aras¹, K. Demirezer¹, U.T. Göktürk¹

¹Inönü University, Oral and Maxillofacial Radiology, Malatya, Turkey

Aim: To evaluate the effect of two display technologies (LCD vs LED) on the diagnostic quality of caries depth assessment on panoramic radiographs according to ICDAS-RSS, focusing on potential differences in grayscale/contrast rendition, detail discrimination, and lesion-depth perceptibility.

Materials and Methods: Materials and Methods: In this single-center retrospective study, 108 carious permanent teeth from archived panoramic radiographs were identified by an experienced oral radiologist and served as the reference standard. Subsequently, the images were blindly and independently scored by two experts using ICDAS-RSS (RA1–RC6). Images were reviewed on an HP L1710 (LCD) and an HP P24H G5 (LED) under dim, constant ambient lighting using standardized viewing and software settings. Agreement between observers was assessed with weighted kappa; interdisplay score differences with Wilcoxon; and accuracy versus the reference standard with McNemar ($\alpha=0.05$).

Results: Relative to the reference standard, Observer 2 performed excellently on both displays. LED showed higher specificity at the enamel–dentin threshold (≥ 3), whereas LCD showed slightly higher accuracy for deep lesions (≥ 5 ; 93.7% vs 90.5%). For Observer 2, LED-LCD score differences were not significant ($p=0.083$) and no bias was detected (LED $p=1.000$; LCD $p=0.724$). Exact-score agreement was similar (McNemar $p=0.720$), while Observer 1 differed across displays ($p=0.012$).

Conclusion: Both displays demonstrated excellent agreement and diagnostic performance. LED may reduce false positives (higher specificity), while LCD may offer a small advantage for very deep lesions. Under standardized conditions, both display types appear clinically acceptable.

PP1 - 4 | DIAGNOSTIC PERFORMANCE AND ACCURACY OF THREE AI MODALITIES IN ASSESSING THE MANDIBULAR CANAL RELATIONSHIP

E.N. Topaloğlu¹, E. Sobi¹, U.T. Göktürk¹, K. Demirezer¹, H. Solak¹, S. Aras¹, M. Kıranşal¹

¹Inonu University, Oral and Maxillofacial Radiology, Malatya, Turkey

Aim: The aim of this study was to evaluate the diagnostic efficacy of Gemini AI's three different modes in assessing the anatomical relationship between mandibular third molars and the mandibular canal, utilizing Cone-Beam Computed Tomography (CBCT) as the reference standard.

Materials and Methods: An oral radiologist retrospectively evaluated existing CBCT scans of 116 mandibular third molars from 59 patients to determine their relationship with the mandibular canal as the gold standard. Subsequently, the corresponding panoramic radiographs of these patients were introduced to the Gemini AI system. The diagnostic performance of three different AI modes (Gemini Think, Gemini Flash and Gemini Pro) was then assessed by comparing their outputs against the CBCT findings.

Results: The Gemini AI modes exhibited varying tooth detection rates, with failures occurring in 14.6% to 20.7% of cases. Gemini Pro demonstrated superior sensitivity (98.25%) but significantly compromised specificity (7.14%), indicating a high rate of false positive assessments. Conversely, Gemini Flash yielded the highest specificity (58.97%) but displayed suboptimal sensitivity (37.93%). Overall diagnostic accuracy remained moderate, ranging from 46.39% to 60.87%. Concordance with the gold standard was marginal, with Kappa values ($k = 0.029$ to 0.134) indicating slight to poor agreement.

Conclusion: Although Gemini AI modes show promise in identifying canal involvement, substantial tooth detection failures and high false positive rates limit their current clinical reliability. At present, these AI modes should be considered diagnostic adjuncts requiring expert verification rather than substitutes for CBCT in preoperative surgical planning.

PP1 - 5 | RETROSPECTIVE EVALUATION OF THE DEGREE OF DEVELOPMENT OF THIRD MOLARS BASED ON ORTHOPANTOMOGRAMS OF CHILDREN AND ADOLESCENTS AGED 5-18 YEARS

A. Pogorzelska¹, M. Golebiowski¹, A. Grochowska¹, P. Regulski², A. Aluchna³, K. Szopinski¹

¹Medical University of Warsaw, Department of Dental and Maxillofacial Radiology, Warsaw, Poland

²Medical University of Warsaw, Laboratory of Digital Imaging and Virtual Reality, Department of Dental and Maxillofacial Radiology, Warsaw, Poland

³Medical University of Warsaw, Department of Comprehensive Dentistry, Warsaw, Poland

Aim: The objectives of this study were to assess the relationship between the developmental stage of third molars and patient age in the Polish juvenile population, evaluate potential differences in third molar development between males and females, and determine whether third molar formation differs between the right and left sides or between the maxilla and mandible.

Material and Methods: The study analyzed 1,005 orthopantomograms of patients aged 5-18 years, taken at the Medical University of Warsaw in 2018. The images were classified into four age groups and assessed according to the Moorrees et al. classification system. Statistical analysis included the χ^2 test, Kruskal-Wallis test, Mann-Whitney U test, and polynomial regression modeling. Ethical approval was obtained from the university's Bioethics Committee.

Results: A statistically significant relationship was observed between the developmental stage of third molars and age, males exhibited earlier molar development than females. Regression analysis yielded an equation predicting patient age based on third molar development, with an R^2 value of 0.724. Differences between maxillary and mandibular third molars, or between the development on the right and left side were not statistically significant.

Conclusion: The findings align with other studies, confirming that third molars develop earlier in males. Unlike studies in other populations, no differences were observed between the right and left molars or between maxillary and mandibular development in studied population. Given the limited data on third molar development in European populations, this study provides valuable reference data for forensic and anthropological applications.

PP1 - 6 | PATIENT MOVEMENT AND PERCEPTION OF DISCOMFORT IN CHILDREN DURING SIMULATED DENTAL-DEDICATED MRI EXAMINATION

A.B. Jensen¹, L.H. Matzen², J. Christensen²

¹Aarhus University, Department of Dentistry and Oral Health, Section for Oral Ecology, Aarhus C, Denmark

²Aarhus University, Department of Dentistry and Oral Health, Section for Oral Radiology and Endodontics, Aarhus C, Denmark

Aim: Assess the feasibility of dental-dedicated MRI (ddMRI), a non-ionizing imaging modality developed for dentistry, for scanning children and explore associations between age, sex, perceived experience, and movement during scanning.

Materials and Methods: Thirty-seven children (8-14years) underwent a mock ddMRI examination simulating the scan of an impacted canine (5 pulse sequences, total scan time 12'27 min) using a Siemens Magnetom Free.Max 0.55T scanner and a dedicated dental coil. Perceived experience was recorded using a 5-point visual analogue scale (VAS) before/after the examination. Head and body movements were quantified from video recordings of the scan. Multiple linear regression analyses were applied to evaluate associations between log-transformed movement and age/sex/VAS scores. Separate regression models were applied for pre- and post-scan VAS.

Results: Number of movements during scan time was registered for the head (mean/median 6.3/0; range 0-82) and for the body in total (62/34; 0-430). Increased head movement was associated with younger age (34%/year, $p=0.010$). Overall movement was associated with sex (male>female, 24.8%, $p=0.010$). Pre-scan VAS (mean/median 1.73/2; range 1-3) decreased with increasing age (0.21 points/year, $p=0.035$). Post-scan VAS (1.95/2; 1-3) was higher in girls (0.6 points, $p=0.031$).

Conclusion: Age and sex influence children's perception of and number of movements during mock scan. ddMRI seems to be a feasible method for scanning children in a dental setting, offering a comfortable experience without ionizing radiation.

PP1 - 7 | PREVALENCE AND MORPHOMETRIC CHARACTERISTICS OF FOSSA NAVICULARIS MAGNA ON CONE BEAM COMPUTED TOMOGRAPHY: A RETROSPECTIVE ARCHIVE STUDY

U.T. Göktürk¹, S. Aras¹, E. Topaloğlu¹, M. Kıranşal¹, K. Demirezer¹, E. Sobi¹, H. Solak¹

¹Inönü University, Oral and Maxillofacial Radiology, Malatya, Turkey

Aim: To determine the prevalence of fossa navicularis magna (FNM) on CBCT and evaluate whether FNM dimensions (length, depth, width) are associated with age and sex.

Materials and Methods: In this retrospective study, CBCT scans from November 2024 to December 2025 were reviewed. Scans were acquired using a NewTom 5G unit (110 kVp, 1–20 mA; 18-s scan time; 3.6-s exposure). Adults (≥ 18 years) with clivus coverage and diagnostic image quality were included; cases with motion/metal artifacts, cranial-base trauma/surgery/major pathology, or insufficient coverage were excluded. FNM presence was assessed; in FNM-positive cases, length and depth were measured on sagittal sections and width on axial sections using 3D Slicer. Sex comparisons used t-test/Welch or Mann–Whitney U; age associations were tested with correlation and regression ($p < 0.05$).

Results: FNM was detected in 87/600 scans (14.5%; 95% CI: 11.9–17.5). Among FNM-positive cases ($n=87$), age was 30.9 ± 14.6 years; 53 were female and 34 male. Mean dimensions were 9.08 ± 3.98 mm (length), 2.66 ± 1.02 mm (depth), and 5.41 ± 1.77 mm (width). Length was higher in males than females (10.31 vs 8.29 mm; $p=0.032$), whereas depth and width did not differ by sex ($p > 0.05$). No significant associations were found between age and any measurement ($p > 0.05$).

Conclusion: FNM is a common incidental CBCT finding. Dimensions were not age-dependent, while length showed a modest sex-related difference.

PP1 - 8 | TRAUMA OF THE VISCEROCRANIUM: CT FINDINGS AND CLINICAL IMPLICATIONS

B.-E. Vrajiatoru¹, R.M. Popescu¹, D. Haba¹

¹Emergency Clinical Hospital "Prof. Dr. N. Oblu", Iasi, Romania

Background: Trauma to the viscerocranium is a frequent cause of morbidity in the head and neck region. Prompt and accurate imaging evaluation is essential for diagnosis, surgical planning, and prevention of functional or aesthetic complications. Computed tomography (CT) remains the primary imaging modality for assessing facial fractures due to its high spatial resolution and ability to visualize complex bony anatomy.

Purpose: To review the imaging features of viscerocranial trauma and highlight key CT findings that guide clinical management and multidisciplinary care in pediatric and adult patients.

Materials and Methods: Cross-sectional CT imaging of patients presenting with viscerocranial trauma was analyzed, focusing on fracture patterns, displacement, involvement of critical anatomical structures, and associated soft-tissue changes.

Results: CT evaluation allows precise delineation of fracture morphology in mandibular, maxillary, zygomatic, and orbital injuries. Characteristic imaging features, such as fracture lines, bony displacement, and associated soft-tissue edema, are critical for surgical planning and predicting potential complications. Accurate assessment facilitates coordinated management between radiology, maxillofacial surgery and ENT specialists.

Conclusion: CT provides rapid, reliable, and comprehensive assessment of viscerocranial trauma. Recognition of key imaging features is essential for timely intervention, optimal functional and aesthetic outcomes, and multidisciplinary patient care in the head and neck region.

PP1 - 9 | EVALUATION OF C-SHAPED CANAL VARIATIONS IN MANDIBULAR MOLARS USING CONE-BEAM COMPUTED TOMOGRAPHY IMAGES

H. Solak¹, D. Çelik Özen¹

¹İnönü University, Oral and Maxillofacial Radiology, Malatya, Turkey

Aim: The aim of this study was to evaluate and classify the cross-sectional morphological characteristics of C-shaped root canals in mandibular molars at the coronal, middle, and apical levels using cone-beam computed tomography (CBCT) images.

Material and Methods: This retrospective study screened 1520 CBCT records archived between November 2024 and December 2025. 99 patients with C-shaped canals (159 mandibular molars) were included. Axial sections were assessed using three standardized levels: coronal (2 mm apical to the canal orifice), middle (midpoint between coronal and apical references), and apical (2 mm coronal to the anatomic apex). At each level, canal configurations were recorded as C1–C5 according to the Fan classification. Categorical variables were compared using Pearson's chi-square or Fisher's exact test ($p < 0.05$).

Results: Cases were most frequent in the 21–30 age group (40.4%), and males comprised 77.78% of patients; sex distribution did not differ across age groups ($p = 0.847$). In 159 teeth, the most common types were C1 (52.8%) and C2 (29.6%) coronally; C2 (28.3%) and C3a (22.6%) in the middle; and C4 (28.9%) and C3b (22.6%) apically. C5 occurred only apically (0.6%). Fan type distribution differed significantly among molar groups ($p = 0.021$). Most cases were in second molars (91.8%), followed by third (6.3%) and first molars (1.9%).

Conclusion: C-canal morphology varies across root levels and is predominantly observed in mandibular second molars; three-level CBCT evaluation enables detailed morphological mapping to support clinical planning.

PP1 - 10 | MRI DIAGNOSIS AND MONITORING OF DENTAL PATIENTS: CURRENT CHALLENGES

M.-R. Popescu¹, B.-I. Dobrovăţ¹, E.-A. Marciuc¹, D.-A. Droancă-Ilinca¹, D. Pomohaci¹, C. Chirica¹, I.A. Danciu¹, C. Antohi¹, I.D. Popescu¹, D. Haba¹

¹Grigore T. Popa University of Medicine and Pharmacy Iasi, Department of Oral and Maxillofacial, Iasi, Romania

Aim: This study aims to evaluate the current role of MRI in dental diagnostics and monitoring, highlighting its advantages in soft tissue assessment, the technical limitations imposed by metallic artifacts, and emerging solutions for optimizing image quality.

Material and Methods: The study examines the clinical application of MRI in different fields, the most important in oncological pathology. Furthermore, we assessed the impact of technical constraints, such as metallic artifacts from dental implants and orthodontic appliances, and reviewed advanced sequences including DWI, MAVRIC, and SEMAC.

Results: MRI has emerged as a superior diagnostic tool due to its non-invasive, non-radiative nature and its high sensitivity in detecting modifications in soft tissues and nerves. However, image quality is frequently compromised by metallic artifacts—stemming from fillings, implants, and orthodontic devices—which can mask critical diagnostic data. The severity of these distortions depends on the metal alloy composition, magnetic field strength, and MRI sequences used. In the context of post-treatment monitoring, advanced sequences like DWI and perfusion imaging proved essential in differentiating tumor recurrence from post-therapeutic changes.

Conclusion: While MRI offers promising diagnostic capabilities for dental patients, the lack of standardized protocols and the presence of geometric distortions remain significant challenges. Future directions include the implementation of standardized MRI protocols, the adoption of metal-reduction techniques (MAVRIC, SEMAC, WARP), and the integration of artificial intelligence for artifact reduction. A multidisciplinary collaboration between orthodontists, surgeons, and radiologists is crucial, particularly in cases requiring the temporary removal of prosthetic devices to ensure diagnostic accuracy.

PP1 - 11 | AI-BASED MANDIBULAR SEGMENTATION ON CONE-BEAM CT: OPEN-SOURCE AND COMMERCIAL SOFTWARE VERSUS MANUAL SEGMENTATION

O.E. Burlacu Vatamanu¹, S. Drafta², C.M. Cristache³

¹University of Medicine and Pharmacy "Carol Davila", Doctoral School, Bucharest, Romania

²University of Medicine and Pharmacy "Carol Davila", Department of Fixed Dental Prosthetics and Occlusion, Faculty of Dental Medicine, Bucharest, Romania

³University of Medicine and Pharmacy "Carol Davila", Department of Dental Techniques, Faculty of Midwifery and Nursing, Bucharest, Romania

Aim: To evaluate and compare two artificial intelligence -based segmentation tools, one open-source and one commercial, with manual segmentation on cone-beam computed tomography images of the mandible.

Material and Methods: Thirty CBCT datasets were included, comprising cases with and without metal-related artifacts. Manual segmentation in 3D Slicer was used as the reference standard. Automated segmentation was performed with an open-source deep learning tool and a commercial AI platform. Accuracy was assessed using the Dice Similarity Coefficient (DSC) and Hausdorff Distance (HD). Processing time per case was recorded. Comparisons were made between each automated method and the manual reference, and between artifact and non-artifact subgroups.

Results: Both AI tools demonstrated high performance in standard cases. The open-source tool achieved a mean DSC of 0.82 and HD of 3.5 mm; the commercial platform yielded DSC of 0.91 and HD of 3.2 mm. Performance decreased in artifact cases for both platforms, with statistically significant differences in HD ($p < 0.05$). In cases with metal-related artifacts, performance decreased for both tools, with statistically significant differences in HD ($p < 0.05$). Mean processing time was approximately 40 minutes for manual segmentation, 1 minute 30 seconds for the open-source tool, and 1 minute 20 seconds for the commercial tool.

Conclusion: AI-based tools offer substantial time savings and promising segmentation accuracy, although both remain affected by metal-related artifacts. Their use may support efficient clinical and research workflows, with tool selection tailored to image quality.

PP1 - 12 | EDUCATIONAL INITIATIVE: VIDEO MATERIALS FOR LEARNING DENTAL RADIOLOGY

D. Ivanauskaite¹, V. Brukiene¹, R. Bendinskaite¹, D. Janaviciene¹

¹Institute of Dentistry, Faculty of Medicine, Vilnius University, Vilnius, Lithuania

Aim: To develop and implement video-based learning materials in dental radiology and evaluate students' feedback and reflections on the initiative.

Material and Methods: Educational initiative was conducted at the Institute of Dentistry, Vilnius University. Video content covered dental radiology topics from the curriculum of Dentistry and related to the performance of periapical, bitewing and panoramic radiographs. Videos were uploaded to the virtual learning platform. During the study of Dental radiology, 2nd-year undergraduate students were encouraged to watch and study the materials.

To obtain students' feedback and reflections on the initiative and to assess the usefulness and learning impact of the videos, a survey was prepared.

Results: At the Institute of Dentistry, in the dental radiology practice rooms equipped with Dental and Panoramic X-ray machines and related imaging accessories, 10 videos were recorded, each lasting between 5 to 10 minutes.

Students had the opportunity to watch the videos both before and after practice, allowing them to study the material at their own pace for learning and training purposes.

Reflection on the implemented initiative: improved the student learning experience through accessibility and reachability, relevance, and practical application; also improved the teaching/learning process and its results through more effective time management and lasting value.

Conclusion: Video materials for learning dental radiology are valuable and should continue to be integrated into student education and actively used.

PP1 - 13 | RADIOLOGICAL EVALUATION AS A TECHNICAL DETERMINANT IN PROSTHETIC DENTISTRY: DENTISTS' PERCEPTION OF 2D IMAGING VERSUS CBCT

D. Argatu¹, Irina Bamboi, Ana Nemtoi, Tinela Panaite, Adina Armencia, Ana Sirghe, Carmen Savin, Dana Budala, Teona Tudorici, Anca Rapis, Balcos Carina

¹Grigore T. Popa University of Medicine and Pharmacy, Radiology, Iasi, Romania

Introduction: Accurate assessment of bone morphology, anatomical limitations, and residual ridge resorption is essential for establishing predictable prosthetic treatment strategies. Although conventional two-dimensional (2D) radiography remains widely used in daily clinical practice, cone-beam computed tomography (CBCT) provides three-dimensional visualization of osseous structures and may improve diagnostic accuracy, particularly in complex prosthetic cases.

Materials and Methods: A cross-sectional survey-based study was conducted among 104 dental practitioners. Data were collected using a structured questionnaire consisting of 20 Likert-scale items (1–5), organized into four domains. Descriptive statistical analysis was performed to determine mean scores and overall perception patterns regarding the role of radiological assessment in prosthetic treatment planning.

Results: The overall perception score indicated a high level of agreement regarding the importance of radiological evaluation in prosthetic dentistry (4.22/5). Participants emphasized the critical influence of image quality on diagnostic accuracy and prosthetic decision-making (4.49), while insufficient technical quality was considered capable of compromising treatment planning (4.56). CBCT was consistently perceived as superior for evaluating bone volume and anatomical relationships (4.70) and for optimizing treatment planning in complex clinical scenarios (4.41). Respondents also acknowledged significant limitations of 2D imaging, particularly in cases involving advanced bone resorption (4.38).

Conclusions: Radiological evaluation is widely perceived by clinicians as an indispensable technical component of prosthetic diagnosis and treatment planning. CBCT is regarded as a valuable complementary tool that enhances diagnostic precision and clinical predictability, especially in anatomically complex cases.

PP1 - 14 | PANORAMIC RADIOGRAPHY IN PEDIATRIC DENTAL PRACTICE: DIAGNOSTIC CONTRIBUTION TO EARLY DETECTION OF DENTAL PATHOLOGY

C. Savin¹, C. Balcoş², F. Nanos³, T. Panaite⁴, T. Bărceanu⁵, A. Sîrghe¹

¹UMPh "Grigore T. Popa", Pediatric Dentistry, Iasi, Romania

²UMPh "Grigore T. Popa", Preventive Dentistry, Iasi, Romania

³Private Practice., Thessaloniki, Greece

⁴UMPh "Grigore T. Popa", Orthodontics and Dento-facial Orthopedics, Iasi, Romania

⁵UMPh "Grigore T. Popa", Iasi, Romania

Introduction: Orthopantomography is an essential diagnostic tool in pediatric dental practice, enabling accurate assessment of erupted and developing teeth, supporting diagnosis, treatment planning, and monitoring of dental eruption and pathology. **Aim.** To evaluate the clinical utility of panoramic radiography in the diagnosis of dental pathology in children and in the assessment of dental development.

Materials and Methods: The study included 298 panoramic radiographs obtained from pediatric patients aged 4-11 years who presented to the Pediatric Dental Clinic in Iași. The radiographs were analysed for dental and dento-maxillary findings relevant to pediatric dentistry diagnosis, including extensive carious lesions, periapical inflammatory processes, dental number and position anomalies, and premature loss of primary teeth. OPT images were also used to evaluate the eruption sequence of permanent teeth and to estimate dental age based on stages of tooth development.

Results: Panoramic analysis revealed a range of clinically relevant findings, including eruption disturbances, interproximal carious lesions (not easily detectable clinically), periapical pathology, and cases of premature loss of primary teeth, with potential impact on the eruption of permanent successors. Assessment of dental development stages allowed estimation of dental age and identification of variations in the physiological eruption sequence.

Conclusions: Orthopantomographies provide valuable diagnostic information in pediatric dentistry, facilitating early diagnosis and supporting appropriate treatment planning in pediatric patients. Additionally, both conventional and digital orthopantomography can serve as an effective tool for raising awareness and motivating caregivers of children with diverse dental pathology, helping to obtain consent for the initiation of rapid, correct, and comprehensive treatment.

PP2 - 1 | THREE-DIMENSIONAL VIRTUAL PLANNING IN ORTHOGNATHIC SURGERY USING NEMOFAB: REPRODUCIBILITY AND SURGICAL MOVEMENT ANALYSIS BASED ON CBCT DATA

A. Nemtoi¹, A. Nemtoi², D. Haba²

¹University of Suceava, Department of Biology and Morphofunctional Sciences, Suceava, Romania

²"Gr. T. Popa" University of Medicine and Pharmacy, Department of Dento-Alveolar and MaxilloFacial Surgery, Iasi, Romania

Aim: To assess the reproducibility and reliability of three-dimensional (3D) virtual orthognathic surgical planning performed on CBCT data sets by NemoFab software and to evaluate the variability of simulated skeletal movements among different operators.

Material and Methods: This retrospective study included a total of 58 patients diagnosed with dentofacial deformities and indicated for mono- or bimaxillary orthognathic surgery. Preoperative CBCT scans were exported as DICOM data sets and analyzed on a computer workstation using NemoFab 3D Surgery software.

Three different calibrated operators performed three-dimensional landmark identification, skeletal segmentation, and virtual surgical simulation on each data set. The simulated movements included maxillary advancement/setback, vertical impaction, mandibular advancement/setback, and rotational movements.

The interobserver variability for each simulated movement was calculated for each data set, including linear and angular discrepancies for each movement.

Results: For maxillary movement, mean interobserver variability was calculated to be 0.76 ± 0.41 mm, while mandibular movement demonstrated a variability of 1.08 ± 0.52 mm. For vertical impaction, variability was always below 0.9 mm for symmetrical data sets, while angular variability for occlusal plane rotation varied between 0.5 and 1.3 degrees.

Conclusion: The results of this study show that three-dimensional virtual orthognathic surgical planning performed on CBCT data sets by NemoFab software is reliable, and a high level of reproducibility is noticed among different operators.

PP2 - 2 | NASOPHARYNGEAL MASSES ON CT: A CASE-BASED REVIEW

R. Secara¹, D. Haba²

¹Universitatea de Medicina si Farmacie "Gr. T. Popa", Iasi, Iasi, Romania

²Universitatea de Medicina si Farmacie "Gr. T. Popa", Iasi, Romania

Aim: To illustrate the computed tomography (CT) imaging appearance of nasopharyngeal masses in histologically confirmed cases and to highlight the spectrum of findings encountered in routine clinical practice.

Material and Methods: We retrospectively reviewed contrast-enhanced CT examinations of patients presenting with nasopharyngeal masses. The selected cases included lesions with histopathological confirmation. Imaging studies were evaluated for lesion location, size, morphology, pattern of enhancement, involvement of adjacent structures, and the presence of cervical lymphadenopathy.

Results: The reviewed cases demonstrated a spectrum of CT appearances of nasopharyngeal tumors, including nasopharyngeal carcinoma and nasopharyngeal lymphoma. Imaging findings ranged from relatively well-defined soft tissue masses to more infiltrative lesions with varying degrees of regional lymph node involvement. Although some imaging features may suggest certain diagnostic considerations, overlap between different pathological entities was observed.

Conclusion: CT represents an important imaging modality in the initial evaluation of nasopharyngeal masses, providing valuable information regarding tumor extent and nodal involvement. However, imaging findings may be nonspecific, and histopathological analysis remains essential for establishing the definitive diagnosis.

PP2 - 3 | INTRAORAL STEREORADIOGRAPHY IN PERI-IMPLANT BONE LEVEL ASSESSMENT WITH VIRTUAL REALITY: AN IN VITRO STUDY

J. Ferreira da Costa¹

¹Lisbon University, Faculty of Medical Dentistry, Lisbon, Portugal

Aim: To evaluate the accuracy and precision of intraoral stereoradiography visualized through a Virtual Reality Head-Mounted Display (VR-HMD) for peri-implant bone level assessment, and to determine the optimal stereoscopic angle for clinical application.

Material and methods: A blinded in-vitro study used 10 artificial bone blocks with 40 randomly positioned implants. A total of 320 image pairs were acquired at horizontal angulations from 0° to 14°, using a microstep motor (0.01° precision). Images were mounted in a stereoscopic digital format and mirror-inverted horizontally to represent the lingual viewing method and reduce depth cues conflicts, and evaluated on a Meta Quest 3 HMD. Four blinded observers performed 1,280 measurements of the mesial, distal, buccal, and lingual peri-implant margins. Ground truth was established using CBCT (68 µm voxel). Accuracy and precision were assessed via median absolute error (MAE) and interquartile range.

Results: Stereoradiographic visualization showed better accuracy and precision than conventional 2D radiography. MAE decreased from 0.7 mm in 2D to 0.4 mm in all stereoscopic angles. Significant improvement was observed even at 2° of stereoscopy. Visual comfort declined progressively, reaching the comfort limit at 6°. Buccal and lingual margins showed the greatest diagnostic benefit.

Conclusion: Intraoral stereoradiography is more accurate and precise for peri-implant bone level measurement compared to conventional 2D radiography. The optimal stereoscopic angle lies between 2° and 6°, avoiding visual strain.

PP2 - 4 | APPLICATIONS OF CT- LIKE MRI SEQUENCES IN PEDIATRIC MAXILLOFACIAL LESIONS

***D. Dailiana¹, L. Tzarouchi¹, P. Tagkalakis¹, G. Oikonomoulas¹, E. Manopoulou¹,
G. Papaioannou¹***

¹Hygeia Mitera Hospital, Radiology, Maroussi, Greece

Aim: To evaluate the diagnostic performance of CT-like MRI sequences in children with maxillofacial lesions and assess their potential to replace conventional CT in the initial imaging work-up.

Material and Methods: This preliminary case series included eight infants and children (1.5–15 years) referred for evaluation of suspected maxillofacial pathology. Imaging protocols included CT and/or MRI. CT-like MRI sequences (PETRA, Zero TE, and UTE) with multiplanar reconstructions were incorporated into the MRI protocol. Osseous anatomical detail and lesion characterization were compared with conventional CT findings when available.

Results: CT-like MRI sequences provided high-resolution visualization of cortical bone, tooth germs, mandibular canal, and osseous deformities. In all cases—including inflammatory lesions, tumefactive processes, and congenital malformations—findings were concordant with CT and/or final diagnosis. In selected cases, CT was avoided as initial imaging, thereby eliminating ionizing radiation exposure and reducing overall healthcare costs.

Conclusion: CT-like MRI sequences offer adequate osseous anatomical detail in pediatric maxillofacial imaging and may serve as a radiation-free alternative in selected cases, potentially decreasing the cost of the diagnostic workflow. These sequences represent a promising supplementary or substitute tool for CT in the evaluation of pediatric maxillofacial lesions.

PP2 - 5 | LE FORT FRACTURES ON CT: A PRACTICAL IMAGING GUIDE FOR RAPID RECOGNITION

I. Roncea¹, D. Haba¹

¹Spitalul Clinic de Urgenta „N. Oblu”, Iasi, Romania

Aim: To provide a practical imaging overview of Le Fort fractures, helping radiologists and radiology residents understand their CT appearance and rapidly recognize the main fracture patterns in emergency settings.

Material and Methods: We retrospectively reviewed emergency cranio-cerebral CT examinations performed at the “Prof. Dr. N. Oblu” Emergency Clinical Hospital, Iasi, using Toshiba Aquilion and Philips Aura scanners. Cases showing Le Fort fracture patterns were selected from our institutional database. Image analysis was performed on native CT images, in bone windows and available multiplanar reformations, with assessment of the pterygoid plates and associated midfacial fracture lines required for Le Fort classification.

Results: The analyzed CT examinations demonstrated the characteristic imaging appearance of Le Fort fractures and the key landmarks required for classification. Le Fort I corresponds to a horizontal fracture pattern separating the alveolar process and hard palate from the midface, Le Fort II to a pyramidal fracture pattern, and Le Fort III to craniofacial dissociation. In our reviewed cases, Le Fort II and III injuries were identified by following the fracture trajectory and systematically assessing the pterygoid plates, orbital walls, nasal bones, and zygomatic arches. This structured approach facilitated rapid recognition and accurate classification in the emergency setting.

Conclusion: Familiarity with the CT imaging features of Le Fort fractures allows rapid recognition and reliable classification of midface trauma. A structured assessment of the pterygoid plates and adjacent facial buttresses is particularly useful in differentiating Le Fort patterns and in supporting timely multidisciplinary management.

PP2 - 6 | CURRENT DIAGNOSTIC AND THERAPEUTIC ALGORITHMS IN TRIGEMINAL NEURALGIA: A COMPREHENSIVE REVIEW

A. Bulgariu¹, D. Haba¹, E. Fasniuc-Pereu²

¹Grigore T. Popa University of Medicine and Pharmacy, Radiologie, Iasi, Romania

²Gheorghe Asachi Technical University, Iasi, Romania

Aim: trigeminal neuralgia (TN) represents a critical interdisciplinary nexus requiring expertise in both Neurology and Dento-Maxillo-Facial Radiology in order to mitigate diagnostic ambiguity and optimise therapeutic efficiency. This review aims to delineate a standardized diagnostic algorithm that precludes unnecessary invasive interventions and ensures a streamlined access to evidence-based pharmacological and surgical care.

Material and Methods: this systematic review was conducted using the prevailing international diagnostic frameworks such as ICHD-3 (International Classification of Headache Disorders) taxonomies and the EAN (European Academy of Neurology) therapeutic consensus. The methodological approach involved the analysis between clinical semiology and advanced imaging techniques such as Cone-Beam Computed Tomography (CBCT) and specific MRI sequences such as 3D-FIESTA and 3D-TOF, in order to detect neurovascular conflicts.

Results: the diagnosis of TN relies on clinical markers such as paroxysmal-type, high-intensity pain, limited to the trigeminal nerve innervation territory and on a two-step radiological approach, using CBCT to exclude dental mimics and MRI in order to identify neurovascular conflicts or secondary lesions. Pharmacological strategies including Carbamazepine or Oxcarbazepine is the first-line, with Gabapentin or Pregabalin as second-line options and microvascular decompression is reserved for refractory cases that fail to provide adequate pain relief or cause intolerable side effects.

Conclusion: implementing a standardized diagnostic and therapeutic protocol is essential for reducing misdiagnosis and enhancing therapeutic efficiency in medical practice. This review provides a mainframe for the interdisciplinary management of TN, ensuring adequate pharmacological or surgical and avoiding ineffective invasive dental procedures.

PP2 - 7 | NON-DESTRUCTIVE MICRO-CT EVALUATION OF THE METAL–PORCELAIN JUNCTION IN A ZIRCONIUM-ALLOY METAL–CERAMIC BRIDGE RESTORATION

H. Amasya¹

¹Istanbul University-Cerrahpaşa, Oral and Dentomaxillofacial Radiology, Istanbul, Turkey

Aim: This study aimed to evaluate the microstructural characteristics of a zirconium-alloy metal–ceramic bridge restoration and the integrity of the metal–porcelain junction (MPJ) using non-destructive micro-computed tomography (micro-CT).

Materials and Methods: A three-unit implant-supported zirconium-alloy metal–ceramic bridge restoration (teeth 24–26) was examined using a NXL micro-CT system (NeoScan, Belgium). The tube voltage was 150 kV and two scanning protocols were applied. In the first protocol, the tube current was 200 μ A with a pixel resolution of 15 μ m; in the second, the current was 90 μ A with a resolution of 7 μ m. The first 360° scan required 1 hour 28 minutes with 0.4° rotation steps, while the second required 4 hours 48 minutes with 0.25° steps. NeoScan software was used for acquisition, GPU reconstruction, visualization, and local thickness analysis, and VoxRay software for additional iterative reconstruction. The metal framework and porcelain veneer were evaluated for structural homogeneity and defects at the MPJ. No human or animal subjects were involved.

Results: The restoration showed a multilayer structure consisting of a zirconium-alloy metal framework, a porcelain veneer, and a thin interface layer. Micro-CT revealed internal pores and low-density inclusions in both materials. Localized air gaps were also detected at the MPJ, particularly around the junction areas of the metal-supported crowns.

Conclusion: Non-destructive micro-CT analysis revealed interfacial defects at the MPJ. These air gaps may weaken interfacial bonding and contribute to metal–porcelain detachment in metal-supported bridge restorations.

PP2 - 8 | ARTIFICIAL INTELLIGENCE APPLICATIONS IN DENTO-MAXILLOFACIAL RADIOLOGY

M.-R. Popescu¹, B.-I. Dobrovăţ¹, E.-A. Marciuc¹, D. Pomohaci¹, D.A. Doarnă-Ilinca¹, C. Chirica¹, I.A. Danciu¹, C. Antohi¹, A. Capşa¹, D. Haba¹

¹Grigore T. Popa University of Medicine and Pharmacy Iasi, Department of Oral and Maxillofacial, Iasi, Romania

Aim: The objective of this study is to evaluate the current applications of artificial intelligence in dento-maxillofacial and neck imaging, with a particular focus on diagnostic reliability, productivity, and fact agreement.

Material and Methods: A structured review of recent studies published within the past decade was conducted to identify AI-based tools employed in dento-maxillofacial radiology. The analysis encompassed research on machine learning, deep learning, and computer-aided diagnostic systems. Key parameters assessed included imaging modality, clinical applications, patient characteristics, validation methodologies, and reported performance indicators.

Results: AI systems have demonstrated high potential in several diagnostic areas, including the detection of periapical lesions, classification of cysts and tumors, assessment of bone quality, and identification of anatomical landmarks. Deep learning models and convolutional neural networks showed strong performance in image segmentation and automated measurements. Many studies reported improved diagnostic consistency and reduced interpretation time. However, variability in data sets, limited external validation, and inconsistent reporting standards remain important challenges.

Conclusion: Artificial intelligence represents an up-and-coming tool for efficiency and accuracy in dental and maxillofacial radiology. While current evidence supports its integration into everyday diagnosis, broader validation, standard protocols, and interdisciplinary teamwork play an important role in safe and reliable implementation. Research will help define the optimal.

PP2 - 9 | BEYOND RESECTABILITY: SERIAL IMAGING AS A DECISION-MAKING TOOL IN ADVANCED MAXILLARY SINUS SQUAMOUS CELL CARCINOMA

G. Oglinzanu¹, M. Cantea¹, C.C. Mirestean¹, D.P.T. Iancu^{1,2}

¹Regional Institute of Oncology Iasi, Radiation Oncology, Iasi, Romania

²University of Medicine and Pharmacy "Gr. T Popa", Iasi, Romania

Aim: To evaluate the clinical impact of cross-sectional imaging in the diagnostic and therapeutic workflow of advanced maxillary sinus carcinoma with uncommon extension toward the temporal lobe in a 71-year-old female.

Materials and Methods: Initial staging was performed using a 16-slice MDCT and 1.5 T MRI. The MRI protocol included axial T1-weighted, T2-weighted turbo spin-echo (TSE), and Diffusion-Weighted Imaging (DWI) to accurately delineate tumor boundaries. Follow-up employed serial contrast-enhanced CT (CECT) scans with thin-section reconstructions and an iodine-based contrast agent.

Results: Baseline imaging identified a mass occupying the right maxillary sinus with extensive bone destruction and local invasion of the masticatory space, orbital floor, and middle cranial fossa, extending toward the temporal lobe and rendering the tumor unresectable. This prompted primary chemotherapy and hemostatic irradiation. CECT scans at 6 and 9 months documented progression, justifying the transition to immunotherapy. Persistent epistaxis required a second round of irradiation. At 12 months, imaging revealed “finger-like” vasogenic edema in the temporal lobe, and 3 months later, a new 15 mm enhancing nodule with perilesional edema appeared. Tumor board review recommended palliative whole-brain radiotherapy given the imaging and clinical status.

Conclusions: This case illustrates the role of radiological follow-up in managing a complex case of maxillary sinus carcinoma. Serial imaging proved essential in navigating multiple therapeutic lines, given that temporal lobe involvement, even without histological confirmation of parenchymal invasion, carries major implications for resectability and treatment planning.

PP2 - 10 | INTERACTIVE 3D VISUALIZATION FROM CT/CBCT DATA FOR PATIENT-CENTERED DENTAL EDUCATION

M. Paluszny¹, M.I. Perez Cano²

¹Universidad Nacional de Colombia, Mathematics, Medellín, Colombia, ²University of Antioquia (UdeA), Medellín, Colombia

Aim: To support patient education and awareness of individual odontological conditions using CT and cone-beam CT (CBCT) data, and to provide dentomaxillofacial radiologists and dental professionals with flexible visualization tools for improved teaching and clinician–patient communication.

Materials and Methods: CT and CBCT datasets are processed to generate interactive three-dimensional digital scenes representing the complete dentition, alveolar bone, and gingival structures. Visualization is achieved through the extraction of curved 3D slices from the volumetric data, allowing simultaneous depiction of multiple dental elements within a single scene. Image processing techniques are applied to enhance anatomical clarity, while computer graphics methods enable interactive navigation across slices at varying depths within the maxillofacial volume. The resulting content is optimized for use on desktop computers, tablets, and smartphones.

Results: The system produces interactive 3D scenes and short educational videos that can be accessed through web-based platforms and mobile applications. These tools support user interaction, basic image manipulation, and guided explanations by healthcare professionals. The visualizations are suitable for chairside teaching, radiology education, and patient take-home materials to reinforce understanding beyond the clinical encounter.

Conclusion: This educational visualization approach facilitates improved understanding of dentomaxillofacial anatomy and pathology as derived from CT/CBCT imaging. It represents a useful adjunct for teaching and patient communication in dentomaxillofacial radiology, with potential to enhance patient engagement and personalized care.

PP2 - 11 | PEDIATRIC CERVICAL VASCULAR LESIONS: IMAGING CLUES FOR DIFFERENTIAL DIAGNOSIS

B.-E. Vrajiatoru¹, R.M. Popescu¹, D. Haba¹

¹Emergency Clinical Hospital "Prof. Dr. N. Oblu", Iasi, Romania

Background: Pediatric cervico-facial vascular lesions represent a heterogeneous group of malformations and tumors with overlapping clinical presentation. Accurate imaging-based differentiation is crucial, as therapeutic approach and prognosis vary significantly. Cross-sectional imaging plays a central role in lesion characterization, particularly in the anatomically complex head and neck region.

Purpose: To illustrate the imaging spectrum and key differentiating features of pediatric cervical vascular lesions using representative cases, emphasizing the complementary role of CT and MRI.

Materials and Methods: Three pediatric patients presenting with cervical or cervico-facial vascular lesions were retrospectively reviewed. Imaging evaluation was performed using contrast-enhanced computed tomography (CT) and/or magnetic resonance imaging (MRI), depending on clinical indication. Lesions were analyzed for morphology, internal architecture, enhancement pattern, and extension across cervical spaces.

Results: One case demonstrated imaging features consistent with a cervico-facial lymphatic malformation, characterized by a multiloculated lesion with fluid attenuation/signal intensity and minimal enhancement.

The second case revealed a solid, intensely enhancing cervical mass with infiltrative features, suggestive of hemangioendothelioma.

The third case showed a well-defined, enhancing vascular lesion consistent with a benign vascular tumor, such as infantile hemangioma.

Despite variation in imaging modality, characteristic cross-sectional imaging features allowed reliable differentiation between vascular malformations and vascular tumors.

Conclusion: Combined use of CT and MRI provides essential diagnostic information in pediatric cervico-facial vascular lesions. Awareness of key imaging features facilitates accurate diagnosis and supports multidisciplinary management in the head and neck region.

PP2 - 12 | MORPHOMETRIC CHARACTERISTICS OF THE NASOLACRIMAL DUCT IN DIFFERENT SKELETAL MALOCCLUSION PATTERNS: A CBCT-BASED RETROSPECTIVE STUDY

G.N. Şengül¹, B. Çetin¹

¹Selçuk University, Faculty of Dentistry, Oral and Maxillofacial Radiology, Selçuklu, Turkey

Aim: This study aimed to investigate whether different skeletal malocclusion patterns are associated with variations in the morphometric characteristics of the nasolacrimal canal (NLC) using cone-beam computed tomography (CBCT).

Materials and Methods: CBCT images acquired with an Instrumentarium OP300-1 system (field of view: 13 × 15 cm; voxel size: 0.32–0.38 mm) were retrospectively evaluated. Bilateral NLCs were analyzed in all patients. Morphometric evaluation included segmental canal length measured starting from the level at which the bony nasolacrimal canal first became clearly identifiable and extending to the superior border of the inferior nasal concha; anteroposterior and mediolateral diameters at the superior, middle, and inferior sections; localization of the narrowest canal segment; the angle between the NLC and the nasal floor; and canal course morphology.

Results: Patients were classified into skeletal Class I (n = 24), Class II (n = 20), and Class III (n = 20) malocclusion groups. The mean age of the study population was 20.27 years (range: 17–30). A total of 128 nasolacrimal ducts were analyzed. No statistically significant differences were observed among skeletal malocclusion groups in terms of segmental canal length or canal diameters (one-way ANOVA / Kruskal–Wallis test, $p > 0.05$). Canal course morphology was also not significantly associated with skeletal malocclusion pattern (χ^2 test, $p > 0.05$).

Conclusion: Nasolacrimal canal morphometric characteristics do not appear to be significantly influenced by skeletal malocclusion pattern. Nonetheless, CBCT-based evaluation of NLC anatomy may support accurate radiologic interpretation and preoperative planning in procedures involving the anterior maxilla and nasal cavity.

PP2 - 13 | ARTIFICIAL INTELLIGENCE IN DENTAL RADIOGRAPHIC SCREENING OF ATHLETES: ORAL DISEASE DETECTION AND DENTAL AGE ESTIMATION – A NEW ERA FOR SPORTS DENTISTRY

G. Omar^{1,2}, M.M. Mohamed Elsayegh¹

¹Cairo University, Oral Radiology, Giza, Egypt, ²Cairo University, Giza, Egypt

Aim: Oral diseases in athletes are frequently overlooked despite their potential impact on performance, training continuity, and healthcare costs. This study aims to evaluate the role of artificial intelligence (AI)-assisted radiography in detecting oral pathologies and supporting age estimation in athletes, while exploring its potential contribution to preventive screening programs and reduction of sports-related economic burden.

Materials and Methods: A structured literature review (2010–2026) assessed evidence on dental screening in athletes and AI applications in oral radiology, focusing on caries, periodontal bone loss, periapical lesions, and dental age estimation. Additionally, a cross-sectional study is analyzing digital panoramic radiographs from 148 Egyptian athletes (74 males, 74 females) using AI-assisted software to identify these pathologies.

Results: Previous studies demonstrate high diagnostic agreement between AI-based radiographic analysis and conventional clinical examination for caries detection ($\kappa \approx 0.82$), periodontal disease ($\kappa \approx 0.91$), and periapical lesions ($\kappa \approx 0.96$). AI-assisted radiographic analysis has also shown increasing reliability in assessing dental developmental indicators used for dental age estimation. Preliminary observations from the Egyptian athlete cohort suggest the presence of previously undiagnosed oral pathologies identifiable through panoramic radiographic screening. Final statistical analysis is currently in progress.

Conclusion: AI-assisted panoramic radiography may serve as an effective tool for large-scale oral health screening and dental age estimation in athletes, facilitating early diagnosis and improved health management.

PP3 - 1 | RADIOGRAPHIC EVALUATION OF UNICYSTIC AMELOBLASTOMA USING CONE-BEAM COMPUTED TOMOGRAPHY: A CASE REPORT

A.S. Katsoni¹, A. Katsonis², E. Chatzipetros¹

¹National and Kapodistrian University of Athens, Athens, Greece

²Universitatea de Medicină și Farmacie „Grigore T. Popa” din Iași, Iasi, Romania

Aim: Ameloblastoma is a benign but locally aggressive odontogenic tumor originating from odontogenic epithelial remnants or the oral mucosa and is classified into multicystic, unicystic, peripheral, and desmoplastic subtypes. Unicystic ameloblastoma (UA) represents a less common variant that frequently exhibits radiographic features resembling those of odontogenic cysts, thereby necessitating histopathological examination for definitive diagnosis. This study aims to describe the cone-beam computed tomography (CBCT) features of a mandibular UA and to emphasize the associated diagnostic challenges as well as contemporary approaches to its management.

Material and Methods: A 61-year-old male with no significant medical history presented to the Clinic of Oral Diagnosis and Radiology at the University of Athens with persistent pain and swelling in the posterior region of the right mandible. Clinical examination revealed facial asymmetry and fluctuant intraoral swelling associated with grade II mobility of teeth 44-45. Radiographic examination followed, including panoramic and CBCT imaging.

Results: CBCT findings demonstrated a well-circumscribed, unilocular radiolucency in the right mandible, causing significant cortical thinning and buccal expansion. The differential diagnosis included UA, odontogenic keratocyst, and central giant cell granuloma. Following surgical excision, histopathological analysis confirmed the diagnosis of UA. Although UA most commonly occurs in individuals during the second and third decades of life, the present case represents an uncommon occurrence in an elderly patient.

Conclusion: This case underscores the essential role of CBCT within contemporary diagnostic protocols and treatment planning of complex mandibular lesions, where early detection and accurate imaging are critical for reducing complications and improving long-term outcomes.

PP3 - 2 | ANTERIOR BUCCAL MANDIBULAR DEPRESSION: CASE SERIES

E.C. Kaya¹, S. Satir¹, T.E. Kose²

¹Karamanoglu Mehmetbey University, Faculty of Dentistry, Oral and Maxillofacial Radiology, Karaman, Turkey

²Recep Tayyip Erdogan University, Faculty of Dentistry, Oral and Maxillofacial Radiology, Rize, Turkey

Aim: Anterior buccal mandibular depression (ABMD) is defined as a linear depression located bilaterally on the mandibular symphysis, with an intact bony cortex, extending parallel to the inferior border of the mandible between the mental protuberans and the alveolar crest, on the buccal surface of the anterior mandibular body. The aim of this study is to report three cases that reveal the characteristic radiographic features of ABMD on cone-beam computed tomography (CBCT) images.

Materials and Methods: Panoramic radiographs of patients presenting to several dental complaints were evaluated. Cases in which diffuse radiolucent appearance was incidentally detected in the anterior mandibular region were imaged with CBCT for further investigation. Three cases diagnosed with ABMD based on CBCT were included in the study.

Results: All three reported cases were male aged between 37 and 45 years. Two had no history of systemic disease, while one case had a history of cardiovascular surgery, anaemia, and use of antiplatelet drugs. All cases were evaluated with CBCT after diffuse radiolucent appearance was incidentally detected in the anterior mandibular region on panoramic radiography. CBCT sagittal sections showed the presence of alveolar bone 1–2 mm wide inferior to the apices of the mandibular incisors.

Conclusion: ABMD is a rare anatomical variation that can create the impression of a pathological radiolucent lesion in the anterior mandibular region on panoramic radiographs. Therefore, the use of CBCT, along with increased clinical and radiographic awareness, plays a significant role in the accurate recognition of ABMD and the prevention of misdiagnosis.

PP3 - 3 | LOCALIZATION GUIDED DEEP LEARNING SEGMENTATION OF EXTRACRANIAL CAROTID ARTERY CALCIFICATIONS ON CBCT IMAGES

B.T. Szabó¹, M.T. Kárpáti¹, C. Dobó Nagy¹, M. Vajay², A. Manno-Kovács², C. Benedek²

¹Faculty of Dentistry, Semmelweis University, Department of Oral Diagnostics, Budapest, Hungary

²HUN-REN Institute for Computer Science and Control (SZTAKI), Machine Perception Research Laboratory, Budapest, Hungary

Aim: The aim of this study was to develop and evaluate an automated localization based deep learning (DL) method for the identification of extracranial carotid artery calcifications on cone-beam computed tomography (CBCT) images.

Materials and Methods: The proposed pipeline consists of an anatomically guided localization step followed by DL based segmentation. First, a regression model is used to automatically localize the anatomical region where extracranial carotid artery calcifications are most likely to occur, enabling targeted volumetric cropping of CBCT images. Segmentation of extracranial carotid calcifications is then performed using a DL architecture optimized for image segmentation. The method was trained on an institutional CBCT dataset consisting of 82 CBCT image sequences with annotated calcifications. Model generalizability was evaluated using a CBCT dataset from PhysioNet containing 329 image dataset, of which 56 contained extracranial carotid artery calcifications. All reconstructed CBCT image data were evaluated by three independent observers: two dentomaxillofacial radiologists with more than 30 and 10 years of experience, respectively, and a PhD student.

Results: Among the evaluated configurations, the cropped single nnU-Net model achieved the best segmentation performance on the validation set with a Dice coefficient of 0.75, sensitivity of 0.71 and a precision of 0.93. Models trained on cropped volumes consistently outperformed those, trained on uncropped images.

Conclusion: The results demonstrate that proposed automated localization-guided segmentation of extracranial carotid artery calcifications on CBCT images is feasible and may support improved detection and clinical awareness of carotid calcifications in dentomaxillofacial radiology.

PP3 - 4 | DEMOGRAPHIC CHARACTERISTICS AND COMORBIDITY BURDEN IN PATIENTS WITH VERTEBROBASILAR ARTERY CALCIFICATION

K. Demirezer¹, M. Kiranşal¹, U.T. Göktürk¹, E. Sobi¹, H. Solak¹, E.N. Topaloğlu¹, S. Aras¹

¹Inonu University / Faculty of Dentistry / Institute of Health Sciences, Malatya, Turkey

Aim: To compare demographic characteristics and concomitant comorbidities between patients with vertebrobasilar artery calcification (VBAC) detected on cone-beam computed tomography (CBCT) and a control group, and to evaluate overall comorbidity burden.

Materials and Methods: This retrospective study included 120 patients with VBAC and 120 control subjects. VBAC status was determined on CBCT examinations. Age was compared using the Mann–Whitney U test. Sex distribution and prevalences of individual comorbidities were analyzed using the chi-square test or Fisher’s exact test, as appropriate. Overall comorbidity burden was defined as the number of comorbid conditions per patient. A two-sided p value <0.05 was considered statistically significant.

Results: Age did not differ between groups (Control: 66.85±8.17 years; VBAC: 67.18±8.68 years; p>0.05). Sex distribution was similar (Control: 60 females [50.0%], 60 males [50.0%]; VBAC: 57 females [47.5%], 63 males [52.5%]; p>0.05). Hypertension was more prevalent in the VBAC group (29/120 [24.2%] vs. 52/120 [43.3%]; p<0.05). The number of comorbidities per patient was higher in the VBAC group (p<0.05). No statistically significant differences were observed for other individual comorbidities (all p>0.05).

Conclusion: Patients with VBAC identified on CBCT show comparable age and sex distributions to controls but demonstrate a higher comorbidity burden and a greater prevalence of hypertension, supporting an association between VBAC and an adverse vascular risk profile.

PP3 - 5 | SEGMENTATION AND CLASSIFICATION OF THE ANTERIOR ETHMOIDAL ARTERY ON CBCT FOR AI-ASSISTED IDENTIFICATION IN ENDOSCOPIC SINUS SURGERY

***M. Hedesiu¹, F. Iacob², S. Eftimie³, M. Coldea⁴, P. Hedesiu⁵, R. Jacobs⁶, V. Trombitas³,
T.P. Group³***

¹UMF Cluj-Napoca, Oral Radiology, Cluj-Napoca, Romania

²Privat Dental Clinic, Brasov, Romania

³UMF Cluj-Napoca, Cluj-Napoca, Romania

⁴Yale University, New Haven, United States

⁵Columbia University, Ny, United States

⁶KU Leuven, Leuven, Belgium

Aim: The present study aimed to develop an artificial intelligence (AI) model for identification of anterior ethmoidal artery (AEA) on cone-beam computed tomography (CBCT) scans and to evaluate its potential clinical applicability in patients with inflammatory sinus conditions.

Materials and Methods: Dataset consisting of manual segmentations of the AEA was generated from 130 CBCT scans (130 patients). Segmentation was performed using 3D Slicer (Version 5.8.1), with each artery manually delineated along its visible osseous canal, extending from the orbital roof through the anterior ethmoidal foramen and ethmoidal labyrinth toward the cribriform region. A two-stage, structure-specialized deep learning pipeline was developed. The first stage employed a lightweight U-Net with an EfficientNet-B0 encoder to perform coarse localization on downsampled images, generating a spatial prior. The second stage used two specialized UNet++ models with EfficientNet-B4 encoders to analyze complementary spatial representations, capturing both global anatomical context and fine structural detail. Their outputs were combined through a deterministic fusion rule.

Results: The model achieved a mean foreground Dice coefficient of 0.799 on the validation set and an overall recall of 0.783 for AEA detection. Background segmentation remained highly robust (Dice = 0.991). Precision reached 0.821, with an F2 score of 0.793, indicating balanced sensitivity and specificity.

Conclusions: AI-based automatic segmentation enables rapid, reproducible identification of the AEA in CBCT scans support preoperative planning, integration with image-guided navigation systems, and intraoperative guidance, potentially reducing the risk of iatrogenic injury during functional endoscopic sinus surgery (FESS).

PP3 - 6 | EVALUATION OF SCHNEIDERIAN MEMBRANE THICKNESS IN RELATION TO PERIODONTAL BONE LOSS IN MAXILLARY MOLARS USING CONE-BEAM COMPUTED TOMOGRAPHY

D. Çelik Özen¹, S. Aras¹

¹Inonu University, Department of Oral and Maxillofacial Radiology, Malatya, Turkey

Aim: The aim of this study was to evaluate the relationship between Schneiderian membrane thickness (SMT) and periodontal bone loss (PBL) in the maxillary molar regions using cone-beam computed tomography (CBCT) images.

Material and Methods: A total of 555 maxillary molars, consisting of 343 first molars and 212 second molars obtained from 100 CBCT scans, were retrospectively evaluated. Only intact teeth without caries, restorations, endodontic treatment, periapical lesions, or other pathology were included. SMT was measured as the perpendicular distance from the sinus floor to the mucosal border and classified. PBL was assessed as the linear distance from the cemento-enamel junction to the alveolar bone crest. Differences in PBL across SMT classes were analyzed using ANOVA, and the relationship between SMT and PBL was assessed using Pearson correlation.

Result: PBL increased progressively with higher SMT classes in both first and second molars ($p < 0.001$). Mean PBL values were 1.19 ± 0.55 mm, 1.87 ± 0.63 mm, 3.18 ± 0.91 mm, and 5.63 ± 1.41 mm for Class I, II, III, IV SMT in first molars and 1.07 ± 0.37 mm, 1.78 ± 0.52 mm, 2.91 ± 0.72 mm, and 5.42 ± 1.33 mm for second molars, respectively. SMT and PBL showed a strong positive correlation ($r = 0.86$, $p < 0.001$).

Conclusion: Schneiderian membrane thickening was significantly associated with increased periodontal bone loss in maxillary molars. These findings highlight the importance of considering periodontal status when interpreting sinus-related CBCT assessments.

PP3 - 7 | BEYOND TWO DIMENSIONS – THE CRITICAL ROLE OF CBCT IN DETECTION AND MANAGEMENT OF ROOT RESORPTION

Y. Decolli¹, I.B. Dobrovat¹, E. Mihalas¹

¹Grigore T. Popa University of Medicine and Pharmacy Iasi, Iasi, Romania

Aim: To describe the use of cone beam computed tomography in the diagnosis and management of root resorption in several clinical cases.

Material and Methods: Comparison of 2D and 3D images of root resorption cases was performed by endodontists in order to assess the location and extent of the pathological process, and decide the correct management of each clinical case.

Results: Digital 2D radiographs suggested possible root resorption, but failed to definitively characterize the lesion due to limitations such as superimposition of anatomical structures and the inability to assess the buccal/lingual aspects of the pathological process. CBCT provided a definitive diagnosis in all cases, offering crucial information even if the location of the lesion was on the buccal or oral root surface and consistently showing the true 3D extent of the lesions, which was often underestimated on 2D radiographs. CBCT findings directly influenced the treatment plan.

Conclusion: CBCT imaging is indispensable for the accurate diagnosis of root resorption. By overcoming the limitations of superimposition inherent in 2D imaging, CBCT provides critical information on lesion type, location, and true extent. This precision is essential for appropriate treatment planning, determining accurate prognosis, and ultimately improving clinical outcomes. High-resolution, small FOV CBCT should be considered the standard of care when root resorption is suspected.

PP3 - 8 | MRI FEATURES OF SECONDARY BRAIN LESIONS FROM SALIVARY GLAND CARCINOMAS

***D. Pomohaci¹, M.-R. Popescu^{2,1}, B.-I. Dobrovat^{2,1}, E.-A. Marciuc^{2,1}, C. Chirica¹, I.A. Danciu¹,
V. Ianole^{3,4}, G.F. Dumitrescu³, D. Haba^{2,1}***

¹Grigore T. Popa University of Medicine and Pharmacy, Department of Oral and Maxillofacial Surgery, General and Dental Radiology, Iasi, Romania

²Clinical Emergency Hospital "Prof. Dr. Nicolae Oblu", Radiology Department, Iasi, Romania

³Clinical Emergency Hospital "Prof. Dr. Nicolae Oblu", Pathology Department, Iasi, Romania

⁴Grigore T. Popa University of Medicine and Pharmacy, Department of Morpho-Functional Sciences I, Iasi, Romania

Aim: Salivary gland carcinomas represent only 5% or less of head and neck cancers (HNC) with rare involvement of the brain parenchyma (A Kudrimoti et al., Primary Care: Clinics in Office Practice. 2024 Nov 1). Our aim is to illustrate MRI aspects of brain metastases (BM) from this particular subtype of HNC.

Material and Methods: We retrospectively selected patients that were histopathological confirmed with BMs from salivary gland carcinomas. Only 1 of 85 patients corresponded to our search (from 2020 to 2022). We included a second case that was not confirmed for educational purposes only. We then assessed the MRI features of the secondary lesions and CT of the primary tumors.

Results: The first case is a 48y. o. male with a salivary duct carcinoma of the right submandibular gland and two infratentorial BMs. The second case was a 44y. o. male with a left parotid mass and two BMs. The lesions of both patients had a solid type contrast enhancement with central necrosis and peripheric edema.

Conclusions: Squamous duct carcinoma is a rare aggressive entity, representing only 7-10% of salivary glands carcinomas (Young A et al., StatPearls, 2023 Jan 12). This illustrative research shows the uncommon association of secondary brain lesions in an exceptional subtype of salivary gland carcinoma and their imaging characteristics.

PP3 - 9 | THE IMPORTANCE OF MULTIPLE RADIOLOGICAL INVESTIGATIONS IN THE DIAGNOSIS OF NASAL FRACTURES AND THEIR FORENSIC RELEVANCE

M.M. Diac¹, N. Girlescu², I. Hunea³, A. Hlescu⁴, D. Bulgaru Iliescu¹

¹University of Medicine and Pharmacy "Grigore T. Popa"/ Institute of Forensic Medicine, Department of Forensic Medicine, Iasi, Romania

²University of Medicine and Pharmacy "Grigore T. Popa"/ Institute of Forensic Medicine, Department of Anatomy, Iasi, Romania

³Institute of Forensic Medicine, Iasi, Romania

⁴University of Medicine and Pharmacy "Grigore T. Popa", Department of Forensic Medicine, Iasi, Romania

Aim: Nasal bone fractures are the most common facial injuries in forensic medicine, often caused by assaults and road accidents. Their accurate identification is vital for clinical management and judicial procedures. The study evaluates the diagnostic value of conventional radiography compared with craniocerebral computed tomography (CT).

Material and Methods: A retrospective analysis was performed on 75 forensic cases involving nasal bone fractures following assaults and road traffic accidents. Demographic data, including age and sex, were recorded. All patients underwent radiological evaluation using conventional nasal bone X-ray and/or cerebro-cranial CT, the latter being primarily indicated for the assessment of associated cranio-cerebral injuries. Imaging reports were reviewed to determine the modality by which nasal fractures were identified.

Results: The study population showed a marked male predominance, with a mean age of 43 years. Nasal bone fractures were identified by X-ray, CT, or both imaging modalities. In several cases, fractures were detected exclusively on X-ray, as radiological attention during CT interpretation was mainly directed toward identifying cerebro-cranial lesions, leading to under-evaluation of the nasal bones. Conversely, a number of fractures were identified only on CT scans, demonstrating the superior sensitivity of tomographic imaging compared with conventional X-ray, particularly in subtle or complex fractures.

Conclusions: Although craniocerebral CT is superior in detecting complex nasal fractures, methodical and targeted evaluation of facial bone structures is mandatory to avoid underestimation of injuries. Interdisciplinary collaboration between the radiologist and the forensic physician is crucial for correct diagnosis, complete documentation and the formulation of rigorous medico-legal conclusions.

PP3 - 10 | SELECTIVE USE OF CBCT IN PEDIATRIC DENTISTRY: BALANCING GUIDELINE RECOMMENDATIONS AND THE NEED FOR EARLY DIAGNOSIS

A. Sîrghie¹, T. Panaite², L. Gavrilă³, C. Balcoş³, T. Bărceanu³, E. Mihalaş³, C. Savin⁴

¹UMPh "Grigore T. Popa", Pediatric Dentistry, Iasi, Romania

²U.M.Ph. "Grigore T. Popa", Iasi, Romania

³UMPh "Grigore T. Popa", Iasi, Romania, ⁴UMPh "Grigore T. Popa", Iasi, Romania

Introduction: Cone Beam Computed Tomography (CBCT) has significantly improved three-dimensional imaging capabilities in dentistry. However, its use in paediatric patients remains limited due to radiation protection concerns. According to recommendations from the European Academy of Paediatric Dentistry (EAPD), CBCT should not be used as a routine imaging modality in children and must be reserved for carefully justified clinical situations where conventional two-dimensional radiography does not provide sufficient diagnostic information. Certain clinical scenarios, however, highlight the potential diagnostic benefits of CBCT.

Dental impactions and ectopic eruptions, particularly involving permanent canines and incisors, may present significant diagnostic challenges when assessed using conventional radiographs. Two-dimensional imaging may underestimate the spatial relationship between impacted teeth and adjacent anatomical structures. In the presented cases, conventional radiographic evaluation was insufficient to accurately determine the position of an impacted tooth and its relationship to neighbouring roots.

Discussions: CBCT imaging enabled precise three-dimensional localisation of the impacted tooth and provided a detailed assessment of its proximity to adjacent structures. Furthermore, CBCT allowed the early detection of pathological external root resorption affecting a neighbouring tooth, a complication that can be difficult to identify using conventional radiography. The scan also facilitated improved visualization of an associated odontogenic lesion compatible with an odontoma, allowing accurate assessment of its morphology, location, and relationship with surrounding teeth.

Conclusion: Although radiation protection principles must always be respected, the selective use of CBCT in carefully justified paediatric cases can provide valuable diagnostic information. This may facilitate early diagnosis, improve treatment planning, and support multidisciplinary management.

PP3 - 11 | WHEN ERUPTION FAILS: IMAGING FEATURES OF PATHOLOGICAL ERUPTION OF PERMANENT TEETH

A. Sirghe¹, C. Savin¹, C. Balcos¹, D. Haba¹, T. Panaite¹

¹University of Medicine and Pharmacy "Grigore T. Popa" Iasi, Iasi, Romania

Failure of eruption of permanent teeth can lead to malocclusion, root resorption, or cyst formation if not diagnosed early.

Aim: The aim of this study is to highlight the clinical situations in which Cone Beam Computed Tomography is necessary for treatment planning in patients with impacted teeth.

Materials and Methods: This investigation was a retrospective study based on the treatment records of 47 patients who needed orthodontics treatment. Panoramic radiographs and CBCT scans of patients with unerupted permanent teeth were analyzed. Assessment focused on tooth position, angulation, presence of obstructions, and relationship with adjacent structures.

Results: Patients presenting with dental impaction were divided into two groups according to the imaging modality required for treatment planning: those evaluated using conventional two-dimensional imaging and those requiring three-dimensional imaging. Panoramic radiography and Cone Beam Computed Tomography scans of patients with unerupted permanent teeth were analyzed. The assessment focused on tooth position, angulation, the presence of possible obstructions, and the relationship with adjacent anatomical structures.

Conclusions: CBCT is particularly valuable in severe cases of tooth impaction. By providing detailed three-dimensional information, CBCT improves diagnostic accuracy and treatment planning, which may contribute to reduced treatment duration. Additionally, its use enhances the clinician's ability to manage complex cases, increasing the likelihood of successful outcomes comparable to those achieved in less challenging cases assessed using conventional two-dimensional imaging.

PP3 - 12 | NAVIGATING THE PAROTID GLAND: A MULTIMODAL RADIOLOGICAL APPROACH OF NODULAR LESIONS

***D.-A. Droanca-Ilinca¹, I.A. Danciu¹, C. Chirica¹, D. Pomohaci¹, E.A. Marciuc¹, R.M. Popescu¹,
B.I. Dobrovat¹, D. Haba¹***

¹University of Medicine and Pharmacy "Gr. T. Popa" Iasi, Surgery, Iasi, Romania

Aim: To demystify the patterns of the parotid gland lesions and provide a practical, teaching-oriented algorithm that help radiologists differentiate benign from malignant tumors and interpret imaging in the context of fine-needle aspiration (FNA) limitations.

Materials and Methods: A narrative review of peer-reviewed articles from radiology and head-and-neck oncology journals was performed, focusing on CT and multiparametric MRI (including diffusion-weighted imaging and dynamic contrast-enhanced sequences). Key imaging patterns of common benign (pleomorphic adenoma and Warthin tumor) and malignant parotid neoplasms, as well as classic pitfalls and the diagnostic performance of FNA were extracted and organized into a didactic framework.

Results: The reviewed literature consistently describes benign parotid tumors as well-circumscribed, often encapsulated lesions with pleomorphic adenoma showing lobulated, T2-hyperintense signal and gradual enhancement, and Warthin tumors demonstrating cystic or multicystic morphology, intense early enhancement and pronounced diffusion restriction. Malign lesions more frequently exhibit ill-defined or infiltrative margins, heterogeneous signal, perineural spread, nodal disease and/ or invasion of adjacent muscles in the parapharyngeal space.

Conclusion: Literature supports a multimodal, imaging-driven approach to parotid lesions in order to ensure the best preoperative diagnosis. A structured interpretation of morphology, enhancement and diffusion characteristics guides appropriate surgery and forms a robust teaching tool for trainees.

PP3 - 13 | IMAGING-BASED DIAGNOSTIC APPROACH TO OSTEOLYTIC LESIONS OF THE JAW: DIFFERENTIATING BENIGN TUMORS FROM MALIGNANT ENTITIES

**I.A. Danciu¹, B.I. Dobrovat¹, E.A. Marciuc¹, R.M. Popescu¹, D.A. Droancă-Ilinca¹, C. Chirica¹,
D. Pomohaci¹, N. Dobrin¹, L. Eva¹, D. Haba¹**

¹"Gr. T. Popa" University of Medicine and Pharmacy, Iasi, Romania

Aim: To highlight the role of imaging in the diagnostic evaluation of osteolytic lesions of the jaws and to illustrate key radiologic features that help differentiate benign tumors, particularly ameloblastoma, from malignant lesions including primary carcinomas and metastatic disease.

Materials and Methods: A retrospective review of imaging studies performed in two regional imaging centers was conducted. Cases presenting osteolytic lesions of the jaws were identified from institutional imaging archives and selected based on their educational value and diagnostic relevance. The final cohort included representative cases of benign odontogenic tumors and malignant lesions. Imaging evaluation was performed using orthopantomography, computed tomography (CT), and magnetic resonance imaging (MRI), with analysis focused on lesion location, margin definition, internal architecture, locularity, cortical involvement, and relationship with adjacent dental structures.

Results: Ameloblastoma cases demonstrated characteristic imaging findings, most commonly involving the posterior mandible, with well-defined uni- or multilocular radiolucent lesions associated with cortical expansion, tooth displacement, and internal septations producing the classic “soap-bubble” appearance. In contrast, malignant lesions such as carcinomas and metastatic deposits showed more aggressive radiologic features, including poorly defined margins, rapid osteolysis, cortical destruction, and soft-tissue extension. Cross-sectional imaging proved essential in assessing lesion extent and identifying imaging patterns suggestive of malignancy.

Conclusion: An imaging-based diagnostic approach is essential in the evaluation of osteolytic lesions of the jaws. Recognizing characteristic radiologic patterns and correlating them with lesion topography and patient demographics can significantly narrow the differential diagnosis and guide appropriate clinical management and biopsy planning.

PP3 - 15 | THE ROLE OF CBCT IN IMPROVING THE ENDODONTIC MANAGEMENT OF C-SHAPED RADICULAR CANALS

Y. Decolli¹, I.B. Dobrovat¹, E. Mihalas¹, L. Aminov¹

¹Grigore T. Popa University of Medicine and Pharmacy Iasi, Iasi, Romania

Aim: To evaluate the clinical significance of CBCT in the identification and endodontic management of teeth with C-shaped root canal configurations, compared to periapical (PA) radiographs.

Materials and method: A clinical and radiographic analysis was conducted on patients suspected C-shaped canal anatomy, primarily in mandibular molars. Initial assessment was performed using digital PA radiographs. Subsequently, patients underwent CBCT imaging and datasets were analyzed to:

- confirm the presence of C-shaped configuration and identify additional canals or isthmuses;
- detect associated periapical pathology or missed anatomy in previously treated cases;
- guide treatment planning and management strategy.

Results: CBCT provided significant advantages over 2D radiography in all cases, the later being often inconclusive or merely suggestive. CBCT definitively confirmed C-shaped configuration and allowed for accurate assessment based on the root's cross-sectional anatomy, revealing complex details not apparent on 2D images, particularly in the buccal or lingual aspects. In retreatment cases, CBCT was essential in identifying previously missed canals or isthmuses that were likely the source of persistent infection. It also provided a more accurate assessment of periapical lesion size and relation to the root system.

Conclusion: CBCT is an invaluable diagnostic tool for the effective management of teeth with C-shaped canal systems. By providing a precise 3D map of the root canal system, CBCT enables accurate classification, identification of hidden anatomy and detection of pathology. This leads to more predictable cleaning, shaping, and obturation, improving long-term prognosis of endodontic treatment. The use of small FOV CBCT is strongly recommended whenever C-shaped anatomy is suspected.

PP3 - 16 | PREVALENCE AND SPECTRUM OF INCIDENTAL FINDINGS ON DENTAL CONE-BEAM CT: A RETROSPECTIVE IMAGING STUDY

T.-A. Buznea¹, D. Haba¹

¹Clinical Emergency Hospital "Prof. Dr. N. Oblu", Department of Radiology, Iasi, Romania

Purpose: Cone-beam CT (CBCT) is widely used in dental imaging, particularly for implant planning and orthodontic assessment. Because CBCT often includes anatomical regions beyond the dentoalveolar structures, a variety of incidental findings may be detected. The aim of this study was to evaluate the prevalence and imaging spectrum of incidental findings identified on dental CBCT examinations.

Materials and Methods: Dental CBCT examinations performed for routine dental indications over a three-year period were retrospectively reviewed. Images were systematically evaluated for incidental findings involving the paranasal sinuses, temporomandibular joints, cervical soft tissues and vascular structures. Findings were categorized according to anatomical location and potential clinical relevance.

Results: Incidental findings were detected in a substantial proportion of CBCT examinations. The most frequent abnormalities involved the paranasal sinuses, particularly mucosal thickening and inflammatory changes. Additional findings included degenerative temporomandibular joint changes, calcified vascular plaques in the cervical region and salivary gland abnormalities. In a subset of patients, the findings were considered clinically significant and required further evaluation.

Conclusions: Incidental findings are frequently encountered on dental CBCT examinations and may involve multiple anatomical regions outside the primary diagnostic focus. Systematic assessment of the entire imaging volume is essential to ensure clinically relevant abnormalities are not overlooked.

PP4 - 1 | EPIDERMAL CYST IN THE DENTOMAXILLOFACIAL REGION – CASE REPORT

O. Koca¹, G. Karaeminogullari², S. Acat³, S. Satir¹, B. Erdogan¹

¹Karamanoglu Mehmetbey University, Faculty of Dentistry, Oral and Maxillofacial Radiology, Karaman, Turkey

²Karamanoglu Mehmetbey University, Faculty of Medicine, Plastic, Reconstructive and Aesthetic Surgery, Karaman, Turkey

³Karamanoglu Mehmetbey University, Faculty of Medicine, Pathology, Karaman, Turkey

Epidermal cysts are benign cystic lesions lined by keratinized stratified squamous epithelium and are rarely found in the dentomaxillofacial region. Due to the non-specific clinical presentation, imaging examinations play an important role in the evaluation of superficial soft tissue lesions.

Aim: The aim of this case report is to present the ultrasonographic findings and clinicopathological features of an epidermal cyst located in the maxillary malar region.

Material and Methods: A 22-year-old systemically healthy male patient presented to our clinic for a routine dental examination. During clinical evaluation, an asymptomatic swelling was noticed in the right molar region. The patient was aware of the lesion; however, no intervention had been performed due to anxiety related to surgical procedures. Considering the superficial location of the lesion and for initial evaluation, the patient was informed and referred for ultrasonographic examination. Ultrasonography revealed a well-defined hypoechoic cystic lesion measuring approximately 1×1 cm, with posterior acoustic enhancement and no internal vascularity on color Doppler imaging. The lesion was surgically excised and submitted for histopathological analysis. Histopathological evaluation showed a cyst wall lined by keratinized stratified squamous epithelium with keratinous material within the lumen, confirming the diagnosis of an epidermal cyst.

Conclusion: Ultrasonography represents a reliable and non-invasive imaging modality for the assessment of superficial cystic lesions in the dentomaxillofacial region. This case highlights the importance of imaging examinations on the clinical workflow, raising patient awareness, and role at the surgical planning of epidermal cysts, with definitive diagnosis established through histopathological evaluation.

PP4 - 2 | NECK PARAGANGLIOMA - MULTIMODAL IMAGING DIAGNOSTIC APPROACH

C.R. Stolniceanu¹, C. Preda², D. Haba³, C. Stefanescu¹

¹"Sf. Spiridon" Emergency County Clinical Hospital; University of Medicine and Pharmacy "Grigore T. Popa" Iasi, Department of Biophysics and Medical Physics-Nuclear Medicine, Iasi, Romania

²"Sf. Spiridon" Emergency County Clinical Hospital; "Grigore T. Popa" University of Medicine and Pharmacy, Department of Endocrinology, Iasi, Romania

³Emergency Hospital "Prof. Dr. Nicolae Oblu", Faculty of Dental Medicine, "Grigore T. Popa" University of Medicine and Pharmacy, Department of Radiology, Iasi, Romania

Aim: Paraganglioma are rare chromaffin cell tumors that develop from the neural crest cells. Parasympathetic ganglia-derived tumors are found almost exclusively in the neck and skull base, are highly vascular lesions, typically do not secrete catecholamines and are normally benign. Paraganglioma variably express somatostatin receptors (SSTR), allowing SSTR-based functional imaging by somatostatin receptor scintigraphy (SRS).

Material and method: We report the case of a 41-year-old female patient with an indolent mass in her neck and high 24-hour metanephrines values. CT imaging revealed at the bifurcation of the left common carotid artery, a clearly defined oval nodular formation, with early intense contrast uptake which progressively decreased, dimensions of 11/16/12 mm, without significant vascular invasion. In an attempt to assess the overexpression SSTR, the patient underwent SRS. The whole body and SPECT/CT hybrid images were acquired at 2, 4 and 24 hours after administration of 702,80 MBq ^{99m}Tc-EDDA/HYNIC-Tyr3-Octreotide.

Results: SRS showed an intense uptake nodular lesion in the left carotid glomus, uptaking being maintained throughout all acquisition times, with SUV values of 7.46 g/ml at 2 h, 6.55 g/ml at 4 h and 6.03 g/ml at 24 h. After multidisciplinary discussions and decision-making with the patient, the surgical option was chosen, according to the pathologist's report confirming the diagnosis of paraganglioma.

Conclusion: Diagnosing a paraganglioma requires multiple diagnostic methods, including biochemical, structural and functional imaging. The case illustrates the importance of a multimodal diagnostic approach, individualized treatment plans, and multidisciplinary collaboration.

PP4 - 3 | MAXILLOMANDIBULAR FIBROUS DYSPLASIA MIMICKING PAGET'S DISEASE

M.I. Akçay¹, M. Kıranşal²

¹Ankara University Faculty of Dentistry, Ankara, Turkey

²Inonu University Faculty of Dentistry, Malatya, Turkey

Aim: This case report aims to present the clinical, radiological, and histopathological findings of a fibrous dysplasia case with extensive maxillomandibular involvement, which initially raised suspicion for Paget's disease based on CBCT, MRI, and laboratory findings, and to emphasize its relevance for implant planning.

Materials and Methods: A 52-year-old male patient with no systemic disease or regular medication history presented for implant treatment. Routine panoramic radiography revealed widespread irregular trabecular patterns in the maxilla and mandible. Cone-beam computed tomography demonstrated expansion in the maxillomandibular region and cranial bones, while MRI showed narrowing of the neural foramina. Laboratory tests revealed elevated parathyroid hormone and alkaline phosphatase levels. Given these findings, a biopsy was obtained under the suspicion of Paget's disease and sent to the pathology department for histopathological evaluation. The diagnosis of fibrous dysplasia was subsequently confirmed.

Results: Clinical, radiological, and histopathological findings confirmed fibrous dysplasia. Despite the extensive lesions, the patient was largely asymptomatic. No surgical intervention was performed, and the patient was followed through regular clinical and radiographic examinations.

Conclusion: Fibrous dysplasia is a benign bone disorder that can be asymptomatic but may lead to bone expansion and deformities. Before pathological confirmation, careful differential diagnosis is essential to distinguish it from Paget's disease and other metabolic bone disorders. Management depends on lesion extent and symptomatology. Accurate and timely diagnosis of dysplastic bone lesions is crucial for the primary stability and long-term prognosis of dental implants.

PP4 - 4 | ARRESTED PNEUMATIZATION OF THE SPHENOID SINUS MIMICKING SKULL BASE LESIONS: A CASE REPORT

C. Görürgöz¹

¹Bolu İzzet Baysal Oral Health Hospital, Department of Dentomaxillofacial Radiology, Bolu, Turkey

Aim: The sphenoid bone has a complex embryological development. At birth, the sphenoid sinus is not yet pneumatized. Pneumatization usually begins around the fourth month of life and continues until approximately 12–14 years of age. When this process fails to occur or is interrupted, the condition is referred to as arrested pneumatization. This report aims to describe the imaging features of arrested pneumatization of the sphenoid sinus and discuss its differential diagnosis.

Material and Methods: A 30-year-old female patient was referred to the DentoMaxillofacial Imaging Division for CBCT evaluation of maxillary implant sites following surgery. During radiographic assessment, an ellipsoid, well-defined mixed-density lesion with multiple mineralized areas was incidentally detected in the greater wings of the sphenoid bone. The lesion margins were mildly hyperostotic and showed no communication with the aerated portion of the sphenoid sinus. Alteration of the normal trabecular bone pattern and multiple internal curvilinear calcifications were observed. No mass effect on adjacent osseous structures was evident. Based on the location and non-aggressive appearance, the main differential diagnoses included intraosseous lipoma, benign fibro-osseous lesions, and arrested pneumatization.

Results: The patient had a history of vertigo but no other known medical conditions. Previous paranasal CT images demonstrated a non-eroded, non-expansile fatty-density lesion with internal curvilinear calcifications and osteosclerotic margins. The adjacent bone structures were intact without mass effect, consistent with arrested pneumatization.

Conclusion: Arrested pneumatization of the skull base is usually asymptomatic but may mimic serious pathology when its characteristic imaging features are not recognized.

PP4 - 5 | SURVIVING HEAD AND NECK EMERGENCIES ON CALL – WHAT THE RADIOLOGIST SHOULD NOT MISS

***D.-A. Droanca-Ilinca¹, I.A. Danciu¹, R.M. Popescu¹, B.I. Dobrovat¹, E.A. Marciuc¹,
D. Pomohaci¹, C. Chirica¹, D. Haba¹***

¹University of Medicine and Pharmacy "Gr. T. Popa" Iasi, Surgery, Iasi, Romania

The aim of this poster is to understanding the anatomy of the head and neck and the planes to be assessed during emergency calls, to show imaging biomarkers that radiologists should identify quickly and confidently and ultimately to create a methodical checklist for reporting emergencies (check the airway, look for vascular or infectious disease, identify traumatic lesions).

The head and neck space is especially hard because of the many important structures confided into a small space. Because of this, the emergencies can be difficult to assess. Clinical presentation can be vague, superposing many diseases, and the imaging diagnosis is particularly important for rapid treatment.

We structured the emergencies based on systems and causes:

1. Vascular emergencies

-Carotid dissection, Lemmierre syndrome, carotid-cavernous fistula, mandibular AVM, carotidynia, venous thrombosis

2. Infectious disease

-Ludwig's angina, tonsillitis and peritonsillar abscess, angioedema, epiglottitis, orbital cellulitis, descending mediastinitis, deep space abscesses, acute sialadenitis, superinfected laryngocele, infected branchial cleft cysts, acute otomastoiditis.

3. Traumatic injuries

- maxillofacial fractures, penetrating neck trauma and laryngeal fractures.

Despite their subtlety, head and neck emergencies have a high morbidity and mortality rate, thus a methodical approach guarantees that radiologist identify these conditions promptly and add to the diagnostic in an efficient manner while on call.

PP4 - 6 | CT SIGNS OF ODONTOGENIC MAXILLARY SINUSITIS: CLUES TO DENTAL ORIGIN AND ANATOMICAL ASPECTS THAT MAY BE OVERLOOKED

A. Alec¹, A.-M. Ungureanu¹, D.-C. Malita¹

¹Victor Babeş University of Medicine and Pharmacy, Timișoara, Romania

Aim: This paper aims to describe the main computed tomography (CT) imaging signs suggestive of odontogenic maxillary sinusitis and to highlight anatomical aspects that might predispose to chronic inflammation, which may be overlooked during routine paranasal sinus CT examinations.

Materials and Method: This educational exhibit presents a brief review of CT aspects related to odontogenic maxillary sinusitis, based on published radiologic literature and clinical experience. It has a particular focus set on imaging signs that suggest a dental source of sinus pathology and on structural differences that may affect sinus drainage and contribute to chronic inflammatory abnormalities.

Results: Characteristic CT findings suggesting odontogenic sinusitis include unilateral maxillary sinus disease associated with dental pathology, focal mucosal thickening of the Schneiderian membrane adjacent to the affected tooth, periapical radiolucency contacting the sinus floor, and cortical interruption of the maxillary sinus floor. In certain cases, inflammation extends along the physiologic drainage pathway, typically involving the maxillary sinus and subsequently the anterior ethmoid air cells. Anatomical aspects such as maxillary sinus septa, accessory ostia, infraorbital ethmoid cells, concha bullosa, or uncinate process variations may contribute to impaired drainage and persistent chronic inflammation.

Conclusion: Identifying particular CT imaging signs that suggest a dental source of sinus pathology is crucial for accurate diagnosis of odontogenic maxillary sinusitis. A comprehensive assessment of sinus anatomy and drainage pathways helps avoid missed diagnoses and facilitates proper interdisciplinary management.

PP4 - 7 | THE TRIGEMINAL HIGHWAY: MAPPING RETROGRADE PERINEURAL SPREAD AND SYSTEMIC METASTASIS IN A RARE HIGH-GRADE NASOPHARYNGEAL ADENOID CYSTIC CARCINOMA

A.-A. Nistor¹, G. Bugean¹, A. Lenta²

¹Regional Institute of Oncology Iasi, Radiation Oncology, Iasi, Romania

²"Prof. Dr. Nicolae Oblu" Emergency Clinical Hospital in Iasi, Radiology, Iasi, Romania

Aim: To illustrate the retrograde perineural spread (PNS) of a rare high-grade nasopharyngeal Adenoid Cystic Carcinoma (ACC) and the role of multimodal imaging in staging its systemic involvement.

Material and Methods: A 47-year-old female presented with multi-cranial nerve palsies (V, VI, VII, VIII) and left-sided masticatory atrophy. Diagnostic workup included brain MRI, contrast-enhanced CT, fiberoptic-guided biopsy, and 18-FDG PET/CT.

Results: MRI revealed a 30mm infiltrative mass in the left nasopharyngeal wall with extensive PNS along the mandibular and maxillary trigeminal branches, reaching the left Meckel's cave (18x34x18mm) and thickening the cisternal segment of CN V. CT identified necrotic lymphadenopathy at level IIb, bilateral involvement of levels IIa and IV, and aggressive osteolytic metastases at C6, C7, and T11. Histopathology confirmed a high-grade ACC. PET/CT confirmed a highly hypermetabolic primary tumor (SUVmax=13.7 g/ml) with sphenoid invasion and metabolic infiltration of the left temporal cortex. Furthermore, PET/CT mapped extensive systemic disease involving the axial and appendicular skeleton (C1, C4-C7, D6, D9, D11 with SUVmax=16.8 g/ml, L1-L3, sternum, ribs, left humerus, pelvic bones, and right femur) and identified incidental hypermetabolic uterine and adnexal lesions.

Conclusion: Nasopharyngeal ACC is a rare entity where the "Trigeminal Highway" serves as a critical route for intracranial invasion. This case highlights that a comprehensive multimodal imaging approach is indispensable for accurate staging. The synergy between MRI's perineural mapping, CT's structural detail, and PET/CT's metabolic assessment is vital for capturing the full extent of systemic dissemination in aggressive tumors.

PP4 - 8 | CALVARIAL METASTASES FROM PROSTATE CANCER: SCINTIGRAPHIC DETECTION AND CT CORRELATION – A 6-YEAR RETROSPECTIVE STUDY

B. Catargiu¹, A. Nistor¹, G. Bugean¹, D.P.T. Iancu¹, A. Munteanu¹

¹IRO IASI, Radiotherapy, Iasi, Romania

Background: Prostatic neoplasm typically produces osteoblastic metastases involving the axial skeleton. Calvarial involvement is less frequently reported and may be underrecognized, particularly in asymptomatic patients. We aimed to assess the incidence and imaging features of cranial vault metastases in a tertiary oncology center.

Materials and Methods: A retrospective review was performed of 617 patients diagnosed with prostate cancer between February 2020 and 2026. Bone scintigraphy findings were analyzed, with CT correlation when available. Cases with calvarial involvement were further evaluated regarding clinical presentation and PSA levels.

Results: Twelve patients (1.94%) demonstrated calvarial metastases, with a mean age of 68 years. In 11 cases, lesions were incidentally detected during bone scintigraphy performed prior to radiotherapy initiation. All patients presented multiple skeletal metastases, without isolated cranial disease. Available PSA values ranged from 50.99 to 1300 ng/mL.

Scintigraphically, lesions appeared as focal areas of increased tracer uptake at the cranial vault. Only one patient was symptomatic. Cranio-cerebral CT in this case revealed a 24×35×28 mm predominantly osteosclerotic lesion with destruction of the posterolateral right orbital floor, extension to the temporal squama, and extraconal intraorbital prolapse causing proptosis. An additional small intradiploic osteolytic frontal lesion was identified.

Conclusions: Calvarial metastases are uncommon but likely underreported due to their incidental presentation. Careful evaluation of cranial tracer uptake on bone scintigraphy is essential for comprehensive staging and treatment planning.

PP4 - 9 | CONE-BEAM COMPUTED TOMOGRAPHY IN THE SURGICAL MANAGEMENT OF SUBMANDIBULAR SIALOLITHIASIS

***D. Sulea¹, F. Sava¹, A. Carp¹, A. Manolache¹, S. Stelea¹, V. Salceanu¹, S. Gherasimescu¹,
A. Nicolau¹, M.L. Ciofu¹, O. Boisteanu¹, V.V. Costan¹***

¹Grigore T. Popa University of Medicine and Pharmacy, Chirurgicale, Iasi, Romania

Aim: Submandibular sialolithotomy is a commonly performed procedure, frequently undertaken under local anesthesia in an outpatient setting. However, the location, size, and number of salivary calculi significantly influence surgical indication and technical difficulty, particularly in cases involving hilar and proximal stones. The aim of this study was to evaluate the advantages of preoperative cone-beam computed tomography (CBCT) in the assessment of submandibular gland sialolithiasis, with particular emphasis on its utility in managing hilar and proximal calculi along Wharton's duct.

Materials and Methods: A retrospective analysis was conducted on patients diagnosed with submandibular sialolithiasis who underwent CBCT imaging on the day of surgery, followed by sialolithotomy. Medical records were reviewed to assess imaging findings, intraoperative correlation, and surgical outcomes. The operative technique is described, along with the key CBCT-derived anatomical landmarks used for intraoperative navigation and verification.

Results: Forty-two patients with submandibular sialolithiasis were included, with a total of 63 calculi identified on CBCT. Proximal and hilar stones were present in 19 cases. In all patients, the number of calculi detected preoperatively on CBCT corresponded exactly to the number of stones removed surgically. Transient lingual nerve hypoesthesia occurred in two patients. No cases of recurrent obstructive symptoms were observed during follow-up.

Conclusions: Preoperative CBCT provides a precise three-dimensional assessment of salivary stone burden and its anatomical relationships, enabling accurate intraoperative localization. This imaging modality enhances surgical confidence, particularly in challenging cases involving proximal and hilar calculi, and may contribute to improved clinical outcomes.

PP4 - 10 | RADIOLOGIC STUDY REGARDING SOME MEASURABLE VARIABLES IN IMMEDIATE LOADING DENTAL IMPLANTS

D. Epistatu¹, M.E. Meila¹, F. Dogioiu¹, C. Ghiuta¹, E. Solomon¹, M.T. Epistatu²

¹UMF Carol Davila, Dental Radiology, Bucharest, Romania

²Dental Institute, General Dentistry, Bucharest, Romania

Aim: The aim of the study was to determine and verify whether some anthropometric parameters could be incriminated as a risk factor in immediate loading of implants placed on the frontal area of the upper jaw.

Materials and Methods: A retrospective analysis was conducted, starting from some clinical observations that led to a pilot study. Then we extended the research comparing the data from a problematic case of immediate loading with some other cases with normal evolution. The comparison was made starting from one panoramic and one cephalometry for each patient. The implant-temporary prosthesis assembly was evaluated from a mechanical point of view. Parameters such as implant characteristics, crown length, bone density, goniac angle and anterior facial height (HFA) were considered. An α angle (inclination of the implants relative to the Frankfort plane perpendicular) was measured on the cephalometry to evaluate the forces along the implant axis. Implant lever, resistance and anthropometric coefficients were calculated to quantify the influence of each parameter.

Results: The α angle was also found within the variation interval, as well as the other parameters (ex. implant lever at the lower limit). We proposed a new anthropometric coefficient that seems to be relevant for the research.

Conclusions: Clinicians should take into account some anthropometric parameters in planning the treatment of extreme cases, similar to the reference case presented. Implant lever and anterior facial height should be taken into consideration. Occlusion is a generic term that also must be taken into consideration.

PP4 - 12 | ULTRASOUND IN IDIOPATHIC UNILATERAL MASSETER HYPERTROPHY

L. Romo¹, E. Parraguez², C. Baltera²

¹Pontificia Universidad Catolica de Chile/Fuerza Aérea de Chile, Oral Surgery, Santiago, Chile, ²Universidad Mayor, Oral Radiology, Santiago, Chile

Introduction: Masseter hypertrophy is a benign condition characterized by enlargement of one or both masseter muscles producing facial asymmetry. It may lead to trismus, tooth wear, and changes in mandibular posture. The disorder results from stretching of muscle fibers with the development of new sarcomeres, increasing cell size. The unilateral form is rare, and diagnosis is made by exclusion, requiring differentiation from muscular tumors, salivary gland disease, inflammatory processes and oncologic conditions. Confirmation involves imaging studies and muscle biopsy. Point of care ultrasound has value for comparative assessment of masseter thickness and structure, as well as for planning and monitoring therapeutic interventions.

Case Report: A 28-year-old female presented left-sided facial swelling eight years ago. Initially, it was suspected to be related to infection following third molar extraction. Anamnesis, clinical examination, imaging (radiographs, ultrasound, and CT), and histopathological analysis confirmed idiopathic unilateral masseter hypertrophy. Imaging revealed significant hypertrophy of the left masseter compared with the contralateral side. Both surgical and conservative options were discussed. The patient opted for Botox therapy, receiving 50 units into the affected muscle once a year and more frequently lately. Ultrasound monitoring before each application allowed evaluation of muscle changes, objective comparison of both sides, and optimization of treatment planning. Clinical outcomes were satisfactory, with notable improvement in facial symmetry and function. The patient remains under regular follow-up, without complications or disease progression.

Discussion: Point of care ultrasound is a rapid, accessible, and minimally invasive exam, useful in successive Botox applications and during long-term follow-up.

PP5 - 1 | ACROMEGALY DIAGNOSED BY A DENTIST: A CASE REPORT

Y. Öncü¹, A.Z. Zengin¹

¹Ondokuz Mayıs University, Faculty of Dentistry, Department of Oral and Maxillofacial Radiology, Samsun, Turkey

Aim: Acromegaly is a rare endocrine disorder caused by excessive growth hormone secretion, most commonly due to a pituitary adenoma, leading to characteristic craniofacial and systemic changes. The aim of this case report is to describe radiological findings that raised suspicion of acromegaly and to emphasize the role of dental imaging in early detection.

Material and Methods: A 58-year-old female patient with a history of type 2 diabetes mellitus and hypertension presented to our clinic with complaints of progressive spacing in the mandibular anterior teeth and incompatibility of her removable prosthesis. Extraoral examination revealed hypertelorism, enlarged lips, a broad nasal appearance and mandibular prognathism. During anamnesis, the patient reported recent enlargement of her hands and feet.

Results: Panoramic radiography demonstrated extensive pneumatization of the right maxillary sinus extending toward the alveolar crest. Cone-beam computed tomography was obtained and confirmed marked pneumatization of the right maxillary sinus and enlargement of sella turcica. A contrast-enhanced magnetic resonance imaging scan, previously taken at an external medical center for another purpose, revealed the presence of a 5.7×7.8 mm lesion on the left side of the pituitary gland, showing less contrast enhancement compared to normal glandular tissue and consistent with a pituitary adenoma. Based on the clinical and radiological findings, the patient was referred to the departments of endocrinology with a preliminary diagnosis of acromegaly.

Conclusion: Dental radiological examinations may reveal incidental findings suggestive of systemic diseases such as acromegaly. Awareness of characteristic radiological features can facilitate early diagnosis and appropriate referral.

PP5 - 2 | DISCOVERY OF NOVEL FGFR₁ INHIBITORS FOR OSCC USING A MULTI-CLASS QSAR MODEL, VIRTUAL SCREENING, AND MOLECULAR DYNAMICS SIMULATIONS

**S. Udeabor¹, H. Assiri², M. Ishfaq³, R. Al-Hammad⁴, N. Al Hussain⁵, S. Shah⁶, I. Khalid⁴,
F. Baig⁶, M. Hamid⁶, A. Elfadeel⁶, C. Onwuka⁶**

¹King Khalid University, College of Dentistry, Oral and maxillofacial Surgery, Abha, Saudi Arabia

²King Khalid University, College of Dentistry, Diagnostic sciences and oral biology and periodontology, Abha, Saudi Arabia

³King Khalid University, Oral and Maxillofacial Surgery, Abha, Saudi Arabia

⁴King Khalid University, College of Dentistry, Abha, Saudi Arabia

⁵King Khalid University, College of Dentistry, Oral and Maxillofacial Dentistry, Abha, Saudi Arabia

⁶King Khalid University, College of Dentistry, Oral and Maxillofacial Surgery, Abha, Saudi Arabia

Aim: Oral squamous cell carcinoma (OSCC) is a highly aggressive cancer with poor prognosis and limited response to conventional therapies. This study used a detailed computer-based method to find new small-molecule FGFR1 inhibitors that could help treat OSCC, combining different techniques like QSAR modeling, virtual screening, and molecular dynamics simulations.

The ChEMBL database was used to make a collection of 3,222 different inhibitors, which were then divided into four groups based on their activity. The random oversampling (ROS) technique was employed on the training set to address the issue of dataset imbalance (Figure 3). Additionally, 10 distinct machine learning techniques were employed to develop and assess multi-class QSAR models.

Results: The Extra Trees (ET) classifier had the best performance, achieving a test set accuracy of 0.926 and Matthews Correlation Coefficient (MCC) of 0.902. The validated ET model was then employed to examine a repository of FDA-approved drugs and identified high-priority potential drugs. Molecular docking studies in the FGFR1 active site (PDB ID: 6MZW) and 200 ns molecular dynamics simulations showed that the best candidates were stable. The study found two important lead compounds, CHEMBL155526361 and CHEMBL155529723, which showed strong binding abilities.

Conclusion: This study effectively used a combined computer-based method to find and confirm new FGFR1 inhibitors that could help treat OSCC. The identified lead compounds, CHEMBL155526361 and CHEMBL155529723, represent promising molecular scaffolds for future preclinical development.

PP5 - 3 | SQUAMOUS CELL CARCINOMA OF POSTERIOR MAXILLA: A CASE REPORT

N. Deniz¹, P. Çelenk¹

¹Ondokuz Mayıs University, Faculty of Dentistry, Oral and Maxillofacial Radiology, Samsun, Turkey

Aim: The aim of this case report is to present the Magnetic Resonance Imaging and Cone-beam computed tomography findings of a Squamous Cell Carcinoma (SCC) originating from the maxillary sinus and to emphasize the importance of dental radiographic examinations in the detection of malignant maxillofacial lesions.

Material and Methods: A 64-year-old male patient who is a heavy smoker and alcohol consumer presented with a painless swelling at right posterior maxilla. A panoramic radiograph was initially obtained, followed by CBCT for further evaluation. Due to the destructive appearance of the lesion, the patient was referred to the medical faculty radiology department and MRI was performed.

Results: Panoramic radiography revealed a bone destruction extending to the right maxillary sinus in the posterior edentulous maxilla. CBCT demonstrated a destructive lesion with ill-defined borders extending from the right ethmoid air cells to the posterior alveolar region, accompanied by soft tissue thickening of the hard palate. MRI showed a heterogeneous soft tissue mass filling the right maxillary sinus, extending to the premaxillary region, pterygopalatine fossa with invasion of the masseter muscle. A soft tissue mass with a heterogeneous internal structure was observed on T1 and T2, appearing hyperintense in places on T2 and enhanced with contrast after exposure, showing significant diffusion restriction.

Conclusion: Pathology report showed the presence of SCC. Maxillary sinus carcinomas may be expressed in the oral cavity. Intraoral examination and radiographic imaging plays a crucial role in the detection of aggressive maxillofacial malignancies with nonspecific clinical symptoms, allowing timely referral and management.

PP5 - 4 | UNLOCKING THE OROPHARYNX: A MULTIMODALITY IMAGING REVIEW OF 12 BASE OF TONGUE LESIONS

**C. Chirica¹, B.-I. Dobrovăţ¹, D. Pomohaci¹, S.-I. Chirica¹, M.-R. Popescu¹, E.-A. Marciuc¹,
I.A. Danciu¹, D. Andreş¹, D.A. Droancă-Ilinca¹, D. Haba¹**

¹Grigore T. Popa University of Medicine and Pharmacy, Department of Oral and Maxillofacial Surgery, Iasi, Romania

Aim: The base of the tongue (BOT) is a complex anatomical region where clinical examination is often limited. Our objective is to evaluate the radiological spectrum of various BOT lesions, emphasizing the role of CT and MRI in differential diagnosis, staging, and assessment of deep tissue infiltration.

Material and Methods: We conducted a retrospective analysis of 12 patients diagnosed with base of tongue lesions. All patients underwent contrast-enhanced CT and/or MRI. Imaging features - including signal intensity, enhancement patterns, invasion of the extrinsic muscles (genioglossus, hyoglossus), involvement of the pre-epiglottic space, and cervical lymphadenopathy - were correlated with histopathological findings or clinical follow-up.

Results: The series comprised 9 malignant and 3 benign/developmental lesions. Malignancies included squamous cell carcinoma, adenoid cystic carcinoma, and lymphoma. Benign findings included a lingual thyroid, a dermoid cyst, and a cavernous hemangioma. MRI proved superior in delineating the "midline cross" and muscle infiltration, which are critical for surgical planning. CT was highly effective in identifying subtle cortical bone erosions of the mandible in advanced malignant cases.

Conclusion: Radiological evaluation is indispensable for managing base of tongue pathology. While CT offers speed and bone detail, MRI remains the gold standard for defining the local extent of the disease. A systematic approach to the BOT spaces and "danger zones" (like the pre-epiglottic space) ensures accurate staging and guides the multidisciplinary team toward the optimal therapeutic strategy.

PP5 - 5 | FACIAL PAIN BEYOND ODONTOGENIC DISEASE: IMAGING CLUES FOR DIFFERENTIAL DIAGNOSIS IN HEAD AND NECK PATHOLOGY

I.A. Serpeanu¹

¹*Emergency Clinical Hospital 'Professor Doctor Nicolae Oblu', Iasi, Romania*

Aim: To propose an imaging-based differential diagnostic approach for facial pain suspected to be odontogenic, highlighting the pterygopalatine fossa (PPF) as a critical anatomical crossroads for disease spread in head and neck pathology.

Material and Methods: We performed a focused imaging review of patients presenting with unilateral facial pain and inconclusive dental findings who underwent contrast-enhanced CT and/or high-resolution MRI of the head and neck. Image analysis emphasized the anatomy of the pterygopalatine fossa and its neural communications, including the foramen rotundum, maxillary and vidian nerves. Representative entities included adenoid cystic carcinoma, trigeminal schwannoma, nasopharyngeal carcinoma, maxillary sinus carcinoma, juvenile nasopharyngeal angiofibroma, and invasive fungal sinusitis. Patterns of skull base extension and pathways of spread through the PPF were evaluated.

Results: Odontogenic disease typically showed localized dental or periapical inflammatory changes without skull base or neural involvement. In contrast, non-odontogenic entities demonstrated characteristic patterns of extension centered on the pterygopalatine fossa. Adenoid cystic carcinoma showed perineural spread along the maxillary nerve, while trigeminal schwannoma produced neural enlargement and foraminal widening. Nasopharyngeal and maxillary sinus carcinomas infiltrated the PPF with secondary neural invasion. Juvenile nasopharyngeal angiofibroma caused PPF expansion with vascular remodeling, whereas invasive fungal sinusitis demonstrated aggressive spread.

Conclusion: The pterygopalatine fossa represents a key hub for neural and vascular pathways capable of transmitting head and neck pathology that may clinically mimic odontogenic facial pain. Systematic evaluation of this region on cross-sectional imaging is essential for recognizing alternative etiologies, understanding routes of disease spread, and guiding appropriate multidisciplinary management.

PP5 - 6 | IMAGING PHENOTYPES OF TEMPOROMANDIBULAR JOINT DISORDERS ARE UNDERPINNED BY DISTINCT PROTEOMIC AND METABOLOMIC TRAJECTORIES IN SYNOVIAL FLUID

L. Wang¹, B. Li¹, Y. Cheng¹

¹Wuhan University, Wuhan, China

Aim: Temporomandibular joint disorders (TMD) progress from disc displacement to perforation, yet molecular underpinnings of imaging phenotypes remain unclear. This study characterized proteomic and metabolomic trajectories across imaging-defined TMD stages and identified molecular signatures associated with imaging severity.

Material and Methods: 119 TMD patients were classified into five sequential stages: symptomatic Normal, Disc Displacement with Reduction (DDWR), DDWR with Osteoarthritis (DDWR+OA), and DDWR+OA with Perforation. Synovial fluid from 91 patients underwent DIA proteomics; 62 also had metabolomics. Two blinded radiologists assessed Imaging Severity Score (ISS, 0-12) comprising bone marrow edema, erosion, effusion, and bilaminar zone edema. Protein/metabolite trajectories were Mfuzz-clustered and correlated with clinical/imaging parameters.

Results: ISS increased from Normal to DDWR+OA ($p < 0.001$) but **declined at Perforation**, driven by parallel decreases in three edema components. Mfuzz identified a protein cluster ($n=167$) with trajectory **concordant with ISS**, and a metabolite cluster ($n=361$) with **opposite trajectory**. Joint enrichment revealed complement/coagulation cascades (proteins) and glyoxylate/dicarboxylate metabolism (metabolites), with **arginine/proline metabolism commonly enriched**. ISS strongly correlated with its components ($r=0.6-0.8$), most strongly with bone marrow edema ($r=0.76$). Top ISS-correlated molecules included PLTP ($r=0.611$) and FSTL1 ($r=0.604$); top inverse metabolite was 5-bromo-2-hydroxybenzamide ($r=-0.429$).

Conclusion: This study reveals a **perforation-stage tipping point** in TMD progression, marked by divergent protein-metabolite trajectories. Strong correlations between ISS and specific molecules provide mechanistic links between imaging phenotypes and underlying biology, offering potential biomarkers for imaging-guided patient stratification.

PP5 - 7 | BEYOND SIALADENITIS: CT AND MRI PATTERNS OF SALIVARY GLAND LESIONS

T.-A. Buznea¹, D. Haba¹

¹Clinical Emergency Hospital "Prof. Dr. N. Oblu", Department of Radiology, Iasi, Romania

Purpose: Salivary gland lesions encompass a heterogeneous group of inflammatory, obstructive and neoplastic entities, often presenting with nonspecific clinical signs. Imaging plays a pivotal role in lesion characterization, differential diagnosis and pre-treatment planning. This study aims to illustrate CT and MRI imaging patterns that differentiate common salivary gland pathologies.

Materials and Methods: A retrospective review of CT and MRI examinations performed for suspected salivary gland pathology over a four-year period was conducted. Lesions involving the parotid and submandibular glands were analyzed for location, margins, internal architecture, signal characteristics, enhancement patterns, ductal involvement and adjacent tissue infiltration. Imaging findings were correlated with histopathology or clinical follow-up when available.

Results: Benign tumors typically demonstrated well-circumscribed margins and homogeneous or mildly heterogeneous enhancement. Inflammatory and obstructive disorders showed gland enlargement, ductal dilatation and surrounding fat stranding. Malignant lesions frequently presented with ill-defined borders, deep tissue infiltration and regional lymphadenopathy. MRI provided superior soft tissue characterization, particularly for detecting perineural spread.

Conclusions: A structured, pattern-based imaging approach improves differentiation of salivary gland lesions and supports optimal clinical management. Familiarity with characteristic CT and MRI findings enhances diagnostic confidence and can guide surgical or medical intervention.

PP5 - 8 | HOW FAR CAN IT SPREAD? FROM HEAD AND NECK CARCINOMAS TO BRAIN METASTASES

***D. Pomohaci¹, M.-R. Popescu^{1,2}, B.-I. Dobrovat^{2,1}, E.-A. Marciuc^{2,1}, C. Chirica¹, I.A. Danciu¹,
V. Ianole^{3,4}, G.F. Dumitrescu³, D. Haba^{2,1}***

¹Grigore T. Popa University of Medicine and Pharmacy, Department of Oral and Maxillofacial Surgery, General and Dental Radiology, Iasi, Romania

²Clinical Emergency Hospital "Prof. Dr. Nicolae Oblu", Radiology Department, Iasi, Romania

³Clinical Emergency Hospital "Prof. Dr. Nicolae Oblu", Pathology Department, Iasi, Romania

⁴Grigore T. Popa University of Medicine and Pharmacy, Department of Morpho-Functional Sciences I, Iasi, Romania

Aim: The scope of this research is to illustrate cases of patients with head and neck carcinomas (HNC) with secondary involvement of brain parenchyma, as the metastatic spread of these tumors rarely reaches the brain (prevalence of 0.03-0.4%) but represents a poor prognostic factor with a median survival of 2.5 to 5 months (Liu AK et al., Oral Oncol. 2021 Jan 1;112).

Material and Methods: We selected patients diagnosed with secondary brain lesions that were histopathological confirmed to be from HNC origin and assessed the imaging features of both primary and secondary lesions. From 2020 to 2022, we only found 4 patients out of 85 that respected the inclusion criteria.

Results: The four patients had brain metastases (BMs) from squamous carcinomas of the pharynx (51 y. o., male), hypopharynx (60 y. o., male), larynx (72 y. o., male) and from a sphenoidal sinus undifferentiated carcinoma with skull base invasion (74 y. o., female). Only one patient had a brain MRI acquisition before and after radiotherapy with an unfavorable outcome represented by distant brain failure just four months after treatment.

Conclusions: Although HNC rarely and only later in its evolution involves the brain, it significantly alters the quality of life and survival of the patients. The aggressiveness of the BMs could reside in the invasive nature of the primary HNC. As MRI characteristics are nonspecific, histopathological diagnosis after biopsy could help the clinicians opt for a personalized treatment.

PP5 - 9 | MICRO-CT RADIOMICS AND MACHINE LEARNING REVEAL PLCT₂-DEPENDENT SKULL MALFORMATIONS IN MICE

C. Dobo-Nagy¹, F. Juhasz¹, B. Szabo¹, K. Orhan²

¹Semmelweis University, Oral Diagnostics, Budapest, Hungary

²Ankara University, Faculty of Dentistry, Ankara, Turkey

Aim: We aimed to visualize, determine and predict the role of Phospholipase C γ 2 (PLC γ 2) in skull formation using 3D cephalometry and machine learning (ML) in mice.

Material and Methods: PLC γ 2^{-/-} and wild-type mice were examined using microcomputed tomography (μ CT). A radiomics platform extracted features from mouse skulls for ML analysis, including first-order statistics, shape metrics, and texture characteristics. Features were reduced using variance threshold, SelectKBest, and LASSO methods. Six classifiers—k-NearestNeighbor (KNN), Support Vector Machine (SVM), eXtreme Gradient Boosting (XGBoost), Random Forest (RF), Logistic Regression (LR) and Decision tree (DT) were used to build predictive models. μ CT images measured skull dimensions and cross-sectional areas. Mann-Whitney U-test and paired T-test determined statistical significance.

Results: RF classifier was the most effective ML model for predicting skull formation with the highest AUC for training data (0.990) and test data (0.916). For the PLC γ 2^{+/+} group, precision ranged from 0.40 to 1, recall from 0.75 to 1, and F1-score from 0.45 to 1. For PLC γ 2^{-/-} mice, precision ranged from 0.92 to 1, recall from 0.75 to 1, and F1-score from 0.82 to 1. SVM and LR methods achieved the highest scores of diagnostic performances.

Conclusion: PLC γ 2 deficiency skull bone formation conventional 3D cephalometric measurements weren't sensitive enough to detect dimensional changes, while μ CT radiomic features successfully predicted bone changes.

PP5 - 10 | "NOT JUST A SWELLING": INTRAOSSEOUS HEMANGIOMA OF THE MANDIBLE REVEALED BY MULTIMODAL IMAGING IN TWO PEDIATRIC CASES

G. Haksayar^{1,2}, Z.İ. Öztürk Barut¹, D. Sezgin¹, C. Evli¹, K. Orhan¹

¹Ankara University - Faculty of Dentistry, Department of Oral and Maxillofacial Radiology, Ankara, Turkey

²Ankara University - Institute of Health Sciences, Department of Oral and Maxillofacial Radiology, Ankara, Turkey

Aim: To present the multimodal imaging findings of two pediatric cases of intraosseous mandibular hemangioma, emphasizing the complementary roles of cone-beam computed tomography (CBCT), magnetic resonance imaging (MRI), and ultrasonography (US) in diagnosis.

Material and Methods: Two pediatric female patients presenting with mandibular swelling were evaluated. Multimodal imaging was performed, combining two or more of the following modalities: CBCT, MRI, US. In both cases, US examination included both an extraoral linear probe and an intraoral hockey stick probe in B-mode and color Doppler. Case 1: a 11-year-old with a 2-year history of painless left mandibular swelling underwent CBCT, and US. Case 2: a 14-year-old with a 20-day history of painful pulsatile swelling with mucosal discontinuity underwent MRI (with and without contrast) and US. Clinical and imaging findings were correlated.

Results: In Case 1, CBCT demonstrated medullary expansion with cortical thinning from the mandibular corpus to the ramus, initially interpreted as fibrous dysplasia. US revealed a hypoechoic intraosseous lesion with increased vascularity adjacent to the mandibular cortex. This vascular pattern was inconsistent with fibrous dysplasia, and strongly suggestive of an intraosseous vascular lesion. In Case 2, MRI and US demonstrated vascular characteristics consistent with intraosseous hemangioma despite an atypical clinical presentation with pain and mucosal discontinuity.

Conclusion: Intraosseous mandibular hemangioma may present with varied clinical features, including asymptomatic long-standing swellings and acute painful presentations mimicking odontogenic infection. Multimodal imaging is essential for accurate diagnosis, particularly when CBCT findings are inconclusive or misleading.

PP5 - 11 | IMPACT OF ULTRASONOGRAPHY-ASSISTED TRAINING OF CERVICAL LYMPH NODE EXAMINATION ON DENTAL EDUCATION

D. Yildirim¹, E. Bozdemir¹, O. Gormez¹, O. Yarbasi¹

¹Suleyman Demirel University, Faculty of Dentistry, Oral and Maxillofacial Radiology, Merkez, Turkey

Aim: To evaluate the effect of ultrasonography use for training of cervical lymph node examination in dental education.

Material and Methods: The study included 130 fifth-year dental students who were performing internships in the Oral and Maxillofacial Radiology Clinic. At the beginning and end of the internship, clinical examination of cervical lymph nodes was performed on two patients, first by the student and then by the Oral and Maxillofacial Radiologist, by palpation. Subsequently, the clinician performed the examination of the patient's cervical US evaluation and face-to-face US demonstration to the student. A US knowledge survey was administered to the students at the beginning and end of the internship. The agreement between the clinician's examination findings and the student's findings before and after the US demonstration was evaluated. Student US knowledge levels were evaluated through pre- and post-surveys.

Results: At the beginning of the examination, students detected lymph nodes in significantly fewer patients in the right($p<0.001$) and left ($p=0.002$) cervical region. At the end of the internships, the students clinically detected significantly more lymph nodes both in the right($p=0.004$) and left ($p=0.003$) side. Post-survey results showed a significant increase in knowledge regarding questions related to malignancy assessment and vascularization interpretation ($p<0.001$).

Conclusion: US-assisted training significantly improved the clinical performance and knowledge level of dental students on cervical lymph node examination by allowing them to match tactile perception with visual data.

PP5 - 12 | IMAGING PEARLS AND PITFALLS IN OSTEOSCLEROTIC LESIONS OF THE JAWS: A CASE- BASED SURVIVAL GUIDE FOR DIFFERENTIAL DIAGNOSIS

***I.A. Danciu¹, E.A. Marciuc¹, B.I. Dobrovat¹, R.M. Popescu¹, D.A. Droancă-Ilinca¹, C. Chirica¹,
D. Pomohaci¹, N. Dobrin¹, L. Eva¹, D. Haba¹***

¹"Gr. T. Popa" University of Medicine and Pharmacy, Iasi, Romania

Aim: To highlight key imaging features and diagnostic pitfalls in the evaluation of osteosclerotic lesions of the jaws, facilitating differentiation between benign lesions and malignant entities.

Materials and Methods: A retrospective selection of representative cases presenting osteosclerotic jaw lesions was performed from imaging archives of two regional imaging centers. Cases were chosen for their illustrative and educational value. Imaging evaluation included orthopantomography, computed tomography (CT), and when available magnetic resonance imaging (MRI). Analysis focused on lesion location, mineralization pattern, lesion margins, relationship with teeth, cortical involvement, and associated bone remodeling. Selected cases included odontoma, cementoblastoma, cemento-osseous dysplasia, fibrous dysplasia, and metastatic disease. Imaging findings were correlated with characteristic radiologic patterns described in the literature.

Results: Odontomas appeared as well-defined radiopaque lesions associated with impacted teeth, surrounded by a thin radiolucent rim. Cementoblastomas demonstrated a radiopaque mass fused to the tooth root, frequently accompanied by a peripheral radiolucent halo and root resorption. Fibrous dysplasia showed diffuse bone expansion with a characteristic “ground-glass” internal matrix and poorly defined borders blending with surrounding bone. Cemento-osseous dysplasia demonstrated variable radiographic stages, from early radiolucent lesions to mixed and predominantly radiopaque patterns. In contrast, osteosclerotic metastases presented with irregular sclerotic foci, often lacking well-defined margins and sometimes associated with cortical destruction or additional lytic components.

Conclusion: Recognition of key imaging patterns and diagnostic pitfalls is essential in evaluating osteosclerotic jaw lesions. A systematic approach integrating lesion morphology, mineralization pattern and topographic distribution can narrow the differential diagnosis and help distinguish benign odontogenic conditions from malignant disease.

PP5 - 13 | AI VS HUMAN EXPERTS IN ODONTO-PERIODONTAL DIAGNOSIS ON ORTHOPANTOMOGRAMS: A COMPARATIVE STUDY

O.-M. Butnaru¹, D. Vasincu¹, I. Mârțu², I. Luchian³, D. Haba⁴

¹Grigore T. Popa University of Medicine and Pharmacy Iasi, Surgical/Biophysics, Iasi, Romania

²Grigore T. Popa University of Medicine and Pharmacy Iasi, Implantology, Removable prosthesis, Denture technology, Iasi, Romania

³Grigore T. Popa University of Medicine and Pharmacy Iasi, Dentistry-Periodontology, Fixed Prosthesis, Iasi, Romania

⁴Grigore T. Popa University of Medicine and Pharmacy Iasi, Surgical/Radiology, Iasi, Romania

Aim: To evaluate the impact of artificial intelligence (AI) integration on the accuracy and efficiency of odonto-periodontal diagnosis on orthopantomograms, by comparing its performance with that of general dentists, specialists, and primary (senior) dentists.

Material and Methods: A comparative analytical study was conducted on 60 clinicians (20 general practitioners, 20 specialists and 20 primary dentists) and one AI system. A dataset of 60 high-quality orthopantomograms, validated by imaging experts as the reference standard, was analyzed. Image interpretation was performed using the Planmeca Romexis® Smart platform, based on deep learning algorithms for automatic detection of anatomical structures and pathological findings.

Results: AI showed higher sensitivity in detecting enamel caries (mean 5.5 cases) compared to specialists (1.5) and general practitioners (0.8), with performance close to primary dentists (4.75). In periodontal assessment, AI and primary dentists demonstrated high consistency in detecting alveolar bone loss (mean 1.00), while general practitioners showed lower sensitivity and higher variability, especially in the maxillary region (mean 0.70). AI also reduced intra- and inter-observer variability through standardized analysis.

PP5 - 14 | CONTRIBUTION OF TURKISH RESEARCHERS TO THE WORLD'S DENTOMAXILLOFACIAL RADIOLOGY LITERATURE: A 20-YEAR ANALYSIS

U. Seki¹, U. Aksoy², S. Aksoy³, A. Altındag⁴, C. Gorurgoz⁵, K. Orhan⁶

¹Kocaeli University, Department of Dentomaxillofacial Radiology, Kocaeli, Turkey

²Near East University, Department of Endodontics, Lefkosa, Turkey

³Near East University, Department of Dentomaxillofacial Radiology, Lefkosa, Turkey

⁴Necmettin Erbakan University, Department of Dentomaxillofacial Radiology, Konya, Turkey

⁵Bolu İzzet Baysal Oral Health Center, Bolu, Turkey

⁶Ankara University, Department of Dentomaxillofacial Radiology, Ankara, Turkey

Aim: The aim of this research is to perform a 20-year bibliometric analysis of publications within the field of dental and maxillofacial radiology in Türkiye, identifying trending topics and analyzing output based on institutions and main contributors.

Materials and Methods: A bibliometric search was conducted in Elsevier's Scopus search engine using the terms "oral radiology," "dental radiology," "maxillofacial radiology," and "dentomaxillofacial radiology" from January 2006 to January 2026. Affiliation was limited to Türkiye. A comprehensive analysis was conducted on a total of 2252 papers using bibliometric criteria. These criteria included the publication title, authorship, publication year, coauthors, institution of origin, country of origin, cooperating institution and nations, article type, study field, and the number of citations.

Results: Original articles constituted the largest group, accounting for more than half of all publications, followed by case reports. The majority of studies were focused on diagnosing orofacial diseases, radiology anatomy and diagnostic imaging respectively. With 374 publications, Orhan K is the most productive author in terms of publications as first and/or co-author. In terms of the affiliation of the first authors, Ankara University was identified as the most prominent institution based on its significant publication output (n=530).

Conclusion: This bibliometric study provides a comprehensive overview of research completed in Türkiye in the area of dentomaxillofacial radiology over a period of 20 years. Due to continuous developments in radiology, it is expected that the number of research would significantly expand in the next years and may explore new horizons.

PP5 - 15 | PATIENT PERCEPTION OF RADIATION RISK IN DENTAL IMAGING AND THE ROLE OF EDUCATION IN THE ACCEPTANCE OF PREVENTIVE RADIOGRAPHIC EXAMINATIONS

C. Balcos¹, Balcos Carina, Irina Bamboi, Ana Nemtoi, Tinela Panaite, Adina Armencia, Bianca Toader, Ana Sirghe, Carmen Savin, Teona Tudorici, Anca Rapis, Daniela Argatu

¹Grigore T. Popa University of Medicine and Pharmacy, Surgery I, Iasi, Romania

Background: Dental radiographic examinations represent an essential component of modern dental diagnostics. Although the radiation dose associated with dental imaging is relatively low, patients' perception of radiation risk may influence the acceptance of these investigations, particularly when they are recommended for preventive purposes.

Aim: The aim of this study was to evaluate patients' perception of dental radiological risk and to assess the influence of education and medical communication on the acceptance of preventive radiographic examinations.

Material and methods: A cross-sectional observational study was conducted using an anonymous questionnaire administered to 127 adult patients attending dental clinics. The questionnaire consisted of 25 items covering socio-demographic characteristics, previous experience with dental radiography, perception of radiation risk, and attitudes toward preventive radiographic examinations.

Results: Regarding previous experience with dental radiography, 37 participants (29.1%) reported having undergone a dental radiographic examination. Concerning risk perception, 49 participants (38.6%) considered dental radiographs potentially dangerous, 33 (26.0%) believed they were not harmful, and 45 (35.4%) were uncertain. In addition, 37 participants (29.1%) reported a high level of concern regarding radiation exposure. Regarding acceptance of preventive radiographs, 42 participants (33.1%) stated that they would accept a radiographic examination recommended by their dentist, while 49 (38.6%) would refuse and 36 (28.3%) were uncertain. Trust in the dentist's recommendation was reported by 48 participants (37.8%).

Conclusion: These findings highlight the importance of patient education and effective communication in reducing fear of radiation and improving acceptance of preventive dental radiographic examinations.

PP5 - 16 | CBCT-GUIDED PLANNING OF PTERYGOID IMPLANTS: EDUCATIONAL INSIGHTS INTO THE RADIOLOGICAL ANATOMY OF THE PTERYGOMAXILLARY REGION

D. Andres¹, B. Dobrovat¹, C. Chirica¹, E. Marciuc¹, I. Danciu¹, D.A. Droancă-Ilinca¹, R. Popescu¹, D. Pomohaci¹, D. Haba¹

¹Grigore T. Popa University of Medicine and Pharmacy; Hospital of Emergency N. Oblu, Iasi, Romania

Aim: The pterygomaxillary region presents complex anatomical relationships that are critical for successful pterygoid implant placement. The aim of this educational exhibit is to provide a CBCT-based overview of the anatomical landmarks relevant for planning pterygoid implants.

Material and Methods: Representative CBCT scans were selected to illustrate the radiological anatomy of the pterygomaxillary region. Multiplanar and three-dimensional reconstructions were used to demonstrate key structures including the maxillary tuberosity, pterygoid plates, pterygomaxillary fissure and the maxillary sinus. The presentation focuses on identifying anatomical landmarks and understanding their relevance for implant trajectory planning.

Results: The educational cases demonstrate the importance of CBCT in visualizing the complex three-dimensional anatomy of the pterygomaxillary region. Variations in bone morphology, sinus pneumatization and spatial relationships between anatomical structures can significantly influence implant planning.

Conclusion: Comprehensive knowledge of the imaging anatomy of the pterygomaxillary region is essential for clinicians performing pterygoid implant procedures. CBCT provides valuable guidance for identifying anatomical landmarks and planning safe implant trajectories.

PP6 - 1 | HIGH-GRADE CHONDROBLASTIC OSTEOSARCOMA OF THE ORBIT – CASE REPORT

I. Reut¹, D. Haba²

¹University of Medicine and Pharmacy "Gr. T Popa" Iasi, Iasi, Romania

²University of Medicine and Pharmacy "Gr. T Popa" Iasi, Dental Radiology, Iasi, Romania

Aim: To report a rare case of primary orbital chondroblastic osteosarcoma with intra- and extracranial extension and challenging surgical management.

Material and Methods: A 60-year-old female presented with progressive left-sided exophthalmos and ipsilateral temporal region swelling. She was evaluated in a radiodiagnostic facility in Iași and subsequently referred for neurosurgical intervention.

Results: CT demonstrated an ill-defined left fronto-temporo-orbital expansile lesion with osteolysis of the lateral orbital wall and frontal bone, with both extra- and intracranial subdural extension, and significant mass effect. MRI revealed a predominantly solid, heterogeneous large mass with intense peripheral contrast enhancement. The lesion displaced the eye causing grade II–III proptosis and infiltrated adjacent soft tissues. Based on imaging findings, a lacrimal gland malignancy—particularly adenoid cystic carcinoma—was initially suspected. Differential diagnoses for exophthalmos-producing tumors included lacrimal gland tumors, orbital hemangioma, orbital lymphoma, orbital metastatic disease, orbital rhabdomyosarcoma, and tumors of the optic nerve. Postoperative MRI showed a residual enhancing tumor with persistent intracranial extension and bone involvement. Histopathological examination revealed a high-grade malignant mesenchymal tumor with osteoid production and chondroid area, establishing the diagnosis of high-grade chondroblastic osteosarcoma of the orbit with a Ki67 index of 40–50%.

Conclusions: Primary orbital osteosarcoma is exceptionally rare and may radiologically mimic lacrimal gland malignancies which are more common. Extensive bone destruction and aggressive local invasion are key imaging features. Accurate diagnosis requires strict correlation between multimodal imaging findings and histopathological examination, which is essential for appropriate and oncologic management, given the incomplete resection.

PP6 - 2 | DIAGNOSIS OF ANAPLASTIC MENINGIOMA WITH SUBSEQUENT TRANSFORMATION TO GLIOBLASTOMA: A CASE REPORT

M. Cantea¹, G. Oglinzanu¹, C.C. Mirestean¹, D.P.T. Iancu^{1,2}

¹Regional Institute of Oncology, Radiation Oncology, Iasi, Romania

²Grigore T. Popa University of Medicine and Pharmacy, Medical Oncology and Radiotherapy, Iasi, Romania

Aim: This study reports the rare and aggressive progression of a primary brain tumor during and after pregnancy, highlighting the diagnostic challenges and the potential for histological transformation or co-occurrence of high-grade entities.

Materials and Methods: We analysed a case of a 20-year-old patient diagnosed in her third trimester (December 2023). The clinical course was monitored via serial MRI and histopathological evaluations following two surgical interventions and adjuvant radiotherapy (60 Gy in 33 fractions).

Results: Initial MRI showed a 42/40/45 mm left parietal mass that expanded to 63/46/54.6 mm within 18 days post-cesarean. Near-total resection led to a diagnosis of infiltrative anaplastic meningioma (WHO Grade 3) with a 60% Ki-67 index and 100% p53 expression. Despite radiotherapy, serial imaging documented progressive dural infiltration and nodular recurrence throughout 2024. In January 2025, the tumor reached 62.5 mm with transcallosal extension, prompting a second surgery. Histopathology established a new diagnosis of glioblastoma. February 2025 MRI confirmed multifocal progression with periventricular spread.

Conclusions: This case illustrates an exceptionally malignant course where peripartum physiological changes likely catalysed tumor growth. The shift from anaplastic meningioma to glioblastoma, whether via true transformation or the manifestation of a collision tumor, underscores the necessity for rigorous imaging surveillance and aggressive, individualized multidisciplinary management in high-grade peripartum tumors.

PP6 - 3 | WHEN INFECTION CROSSES THE BARRIER: RADIOLOGICAL SPECTRUM OF INTRACRANIAL EXTENSION FROM HEAD AND NECK SOURCES

D.-A. Droanca-Ilinca¹, I.A. Danciu¹, R.M. Popescu¹, E.A. Marciuc¹, B.I. Dobrovat¹, D. Pomohaci¹, C. Chirica¹, D. Haba¹

¹University of Medicine and Pharmacy "Gr. T. Popa" Iasi, Surgery, Iasi, Romania

Aim: The aim of this poster is to describe the spectrum and imaging characteristics of intracranial complication arising from head and neck infections, highlighting the importance of radiological early diagnosis.

Material and Methods: We present a case-based series from our clinic, including patients with intracranial extension of head and neck infections. Indexed cases include meningitis with bilateral cavernous sinus thrombosis complicating an orbital cellulitis, and intracranial abscesses secondary to otomastoiditis and intracranial suppurative complications of frontal sinus infections. Laboratory findings and neuro-ophthalmologic examination were correlated with contrast-enhanced CT and MRI.

Results: CT reliably identified bony dehiscence, sinus opacification, but can miss early dural thickening and a small fluid collection without contrast. MRI can easily demonstrate leptomeningeal enhancement in meningitis, diffusion-restricted central cavities of abscesses and venous thrombosis. In the orbital-cellulitis case, bilateral cavernous sinus filling defects, orbital fat stranding and collection in the intraconal external region of the orbit and thickening and leptomeningeal enhancement suggestive of meningitis.

Conclusion: CT and MRI are indispensable for rapid recognition of intracranial spread from head-and-neck infections. Radiologist must systematically assess bone integrity, venous sinuses and diffusion characteristics to enable timely multidisciplinary intervention and improve outcome.

PP6 - 4 | EXTENSIVE CNS METASTASES FROM GASTRIC ADENOCARCINOMA PRESENTING WITH FACIAL PAIN – UNUSUAL DISSEMINATION PATTERN ON MULTIPARAMETRIC MRI

V. Blaga¹, G. Oglinzanu¹, M. Vîrtea², C. Mirestean¹

¹Regional Institute of Oncology Iasi, Radiation Oncology, Iasi, Romania

²Emergency Hospital Professor Dr. Nicolae Oblu, Neurology, Iasi, Romania

Aim: To report a rare case of extensive CNS metastases from gastric adenocarcinoma presenting with neuropathic facial pain and to highlight the role of multiparametric MRI in detecting cranial nerve involvement.

Material and Methods: A 57-year-old male with stage IV low-grade papillary gastric adenocarcinoma (abdominal lymphadenopathy, liver and pulmonary metastases) received palliative FOLFOX chemotherapy. After three cycles, he developed persistent unilateral facial pain with neuropathic features. Multi-sequential 1.5T brain MRI was performed, including T1, T2, FLAIR, DWI, and SWI sequences, followed by post-contrast T1-weighted imaging.

Results: MRI demonstrated multiple supra- and infratentorial enhancing nodules (2–14 mm), showing T1 hypointensity, moderate diffusion restriction, and mild susceptibility artifacts suggestive of microhemorrhage. Lesions involved the cerebral hemispheres, cerebellum, brainstem, pineal region, and choroid plexus. Additional contrast-enhancing lesions were detected along bilateral VII and VIII cranial nerves and within the left globe. The distribution supported mixed hematogenous and leptomeningeal dissemination. Cranial nerve involvement provided a structural substrate for painful cranial neuropathy manifesting as facial pain. Whole-brain radiotherapy was initiated but discontinued due to rapid clinical deterioration.

Conclusion: In gastric adenocarcinoma, new facial pain warrants urgent MRI to rule out cranial nerve or leptomeningeal metastases—a finding that carries a poor prognosis and requires individualized management based on systemic tumor burden.

PP6 - 5 | INTRAOSSEOUS SCHWANNOMA - A CASE REPORT

L. Ilie¹, B. Vrajiatoru², D. Haba³

¹Clinical Emergency Hospital "Prof. Dr. N. Oblu", Radiology and Imaging Laboratory, Iasi, Romania

²Clinical Emergency Hospital "Prof. Dr. N. Oblu", Radiology and Imaging Laboratory, Iași, Romania

³University of Medicine and Pharmacy "Gr. T. Popa" Iasi; Clinical Emergency Hospital "Prof. Dr. N. Oblu" Iasi, Radiology and Imaging Laboratory, Iași, Romania

Aim: The purpose of this poster is to emphasise a rare case of an intraosseous schwannoma, at the level of the left mandible, arising from the left inferior alveolar nerve sheath.

Material and methods: Schwannomas are slow growing, benign neoplasms derived from Schwann cells. This tumor has a predilection for the head and neck region. Intraosseous schwannoma is extremely rare, most commonly occurring in the mandible. This poster shows the case of a male patient at the age of 42 years old with transitory paresthesia of the jaw that had an orthopantomography for a dental treatment, then a computed tomography scan and then a MRI of the cervical region to complete the investigations. The patient was scanned with a Siemens 1,5 Tesla scanner.

Results: The CECT scan showcased an osteolytic lesion of the left mandibular ramus. The MRI examination revealed an expansive, well-demarcated mass, located at the level of the left mandibular ramus, with a starting point at the level of Spix's spine, with hypointense T1WI signal, hyperintense T2WI signal, without diffusion restriction, with inhomogeneous contrast uptake, that determine mass effect and has ~ 40mm in the largest diameter - an appearance that is suggestive for the left inferior alveolar nerve schwannoma. The patient did not have curative surgery.

Conclusion: Although rare, intraosseous schwannoma is an entity that can occur and when it does, it is especially at the level of the mandible, therefore we must know the imaging diagnosis criteria and think about it especially when the patient has paresthesia.

PP6 - 6 | AN ECTOPIC TOOTH WITH PERIAPICAL CEMENTAL DYSPLASIA IN THE MANDIBULAR CONDYLE: A CASE REPORT WITH CONE-BEAM COMPUTED TOMOGRAPHY IMAGES

Y. Öncü¹, A.Z. Zengin¹

¹Ondokuz Mayıs University, Faculty of Dentistry, Department of Oral and Maxillofacial Radiology, Samsun, Turkey

Aim: The aim of this case report is to present a rare ectopic tooth located in the mandibular condyle and to highlight the diagnostic value of cone-beam computed tomography (CBCT) in identifying associated periapical cemental dysplasia.

Material and Methods: A 34-year-old systemically healthy female patient presented to our clinic with pain in the mandibular right first molar tooth. Panoramic radiography was performed as part of the diagnostic evaluation and revealed a tooth-like radiopaque structure in the left mandibular condylar region. To assess the morphology, exact location, and relationship with surrounding anatomical structures, CBCT was subsequently obtained. Multiplanar reconstructions were assessed in axial, coronal, and sagittal views.

Results: CBCT images demonstrated an ectopic tooth with premolar morphology located within the left mandibular condyle. The mandibular left second premolar tooth was absent from the alveolar arch. Also a radiopaque lesion surrounded by a radiolucent rim with irregular oval shape, possibly compatible with periapical cemental dysplasia, was observed at the apical region of the ectopic tooth. No evidence of tooth/bone resorption or involvement of adjacent structures was detected, and the patient did not exhibit any temporomandibular joint-related symptoms. Therefore, periodic radiological follow-up was recommended.

Conclusion: Ectopic tooth in the mandibular condyle is an extremely rare finding. CBCT is essential for accurate localization, morphological assessment, and detection of associated pathologies. In asymptomatic cases without adverse effects on surrounding structures, conservative management with regular follow-up may be an appropriate approach.

PP6 - 7 | AN IMAGING PUZZLE: ECTOPIC PAPILLARY THYROID CARCINOMA AND BRAIN METASTASES

D. Pomohaci¹, M.-R. Popescu^{1,2}, B.-I. Dobrovat^{1,2}, E.-A. Marciuc^{1,2}, C. Chirica¹, V. Ianole^{3,4}, G.F. Dumitrescu⁴, D. Haba^{1,2}

¹Grigore T. Popa University of Medicine and Pharmacy, Department of Oral and Maxillofacial Surgery, General and Dental Radiology, Iasi, Romania

²Clinical Emergency Hospital "Prof. Dr. Nicolae Oblu", Radiology Department, Iasi, Romania

³Grigore T. Popa University of Medicine and Pharmacy, Department of Morpho-Functional Sciences I, Iasi, Romania

⁴Clinical Emergency Hospital "Prof. Dr. Nicolae Oblu", Pathology Department, Iasi, Romania

Aim: Our aim is to bring forward this rare entity, as neoplastic involvement of ectopic thyroid tissue represents only 0.3-0.5% of cases (Fu G et al., Front Oncol. 2022 Nov 18;12). Another aspect is the rare association with secondary lesions of the brain parenchyma (0.9% - Vrachimis A et al., Dtsch Arztebl Int. 2013 Dec 13;110(50):861–6), as metastatic spread in thyroid cancer is usually local through lymphatic tissue.

Material and Methods: We retrospectively analyzed patients with brain metastases (BMs) from different primary cancers from 2020 to 2023. Only one of 85 patients had the histopathological diagnosis of BMs from papillary thyroid carcinoma. We assessed the MRI aspect of the BMs and the thoracic contrast-enhanced CT of the patient.

Results: After further investigation of the case, we found out that the patients had a mediastinal tumoral lesion expanding into the left upper lobe without tumoral involvement of the thyroid gland. Lymphatic spread into mediastinal and left lobular nodes was also assessed. Puzzled by this case we asked for a reassessment of the brain metastasis biopsy. The histopathology of the tumor was once again confirmed.

Conclusions: Ectopic papillary thyroid cancer is a rare encounter in clinical practice, being frequently misdiagnosed with consequences in the patients' treatment plan and survival. BMs in this scenario are rarely found. Even though other studies discovered this association, in our case the brain involvement was histopathological confirmed (Tsai A et al., Diagn Cytopathol. 2021 Dec 1;49(12): E471-4).

PP6 - 8 | THE IMPORTANCE OF DENTOMAXILLOFACIAL RADIOLOGY IN FORENSIC CASES

M.M. Diac¹, N. Girlescu², I. Hunea³, A.A. Hlescu⁴, D. Bulgaru Iliescu⁴

¹Grigore T Popa University of Medicine and Pharmacy Iasi, Forensic Sciences Department, Iasi, Romania

²University of Medicine and Pharmacy Grigore T Popa Iasi, Morpho Functional Sciences Department, Iasi, Romania

³Institute of Legal Medicine, Iasi, Romania

⁴University of Medicine and Pharmacy Grigore T Popa Iasi, Forensic Sciences Department, Iasi, Romania

Introduction: In forensic investigations, unidentified human remains are frequently encountered, especially in cases involving advanced decomposition or skeletonization. In such situations, establishing the identity and biological profile of the deceased becomes essential.

Aim: This paper highlights the role of dentomaxillofacial radiology in forensic anthropology and emphasizes the importance of interdisciplinary collaboration between forensic physicians, anthropologists, and radiologists.

Materials and Methods: Two forensic anthropological cases involving skeletal remains of juveniles were analyzed. In such contexts, age estimation is a key component of the biological profile. Dental development represents one of the most reliable indicators for estimating age in juvenile individuals. Dentomaxillofacial radiology was used to evaluate tooth eruption and the developmental stage of unerupted teeth.

Results and Conclusions: Radiological examination allowed the identification of erupted teeth and those still located in the alveolar bone. Based on these findings, age estimation was performed using established dental development methods. These cases highlight the significant role of dentomaxillofacial radiology in forensic investigations and the importance of interdisciplinary collaboration.

PP6 - 9 | LEVEL OF KNOWLEDGE AND ATTITUDES AMONG DENTISTS REGARDING THE USE OF CBCT IN DENTAL PRACTICE

D.A. Lipșa¹, D. Haba¹, B.I. Dobrovăț¹, C.B. Balcoș¹

¹“Grigore T. Popa” University of Medicine and Pharmacy Iasi, Faculty of Medicine, Iasi, Romania

Cone Beam Computed Tomography (CBCT) is a revolutionary imaging technology in modern dentistry, providing detailed three-dimensional visualization of dental and maxillofacial structures. Despite its advantages, CBCT adoption is influenced by several factors, including costs, training, and professional experience. This study **aimed** to assess the level of knowledge and attitudes of dentists regarding CBCT usage in dental practice and identify the factors influencing its adoption.

Materials and methods: A cross-sectional study was conducted using a structured online questionnaire completed by 113 dentists. The questionnaire collected data on demographic characteristics, professional experience, frequency of 2D and CBCT use, perceived benefits and limitations, and training levels. Statistical analyses were performed using *SPSS 26.0*, with a significance level set at $p < 0.05$.

Results: The results showed that CBCT use was more frequent among specialists (46% weekly use) compared to non-specialists (33.3% daily use of 2D radiographs). Key advantages of CBCT, such as enhanced diagnostic precision and reduced need for exploratory surgical interventions, were recognized by 90.9% of dentists with over 10 years of experience. Barriers included excessive costs (56.6%) and challenges in interpreting 3D images (37.2%). Continuous training was highlighted, with 100% of dentists with 0–5 years of experience participating in specialized courses.

Conclusions: CBCT is valued for its superior diagnostic capabilities, but its adoption is hindered by costs and training requirements. Standardized protocols and accessible education programs are essential for wider implementation in dental practices.

PP6 - 10 | DIAGNOSTIC ACCURACY OF LOW-DOSE CBCT PROTOCOLS IN THE DETECTION OF ARTIFICIAL PERIAPICAL LESIONS: AN EX VIVO STUDY

L.B. Dobrovat¹, Y. Decolli², C. Antohi², B.I. Dobrovat³

¹Private Practice Endodontics, Iasi, Romania

²Grigore T. Popa University of Medicine and Pharmacy, Endodontics, Iasi, Romania

³Grigore T. Popa University of Medicine and Pharmacy, Radiology, Iasi, Romania

Aim: To validate two low-dose cone beam computed tomography (CBCT) protocols (80 kV and 70 kV) for detecting and measuring artificially created periapical lesions, compared with a standard 90 kV protocol.

Materials and Methods: Five dry human skulls with 40 intact teeth were used. Artificial periapical defects were progressively created using spherical burs with diameters of 0.5 mm, 1.0 mm, and 1.6 mm. Each tooth was scanned using three CBCT protocols: standard (90 kV), low-dose 1 (80 kV), and low-dose 2 (70 kV), with a small field of view (5 × 5 cm). Three experienced examiners independently assessed the presence and size of periapical radiolucencies. Measurements were statistically compared to evaluate diagnostic reliability across protocols.

Results: For 0.5 mm defects, the mean measured size was 0.50 mm (90 kV), 0.48 mm (80 kV), and 0.27 mm (70 kV). For 1.0 mm defects, mean values were 0.98 mm (90 kV), 1.00 mm (80 kV), and 0.68 mm (70 kV). The 80 kV protocol showed measurements comparable to the standard protocol, whereas the 70 kV protocol demonstrated underestimation, particularly for smaller lesions.

Conclusion: Low-dose CBCT at 80 kV maintains diagnostic accuracy comparable to the standard protocol while potentially reducing radiation exposure. In contrast, the 70 kV protocol shows limitations for detecting small periapical lesions. Optimization of exposure parameters following the ALARA principle remains essential for safe and reliable three-dimensional endodontic imaging.

CLINICAL INDICATIONS FOR CBCT-SCANS: ONE-YEAR DATA FROM THE UNIVERSITY DENTAL HOSPITAL IN BERN, SWITZERLAND

R. Schulze¹, R. Pfäffli²

¹Universität Bern, Division of Oral Diagnostic Sciences, Bern, Switzerland

²Universität Bern, Master Student, Bern, Switzerland

Aims: There is not much information available on the indications for patient CBCT-scans. This study aims to evaluate the indications for all CBCT-acquisitions at the University Dental Hospital in Bern over one year (2023).

Methods: According to the Ethics committee (Kanton Bern) the study is a quality control study and thus exempted from ethical approval (2025-00722). 1414 CBCTs were acquired in 2023. For each CBCT patient records were searched and indications for the CBCTs recorded in an pseudonymous fashion. In addition, patient age, sex and dose-area-product (from the DICOM header) was recorded. Indications were grouped into 16 categories.

Results: 736 CBCTs were acquired in female, 678 in male patients. The main indications was implantology (ca. 42 %) followed by impacted/malformed/displaced teeth (ca. 19 %) and bone lesions (ca. 19 %). For implantology and also impacted/malformed/displaced teeth mean patient age was 50 yrs. The overall age peak was around 70 yrs, with a second (smaller) peak just below 20 yrs. Neither kV nor mA settings correlated with patient age.

Conclusion: Our cross-sectional data from 2023 shows that most CBCTs at our university dental clinic were performed for implantology indications, followed by impacted/malformed/displaced and bone lesions. There is still potential for optimization with regard to kV and mA settings.

ECD MFR 2026

The 20th European Congress of
**DentoMaxilloFacial
Radiology**

Organizers:



EVENT MANAGEMENT



Phone: 0040 332.40.88.05

Email: contact@eventernet.ro

Web: www.eventer.ro