

Appendix 8 - Part 2 Blueprint for Clinical Sciences

ANATOMY AND PATHOPHYSIOLOGY

Domain	Anatomy	Pathophysiology (etiology, clinical presentation, radiographic features*, classification, and radiographic differential diagnosis)
Facial Bones	Maxilla	Developmental anomalies and anatomic variants (e.g., hyperplasia, exostoses), odontogenic and non-odontogenic cysts and tumors, fibro-osseous disease, inflammatory conditions (osteomyelitis, osteonecrosis, osteoradionecrosis), neurovascular conditions, malignancies, fractures, systemic conditions (e.g., lymphoma, multiple myeloma)
	 Maxillary sinus 	Developmental anomalies (e.g., hypoplasia) and anatomic variants, intrinsic (e.g., mucositis, rhinosinusitis, fungal sinusitis) and extrinsic inflammatory disease (odontogenic sinusitis), intrinsic (e.g., mucous retention cyst) and extrinsic (e.g., odontogenic keratocysts) cysts, intrinsic benign (e.g., inverted papilloma, osteoma) and malignant (e.g., squamous cell and adenoid cystic carcinoma) carcinoma, benign (e.g., fibrous dysplasia) and malignant bone tumors
	Mandible	Developmental anomalies and anatomic variants (e.g., hyperplasia, exostoses), odontogenic and non-odontogenic cysts and tumors, fibro-osseous disease, inflammatory conditions (osteomyelitis, osteonecrosis, osteoradionecrosis), neurovascular, malignancies, fractures
	• TMJ	Trauma, internal derangement, inflammatory and degenerative arthritis, benign (e.g., osteoma, osteochondroma) and malignant (e.g., osteo- and chondrosarcoma) tumors and tumor-like (e.g., synovial chondromatosis) conditions, congenital (e.g., bifid condyle) and developmental growth (e.g., hypo- and hyperplasia) disorders
	Paranasal Sinuses	Anomalies and inflammatory diseases (e.g., rhinosinusitis, polypoidal mucosal thickening, polyps), Tumors and tumor like conditions (e.g., papilloma, osteoma), and malignancies (e.g., squamous and adenocarcinoma, lymphoma, osteosarcoma, Ewing sarcoma)
	Zygomatic	Developmental anomalies (e.g., air cell defect) and fracture
	Multiple bones	Facial trauma (e.g., nasal, naso-orbito-ethmoidal, Le Fort, zygomaticomaxillary complex, orbital wall "blow out", frontal sinus) Craniofacial anomalies (e.g., cleft lip and palate, cleidocranial dysplasia, Pierre Robin Sequence, Treacher Collins Syndrome), syndromic craniosynostosis (e.g., Crouzon disease and Apert syndrome)



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Cranial	Neurocranium	Anomalies of the temporal, frontal, parietal, occipital, ethmoid and sphenoid bones. Craniosynostosis (e.g., nonsyndromic and syndromic)	
	 Temporal bone 	Anatomic variants, inflammatory and neoplastic diseases	
Alveolus Teeth Develo structu fractu		Developmental alterations of the dentition and supporting structures, dental caries and look alike conditions, crown and root fractures	
	Periodontium	Etiology and presentation of periodontal diseases, systemic conditions affecting the periodontium	
	Alveolar bone	Apical inflammatory disease (e.g., periapical rarefying osteitis) and look alike conditions, fractures	
	Edentulism	Resorptive morphology over time	
	 Residual 	Assessment of bone volume in relation to implant placement,	
	alveolar ridge	principles of implant placement	
Vertebral column	Cervical vertebrae	Anomalies, developmental conditions (e.g., fusion, ossiculum terminale, Os odontoideum), degenerative joint disease of the craniovertebral junction and cervical vertebrae (e.g., geode)	
Soft	Salivary	Benign and malignant neoplasms, inflammatory (e.g., sialoliths	
tissue	, glands	and sialadenitis) and autoimmune conditions (Sjogren syndrome)	
	Spaces of the	Soft tissue masses and infections of the parapharyngeal,	
	suprahyoid	nasopharynx and oropharynx, masticator, parotid, carotid,	
	neck	retropharyngeal, and peri-vertebral spaces, lymph node	
		distribution and size, external and internal carotid arteries	
	Calcifications	Physiologic (e.g., posterior longitudinal ligament) and pathologic	
	and	including external and internal carotid arteries	
	ossification		
	Airway	Airway measurements, obstructive sleep apnea, associations with	
	morphology	craniofacial morphology	

* Includes not only intraoral and extraoral radiography, cone beam and multi-detector computed tomography but other imaging techniques such as ultrasound, sialography, arthrography, MRI, PET, SPECT, and nuclear medicine when appropriate.



	WRITTEN	CASE	INTERP	RETATION
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Outline	Sub-heading	Considerations
Image identification	Type of data provided	Intraoral and extraoral (panoramic, cephalometric, skull projection) Volumetric (CBCT, MDCT ± contrast) MRI (sequence)
	Procedure Details	FOV, anatomic boundaries of the FOV, scan acquisition protocol
	Factors affecting image interpretation	Artefacts, motion, acquisition and technique errors, processing errors (film and digital)
	Pertinent clinical information	Clinical working diagnosis based on patient presentation
Findings	General findings	 Dental: A description of the patient's radiologic presentation including edentulism, degree of restorations including status of implants, presence of coronal dental caries, apical pathology, crestal alveolar bone height Gnathic: Anatomic features of the jaws and TMJ Extra-gnathic: Status of anatomic features including the maxillary sinus, nasal fossa, oropharyngeal airway space, paranasal sinuses, temporal bone, soft tissue calcifications
	Specific findings	A specific concise and accurate description of the major abnormality/abnormalities.
	Non-routine	Incidental findings of clinical significance
Impression	Entity specific	A list of applicable disease categories including classification of the severity or type of disease.
		A complete and concise specific differential diagnosis with appropriate justifications. Description of the appropriate management, including the need for and type of follow-up imaging, additional diagnostic tests, as appropriate, to clarify, confirm or exclude the diagnosis and possible treatment options.
	Comparison	Availability and comparison to findings of previous imaging, date acquired
	Non-routine	Clinical significance of non-routine finding
*Structured repo tumor)(<u>https://radrep</u>	ort format based on RSNA ort.org/home/50200/2016-06-13%2014:52:00	radreport.org template (CBCT Odontogenic <u>)</u> ACR Practice Parameter for Communication of

tumor)(<u>https://radreport.org/home/50200/2016-06-13%2014:52:00</u>) | ACR Practice Parameter for Communication of Diagnostic Findings (2021) (<u>https://www.acr.org/-/media/acr/files/practice-parameters/communicationdiag.pdf</u>) | Scarfe WC and Angelopoulos C. Chapter 5 – CBCT Use in Daily Practice (Table 5, Page 181). Scarfe and Angelopoulos. Maxillofacial Cone Beam Computed Tomography: Principles, Techniques and Clinical Applications. Springer, 2018.

