Oral Maxillofacial Pathology – Surgical Management

MAGDALEN FOO

DISCIPLINE LEAD ORAL MAXILLOFACIAL SURGERY

Oral Maxillofacial Pathology

- Assumed knowledge of oral mucosal lesions
- Assumed knowledge of common benign salivary gland tumours
- Assumed knowledge of bone lesions
- Assumed knowledge of dental anatomy and tooth development
- Assumed knowledge of head and neck anatomy

Oral Maxillofacial Pathology

- Learning outcomes – able to discuss the appropriate investigations e.g. imaging and biopsy
- Learning outcomes – management of pathology e.g. surgery

Jaw cysts

- Cysts are pathological fluid-filled cavities lined by epithelium
- Most cysts in the jaws are formed from epithelium (odontogenic cysts)
- The most common odontogenic cyst of the jaws is the periapical (radicular) cyst
- Non-odontogenic cysts are the nasopalatine duct cyst and the nasolabial cyst

Jaw cysts

Relative frequency :

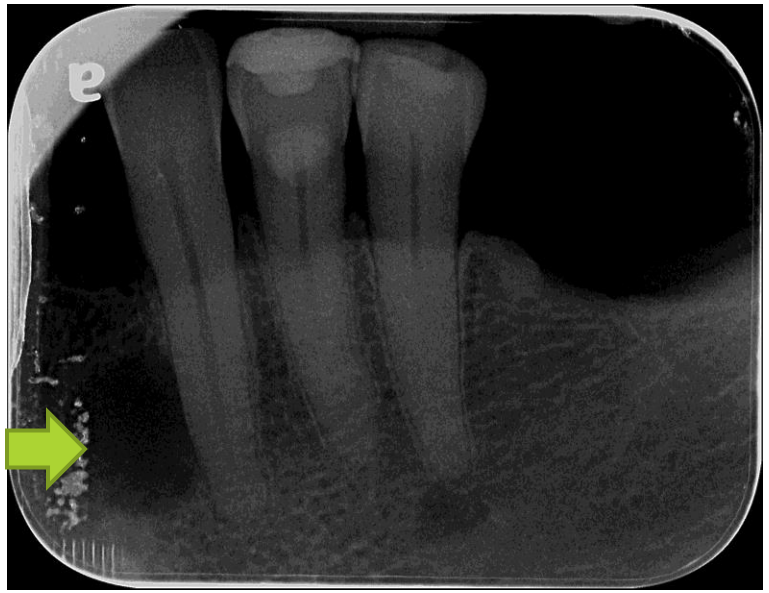
Periapical	65-70%
Dentigerous	15-18%
Odontogenic keratocyst	3-5%
Nasopalatine	5-10%
Lateral periodontal	<1%
Paradental	<1%

Jaw cysts

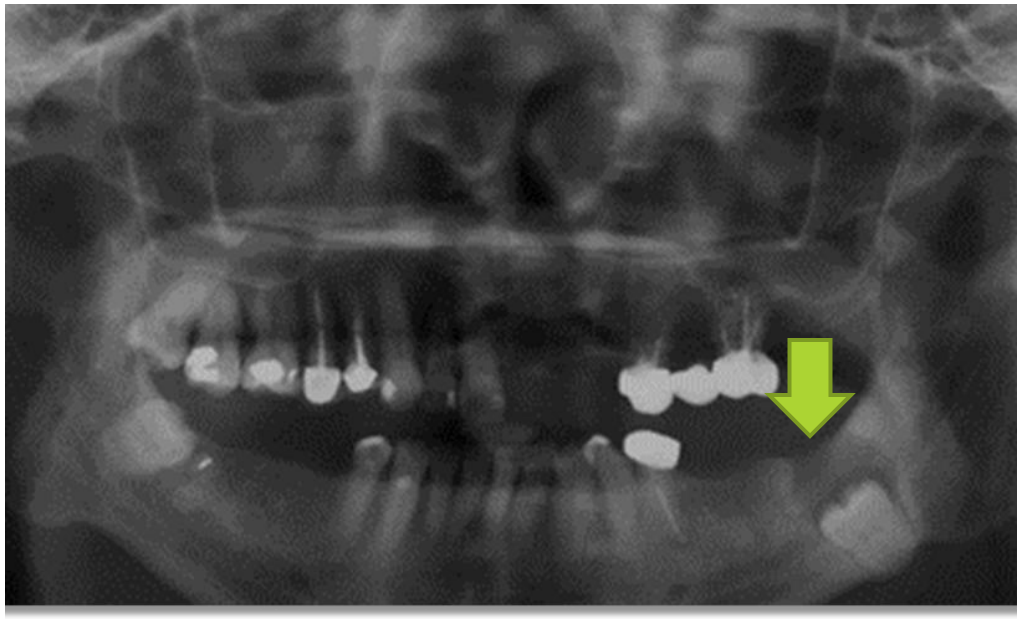
- Sharply defined radiolucencies with smooth borders
- Fluid may be aspirated
- Slow growing, displacing rather than resorbing teeth
- Symptomless unless infected and usually change radiographic findings

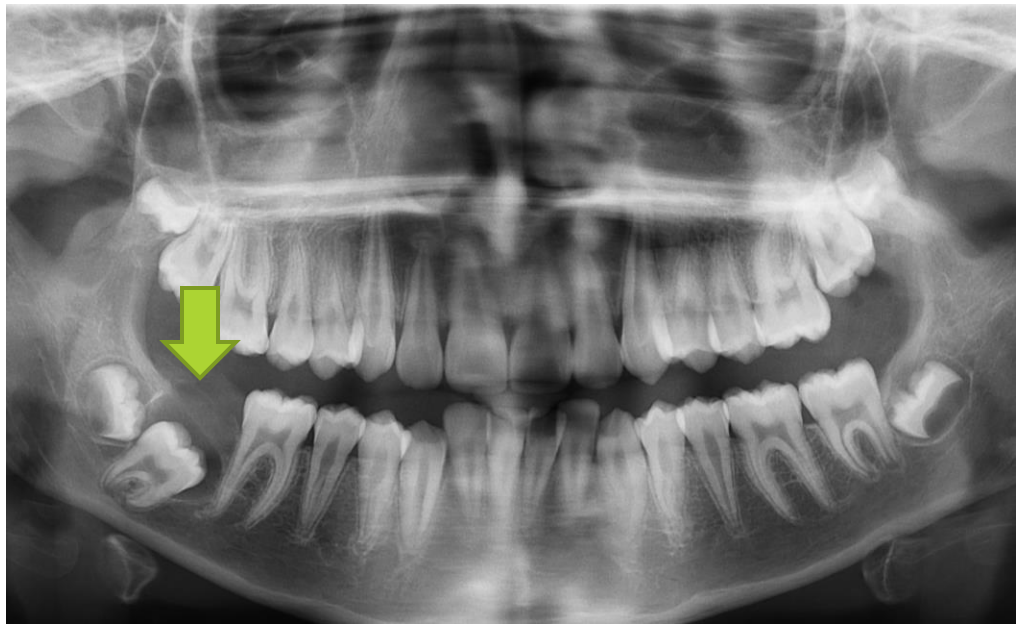
Jaw cysts

- May have identical radiographic appearances and diagnosis ultimately depends on **histopathology**



Diagnosis





Imaging – CT scan

COMMENT:

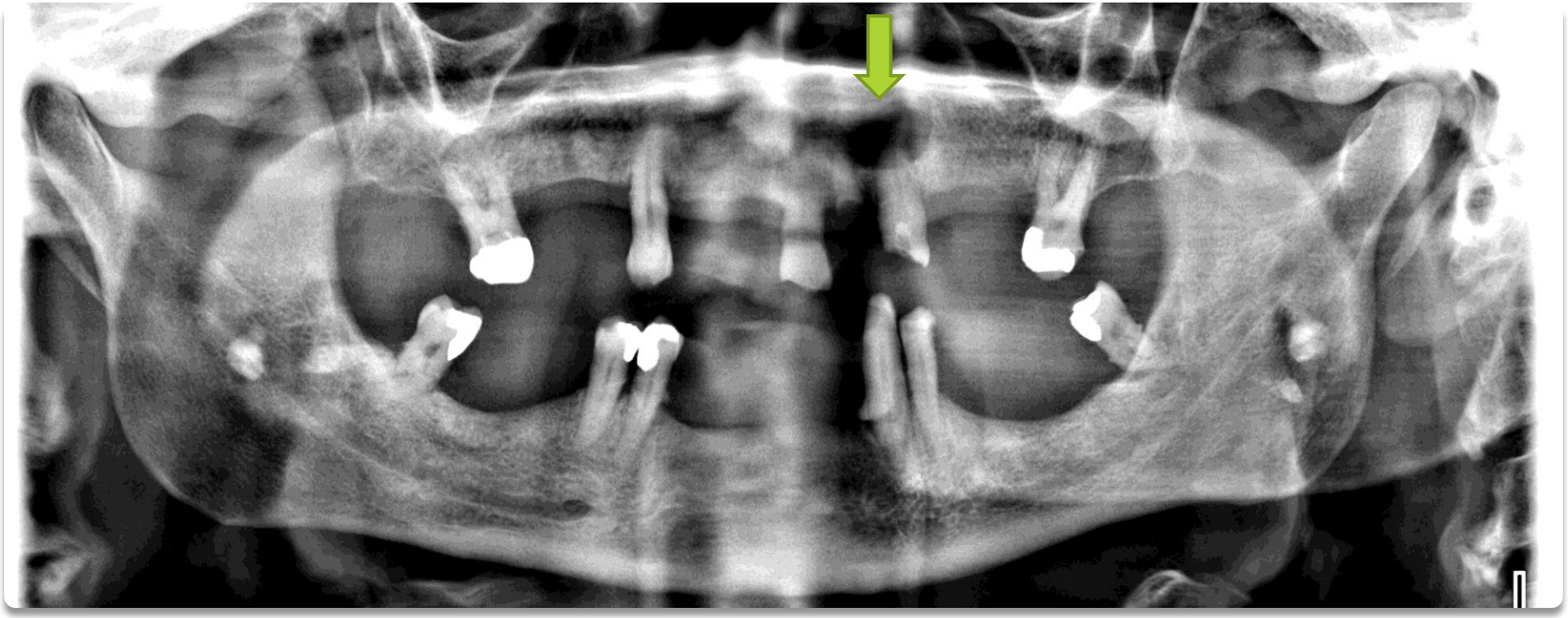
Lucent lesion in the right mandibular angle/body likely reflects an odontogenic keratocyst

Appearances are not classical for a dentigerous cyst

Odontogenic cysts

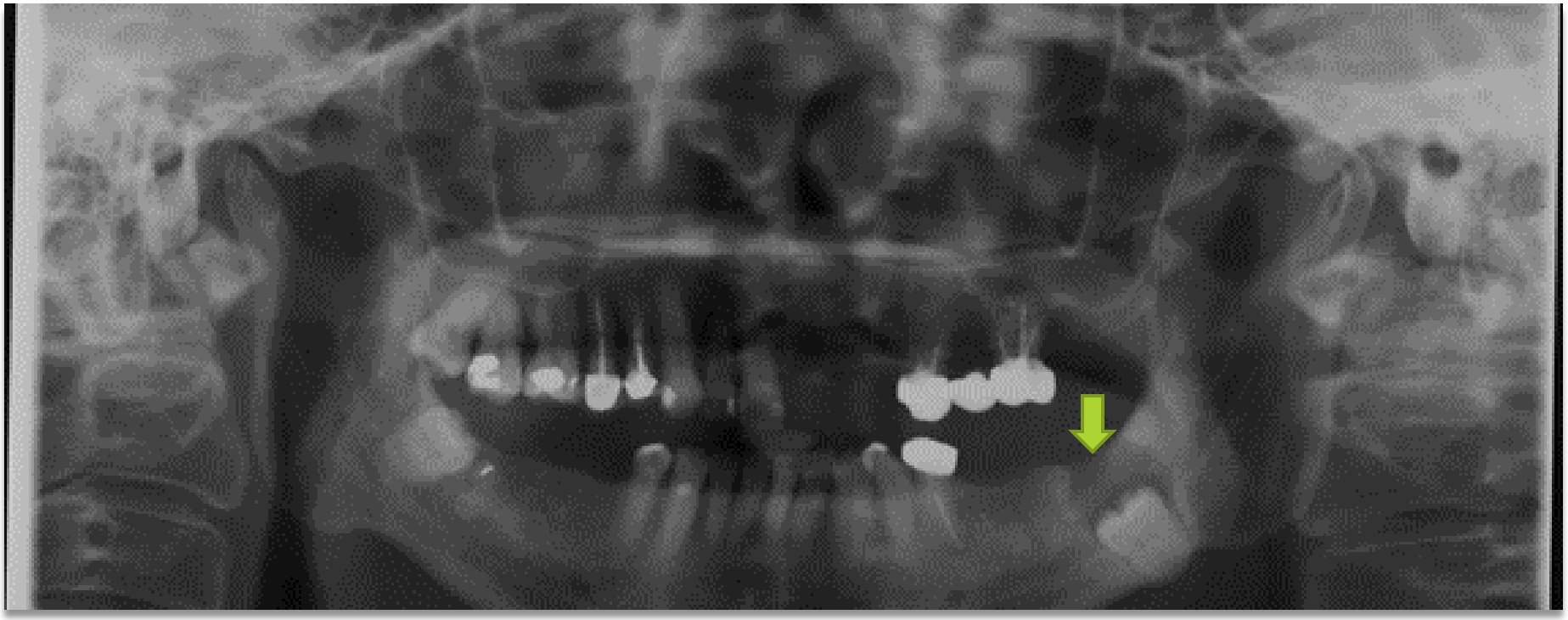
Cyst lining derived from **epithelium** involved in tooth development

- Periapical cyst (inflammatory)
- Dentigerous cyst (developmental)
- Odontogenic keratocyst (developmental)



Periapical cyst

- **Rounded, well circumscribed, corticated radiolucency at apex of nonvital tooth**
- **Enucleation after extraction or endodontic treatment**



Dentigerous cyst

- Odontogenic cyst that surrounds the crown of an impacted tooth
- Accumulation of fluid between the reduced enamel epithelium and the enamel surface
- This results in a cyst with the crown inside the lumen and the roots outside

Dentigerous cyst

- Treatment is surgical enucleation
- The associated tooth is extracted at the time of cyst enucleation
- Or the cyst is marsupialized +/- the tooth brought into alignment in the arch with orthodontic appliance

Marsupialization of jaw cyst

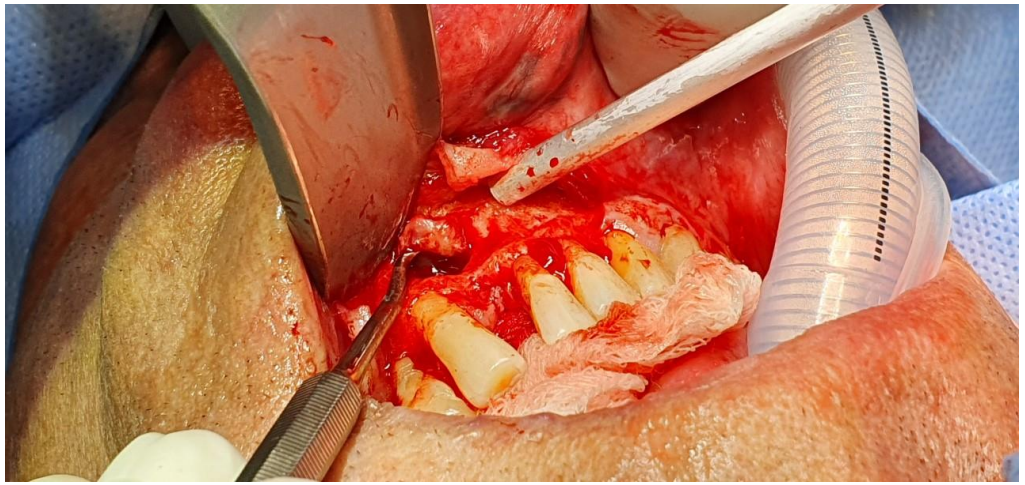
Odontogenic keratocyst (OKC)

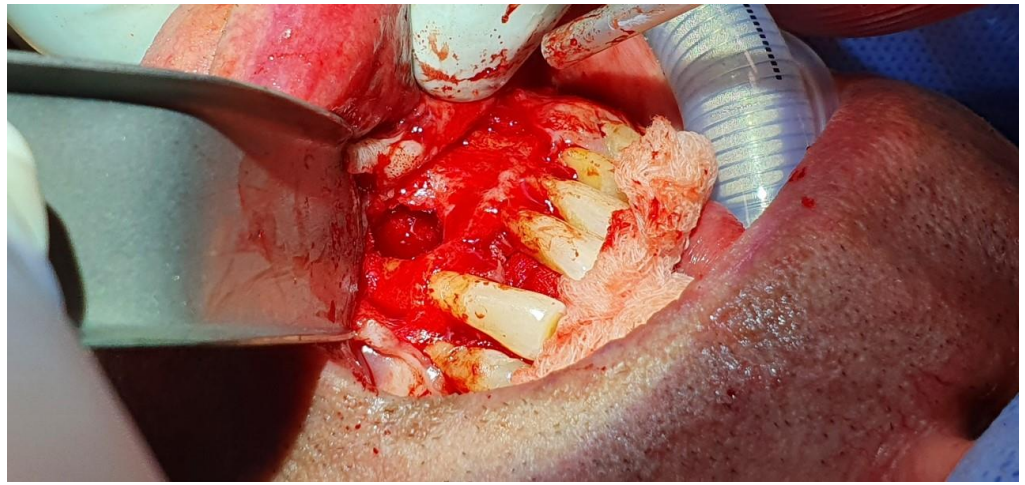
- Wide age range (1-80), peak incidence 10-30 years
- Multiple OKCs a feature of Gorlin-Goltz syndrome
- OKC appear as well-defined solitary lesion or as a multilocular, polycystic radiolucency

Odontogenic keratocyst (OKC)

- Histologically OKC has 4 characteristic – uniform lining of parakeratinized squamous epithelium (6-10 cells thick), palisaded columnar or cuboidal basal cells, corrugated layer of parakeration on its luminal surface and lack of rete pegs
- Treatment is surgical enucleation
- Recurrence rate of OKC up to 30%
- Clinicopathological factors such as large size, cortical perforation, tooth involvement in the lumen of the cyst, and daughter cysts appear to predict a high risk for recurrence
- Reduce recurrences with peripheral ostectomy, cryotherapy or application of Carnoy's solution

Odontogenic keratocyst (OKC)





Bone lesions

- Benign fibro-osseous lesions e.g. cemento-osseous lesions, fibrous dysplasia, cherubism
- Metabolic conditions e.g. Paget disease, hyperparathyroidism
- Benign tumours e.g. torus, osteoma, giant cell lesion (aneurysmal bone cyst, central giant cell lesion, peripheral giant cell granuloma), traumatic bone cyst
- Malignant tumours e.g. chondrosarcoma, Ewing sarcoma

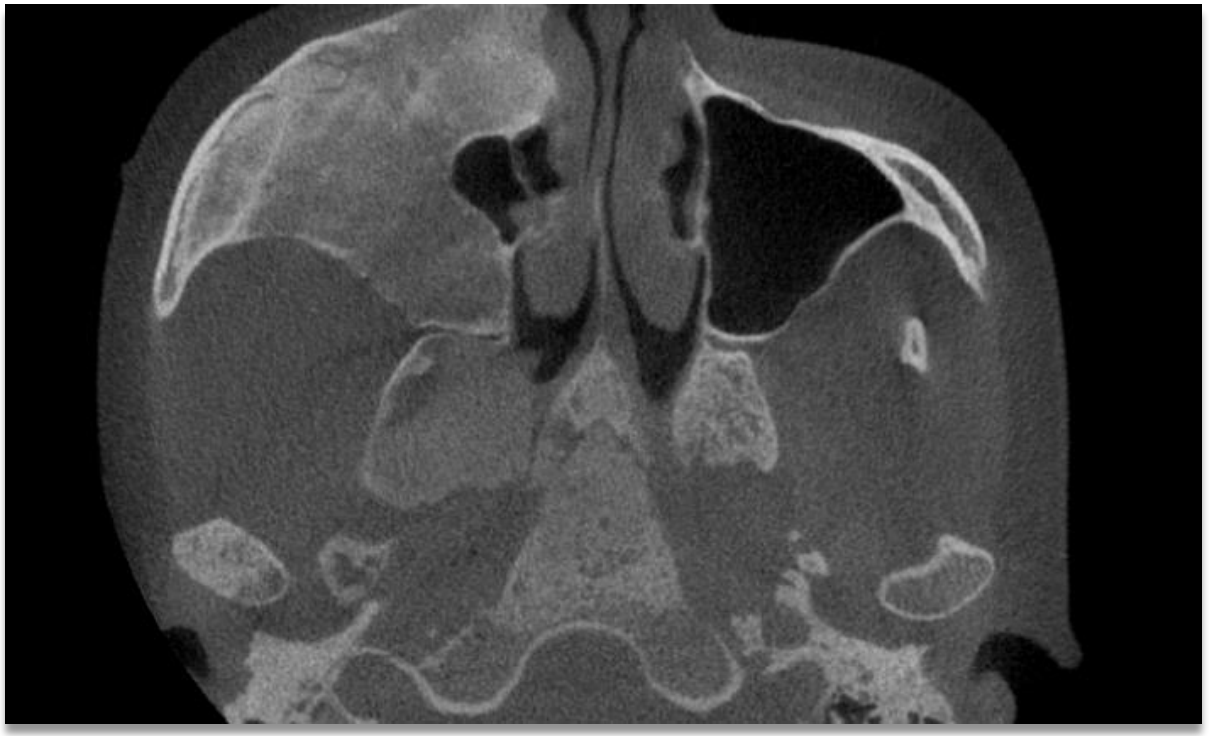
Cemento-osseous lesions

Benign fibro-osseous lesions of the jaws associated with apices of teeth

- Periapical cemental dysplasia
- Florid cemento-osseous dysplasia

Juvenile fibrous dysplasia

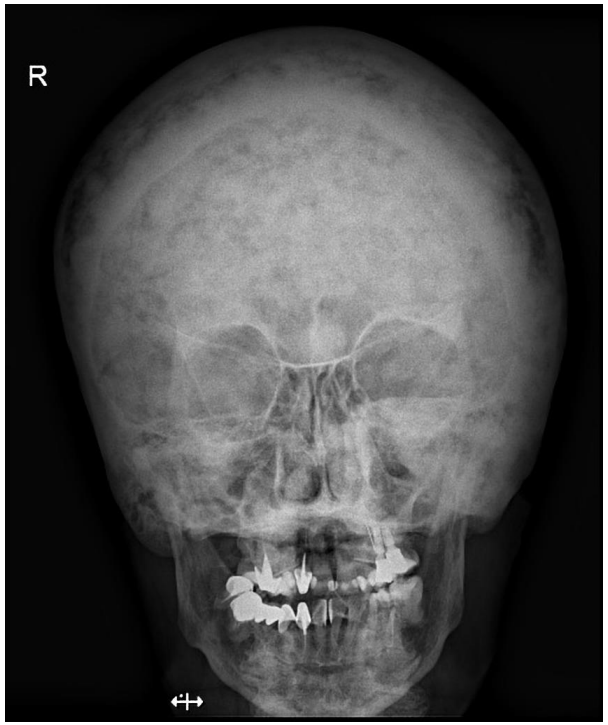
- Most common monostotic deformity in the head and neck
- Slow-growing distortion of the affected bone
- Overgrowth continues until body growth ceases in late teens or early twenties
- Treatment for cosmesis or lesion interfering with sight, breathing, mastication or speech

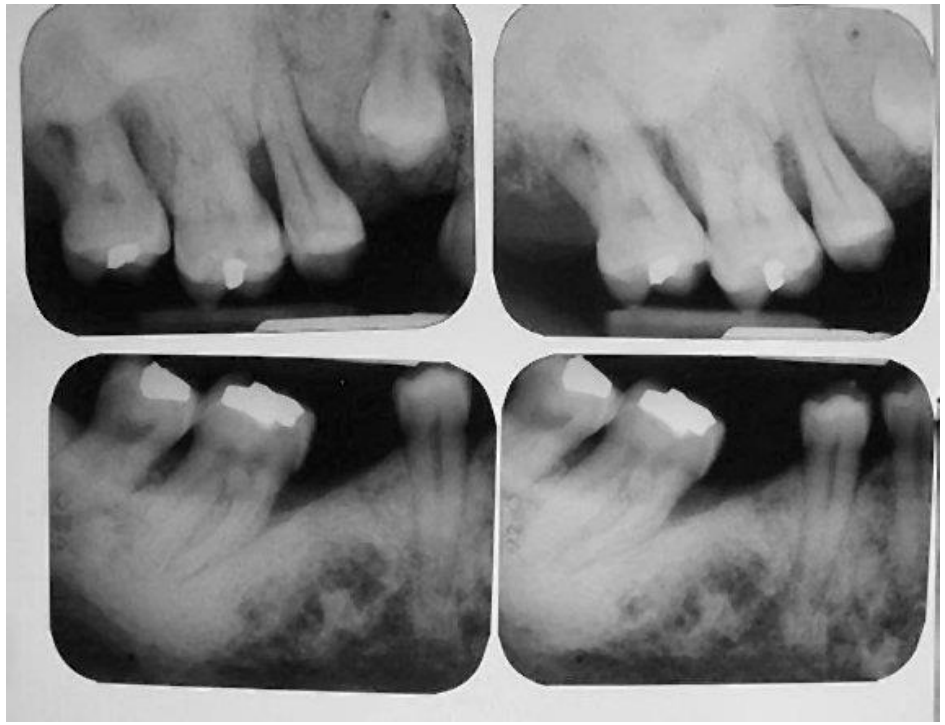


Polyostotic fibrous dysplasia

Another form of fibrous dysplasia is craniofacial fibrous dysplasia, a polyostotic fibrous dysplasia where lesions occur in the bones of the jaws and cranium or diffuse throughout skeleton

Paget disease





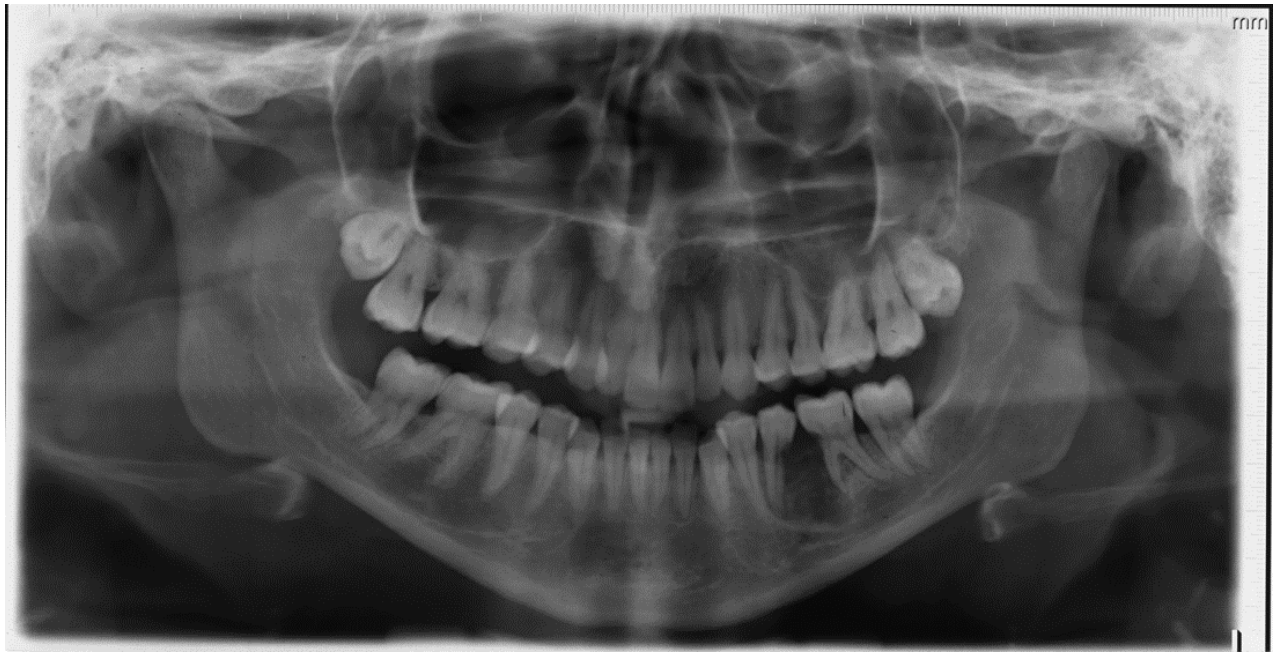
Hyperparathyroidism

Hyperparathyroidism

- Treatment depends on the cause
- Surgery - parathyroidectomy and Subtotal parathyroidectomy can correct excessive parathyroid hormone secretions
- Medical management in milder forms in patients over 50 and no progressive bone loss
- Newer therapeutic options - calcitriol and hormone replacement to maintain bone mineral density in patients with end-stage renal disease
- Bisphophonates for patients at risk of bone fracture

Central giant cell granuloma

- Patient presented with swelling on the left side of the mandible (expansion of buccal cortex) and mobility of associated teeth



Central giant cell granuloma

- Intraossesous destructive lesion which expand cortical plates, cause movement of teeth and produce root resorption
- Lesion composed of multinucleated giant cells
- Treatment is curettage

Aneurysmal bone cyst

- Giant cell lesion
- Contains large blood-filled spaces separated by bands of fibrous tissue containing giant cells
- Occurs in 1-30 year olds, peak incidence 10-19 year olds
- Most lesions in posterior mandible
- Treatment is **curettage**
- Lesions recur in 20% of cases and retreated

Traumatic bone cyst

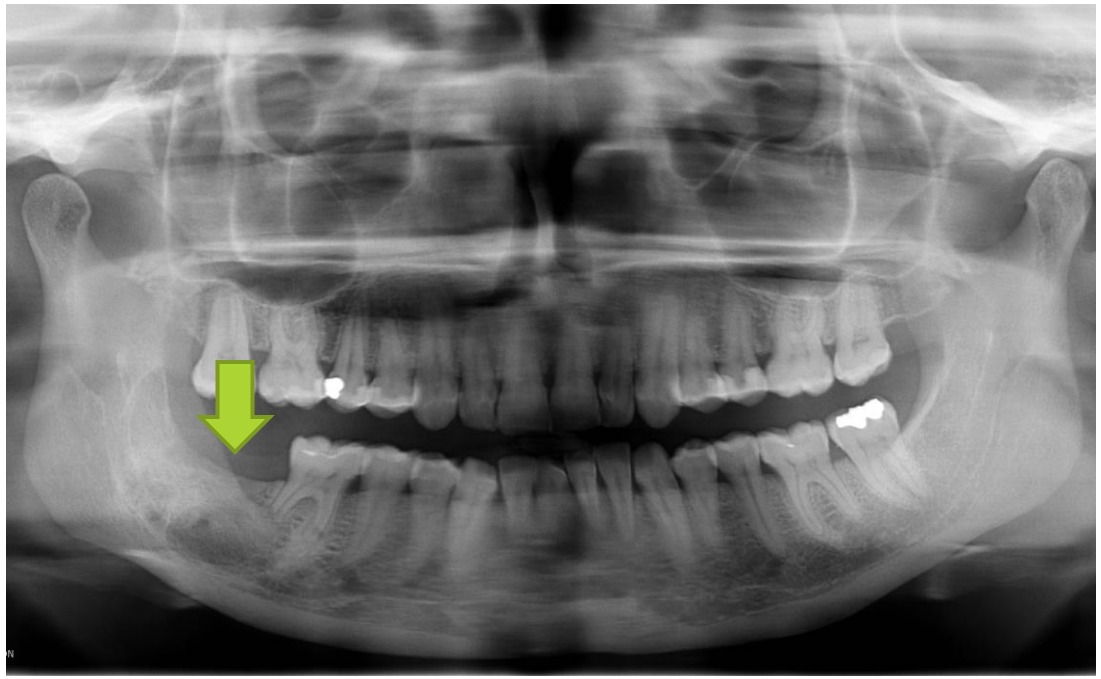
- Patients under 20 and slight female predilection
- Asymptomatic intraosseous empty cavity primarily in the mandible
- Lined by thin loose connective tissue membrane
- Appears as well-circumscribed radiolucency extending between roots of associated teeth to produce a characteristic scalloped appearance
- Haemorrhage during biopsy and **curettage** usually achieves complete resolution of the lesion

Odontogenic tumours

- Unique to the jaws and originate from tissue associated with tooth development
- Benign epithelial neoplasms e.g. Ameloblastoma, Calcifying epithelial odontogenic tumour,
- Benign mixed epithelial and connective tissue neoplasm e.g. Ameloblastic fibroma
- Benign connective tissue neoplasm e.g. Cementoblastoma, Odontogenic myxoma
- Malignant odontogenic neoplasm e.g. Odontogenic carcinoma, Primary intraosseous carcinoma

Ameloblastoma

- Most common neoplasm of the jaws
- Neoplasm of odontogenic epithelium
- Locally invasive but does not metastasize
- Asymptomatic and appears as multilocular radiologically
- Commonly forms in posterior mandible
- Unilocular or solid/multicystic type
- Treated by curettage or radical excision



Imaging – OPG and CT

Ameloblastoma

- **Solid/multicystic type most clinically significant odontogenic tumour**
- **Tumour often locally aggressive and may have significant impact on patient's morbidity and mortality**

Histopathology Report

Clinical Details:
Cyst associated with unerupted tooth.

Macroscopic Description:
Right mandible cyst: Multiple tan irregular mucosal fragments measuring from 6 up to 21mm in greatest dimension. The largest mucosal fragment has been trisected and processed in block A while the remaining fragments are processed in block B. X-2A TPM

Microscopic Description:
The sections show a partially cystic lesion lined by thin epithelium with a thick fibrous wall. Islands and strands of epithelium with the typical morphological features of a follicular ameloblastoma are seen in the connective tissue wall. These include columnar peripheral cells surrounding stellate reticulum-like epithelium with some cystic degeneration. Fragments of calcified tissue are also present. A sparse chronic inflammatory cell infiltrate is present. The features are consistent with a solid/multicystic ameloblastoma. Please correlate with the clinical and radiology findings.

Conclusion:
Mandible: Consistent with solid/multicystic ameloblastoma.

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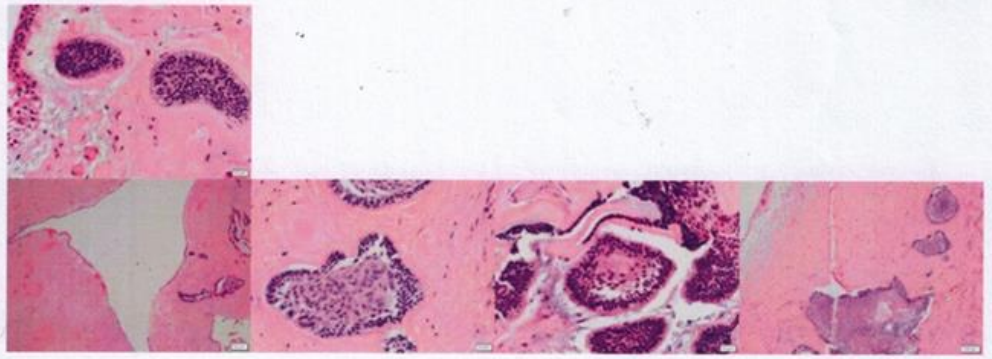

Radical resection and reconstruction