Keratocystic Odontogenic Tumor (KCOT) of the Mandible

By Dr Hassem Geha

This is a case report based only on radiographic findings. Biopsy and post-surgical results are not available.

Clinical Info

56 year old female referred for acquisition of a CBCT for lesion in right mandible.

A 12x8 cm volume was acquired showing structures from the level of the hyoid bone to the level of the floor of the nasal cavity. The TMJs were not included.

Radiographic Findings

The lesion in the right mandible is well-defined, low-density. It extents from the mesial aspect of impacted 48 to the level of the apex of #45 and from the apical level of the right mandibular teeth to the level of the mandibular cortex. This is causing thinning and expansion of the cortical plates and of the inferior cortex of the mandible. It too is causing root resorption of teeth 45, 46 and 47. The mandibular canal is displaced buccaly into the buccal cortical plate.

Tooth 48 is impacted with its occlusal surface at the level of the alveolar crest and the apex at proximity of the mandibular cortex. The mandibular canal is in contact with the buccal surface of the middle third aspect of the root.

These radiographic findings are suggestive of a benign, slow growing, locally aggressive odontogenic cyst or tumor.
Ameloblastoma

Ameloblastomas typically occur as hard painless lesions near the angle of the mandible in the region of the 3rd molar tooth (48 and 38). They can however occur anywhere along the alveolus of the mandible (80%) and maxilla (20%). When the maxilla is involved, the tumor is located in the premolar region, and can extend up in the maxillary sinus. Although benign, it is a locally aggressive neoplasm with a high rate of recurrence. Approximately 20% of cases are associated with dentigerous cysts and unerupted teeth.

Radiographically, it is classically seen as a multiloculated (80%), expansile “soap-bubble” lesion, with well

Radiographic Differential Diagnosis

KOT

Keratocystic odontogenic tumours (KCOT or KOT and previously known as odontogenic keratocysts), are cystic benign tumors involving the mandible or maxilla and believed to arise from dental lamina. These lesions usually present in younger patients (2nd-3rd decades), are often multiple, and may be seen in either the body or ramus of the mandible (approximately 70% of all KCOT) or maxilla. There may be male predilection.

In the current case, the patient is a 56 Y-O female and the lesion is solitary and involving a group of teeth. It is also causing more expansion of the lingual plate than the buccal plate and is growing along the body of the mandible.

They are typically seen as a solitary, lucent, unilocular lesion with smooth, corticated borders. When in the mandible they usually grow along the length of the bone. In the maxilla, they expand into the maxillary sinus. They are often associated with an impacted tooth, mimicking a dentigerous cyst. KCOT may occasionally appear septated, making the distinction from ameloblastoma difficult. The presence of multiple KCOTs is associated with Gorlin-Goltz syndrome.
demarcated borders and no matrix calcification. Occasionally erosion of the adjacent tooth roots can be seen which is highly specific. When larger it may also erode through cortex into adjacent soft tissues.

In the current case, the expansion is homogeneous with no multilocular appearance. Usually, with that size of a lesion and ameloblastoma tends to be more expansile and would have caused more root resorption and displacement.

Central giant cell granuloma

A central giant cell granuloma (CGCG) (also known as giant cell reparative cyst / granuloma) occurs almost exclusively in the mandible (although cases in the skull and maxilla have been reported).

It is most frequently seen in young women (F:M 2:1) and typically presents in the 2nd and 3rd decades. It begins as a small lucent region, and gradually as it enlarges thin trabeculae of bone become apparent, giving it a honeycomb multilocular appearance. The lesion may demonstrate expansion, root resorption and erosion through or remodeling of the overlying cortex.

In the present case, no such features are present. Similar to Ameloblastoma, with the current size of the lesion, CGCG would be more aggressive.

Management

The most likely radiographic diagnosis is KCOT. A needle aspiration is advised to confirm KCOT. A yellowish fluid would confirm this lesion. Treatment is often marsupialisation then enucleation to avoid pathological fracture, or excision +/-aggressive curettage, however they can have a very high recurrence rate (30-60%).
References


**Figures**

Figure 1: Panoramic reconstruction

Figure 2: Cropped panoramic reconstruction showing root resorption of 45, 46 and 47

Figure 3 A: Cropped panoramic reconstruction showing the path of the mandibular canal

Figure 4 A: Axial view showing the path of the mandibular canal and the expansion of the cortical plates and the buccal displacement of the mandibular canal

Figure 4 B: Cross-sectional views in the mandible showing the expansion of the cortical plates, the buccal displacement of the mandibular canal and its relation with 48

Figure 5: 3D rendering showing a lingual view of the lesion

Figure 6: 3D rendering showing a coronal view of the lesion

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