Odontogenic Keratocyst Mandible An Interesting Case report and Literature review

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Abstract:

The term odontogenic keratocyst was first described by Philipsen in 1956. This cyst actually arises from the cell rests of dental lamina. It can occur anywhere in the jaw but is commonly seen in the posterior part of the mandible. Since the clinical features and radiological appearance are not characteristic this condition is commonly misdiagnosed. This is more so when the lesion is related to the nonvital tooth.

Odontogenic keratocyst has been rechristened as keratocystic odontogenic tumor by WHO working group in 2005. This was necessitated to differentiate this lesion from its orthokeratinizing variant which is currently considered as odontogenic cyst. This case report discusses odontogenic keratocyst of mandible.

Introduction:

The term odontogenic keratocyst was first used by Philipsen in 1956. This relatively uncommon lesion arises from the cell rests of dental lamina. This is an aggressive cyst with rapid growth rate and a tendency to invade adjacent tissues including bone. It has a high rate of recurrence. It can occur anywhere in the jaw but is commonly seen in the posterior part of the mandible. Since the clinical features and radiological appearance are not characteristic this condition is commonly misdiagnosed. This is more so when the lesion is related to the non-vital tooth. Odontogenic keratocyst has been rechristened as keratocystic odontogenic tumor by WHO working group in 2005. This was necessitated to differentiate this lesion from its orthokeratinizing variant which is currently considered as odontogenic cyst. The term keratocystic odontogenic tumor was necessitated because of the aggressive biological behavior of the lesion and associated chromosomal and genetic abnormalities which was consistent with neoplastic progression.

Essential histological criteria for the diagnosis of keratocytic odontogenic tumor which helped in differentiating parakeratinizing type from orthokeratinizing type. Histologic features include:

1. Uniform cyst lining
2. Presence of hyperchromatic and palisaded basal cells
3. Wavy keratin production
4. Flat interface between epithelium and connective tissue wall

These features could easily be distorted / lost in the presence of inflammation posing diagnostic challenge.

When compared to other cystic lesions of mandible odontogenic keratocystic tumors are notorious for its recurrence rate which ranges between 25-30% \(^4\). Majority of these recurrences occur within the first 5 years following treatment \(^5\).

Nearly 75% of these tumors involve the mandible especially in the molar region or close to the angle of mandible. Majority of these lesions are asymptomatic but for the presence of swelling over the involved portion of the mandible. These lesions are identified commonly from routine radiographs \(^6\). If multiple lesions are present then the diagnosis of nevoid basal cell carcinoma syndrome (Gorlin syndrome) should be considered. This is an inherited condition caused by mutation of the PTCH1 gene.

Case Report:

18 years old boy presented with:

Swelling over chin – 1 year duration

No h/o of pain in the region
No h/o injury

On examination:

Clinical photograph of the patient showing swelling over the chin area

Mass felt hard on palpation. Intraoral examination revealed crepitus in the area of swelling. Tenderness was present on deep palpation.
There was no evidence of loosening of tooth or presence of supernumerary teeth.

CT scan imaging:

Revealed large expansile lesion involving the mental region of the mandible. Expansion was more towards the lingual surface of mandible. Displacement of teeth could be seen.
Axial CT showing the lesion

Other investigations were normal.

Management:

Under general anesthesia through intraoral incision the mass was exposed. The thinned out inner cortical lining of the bone was removed. Cheesy material found occupying the cavity was scooped out and the wound was closed with chromic catgut.

Image showing infiltration of the lesion with 2% xylocaine with 1 in 100000 units adrenaline
Xylocaine with adrenaline infiltration helps in:

1. Reducing mucosal bleeding
2. Dissecting the oral mucosa from the lingual surface of mandible

Figure showing incision and exposure of the mass

Figure showing Thinned out inner cortex of bone being removed
Figure showing mass exposed after removal of thinned out bony cortex

Figure showing cheesy material being removed from the cavity
Discussion:

Odontogenic keratocyst commonly occurs in mandible. Body of the mandible is the commonest location \(^7\). Clinical diagnosis of odontogenic keratocyst is rather difficult due to the paucity of classic radiologic / clinical findings. Majority of these lesions are incidental findings on routinely performed radiographs. Histology is always diagnostic. Ideal treatment includes curettage with peripheral osteotomy. Curettage alone would suffice if the outer cortex of mandible is intact. These tumors are known for their high recurrence rates. Causes of high recurrence rates include:

1. Incomplete removal

2. Remnants of dental lamina

3. Presence of daughter / satellite cysts within the cyst wall

If conroy solution is used after curettage these daughter cysts can be destroyed \(^8\).

In cases of large cysts after marsupialization the cavity can be obliterated using autogenous rib graft.
In cases with very large cysts the entire procedure can be staged. The decompression procedure can be performed under two steps. In the first step the cyst is opened and a drain is placed. Enucleation can be performed at a later date after the cyst has shrunk to a more manageable size. Patient needs to use the drainage tube to irrigate betadine solution. At present there is no consensus regarding the optimal management modality in treating these patients.

References:


