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# Epidermoid cyst in mandible-a rare entity: A Case Report and Review of Literature

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## Abstract

**Introduction:** Epidermoid and dermoid cysts of the jaws are seen rarely. Usually they are presenting in the distal phalanges of fingers. The formation theories of the intraosseous epidermoid cyst (IEC) are still not comprehensible. The radiographic appearance is similar with unilocular cysts.

**Case Report:** Here, we report a case of a 52-year-old male patient presenting with swelling in posterior mandible with trismus since 15 days and presence of fever. No pathological findings in the overlying skin and no paresthesia was noted. The orthopantomograph revealed a unilocular cystic lesion involving right mandibular ramus measuring 4×3 cm in diameter. Cyst enucleation with peripheral ostectomy and chemical cauterization with Carnoy's solution was done with intraoral approach along with surgical removal of impacted mandibular third molar. Histopathologic findings revealed the pathologic lesion was an infected intraosseous epidermoid cyst.

**Discussion:** Epidermoid cysts are rare, benign lesions found throughout the body of which only few cases of intraosseous epidermoid cysts are described in the literature. Clinically it is difficult to differentiate between orthokeratinized odontogenic cyst and epidermoid cyst which can be distinguished clearly by histopathological examination.

**Conclusion:** Infected epidermoid cyst in the mandibular ramus associated with impacted mandibular wisdom tooth is a rare finding. The treatment protocols remain the same as the lesion is a no aggressive type with less recurrence rate.

**Keywords:** Epidermoid cyst, Odontogenic keratocyst, Enucleation, Wisdom tooth, OKC, Keratocyst.

## Introduction

An epidermoid cyst is a benign cyst usually found in the skin and has extreme rare occurrence in the jaws The cyst develops from the ectodermal tissue. The incidence rate is between 1.6 to 6.9% and only 1.6% are thought to affect intraoral sites. These represent 0.01% of all cysts affecting the oral cavity. Epidermoid cysts are rare lesions that are found in the oral cavity. The general intraoral localization of this cyst is the floor of the mouth usually located in the submandibular, sublingual and submental region, the rest are found in the tongue, lips, palate, jaws and cheek. It is a benign lesion which is slow growing and painless pathology. If they appear in bone they usually appear in the skull and in the distal phalanges of the fingers.

Epidermoid cysts derived from squamous epithelial cells that have penetrated deep into the dermis layer. For e.g. after skin surgery, trauma or congenital. The content of the cyst is mainly keratin as only the cysts do not contain dermal structures such as hair follicle or sebaceous glands. Here we report a case of a rare cyst present in jaw.

**Case Report**

A 52 year old male patient came to the department of oral and maxillofacial surgery, NPDCH with the chief complaint of painless swelling in lower right back teeth region and reduced mouth opening since 15 days which was associated with fever. Patient was a known case of hypertension since 6 months and was taking amlodipine 5mg once daily. Extraorally, swelling was present over the lower border of the mandible on right side of the face, which was approximately 4x3 cm in size, which was diffused, soft in consistency, tender on palpation, extending anteroposteriorly 1 cm away from the right corner of the mouth to the posterior border of ramus of mandible and superoinferiorly 3 cm below the ala-tragus line to 3 cm below lower border of mandible. Intraorally, tenderness on percussion was present i.r.t. 47, 48 teeth. A firm, non-fluctuant hard swelling was present on the lower right vestibule irt 46, 47 region and gingiva was edematous with no obvious pus discharge.

Radiographically, OPG showed a unilocular radiolucency extending anteroposteriorly from distal of 46 tooth upto the posterior border of the mandible and superioinferiorly 3mm below the sigmoid notch upto the inferior border of mandible [Figure 1]. On thorough careful examination there were no pathological findings in the skin, no inferior alveolar nerve anesthesia, no lymphadenopathy. Vitality test showed delayed response in 47. CBCT Scan shows well defined oval shaped radiolucent lesion in right body of the mandible and ramus, which was well demarcated, having internal septas, with corticated boundaries. Extent from distal portion of the right first molar to 1mm below sigmoid notch. Horizontally placed right third molar is seen in the radiolucency [Figure 2].

Aspiration was negative. So, based on clinical and radiographical examination the provisional diagnosis was Orthokeratinized Odontogenic Cyst.

Marsupialization followed by enucleation of cyst was done under general anesthesia, along with the extraction of 47, 48 teeth, peripheral osteotomy involving 1cm of fresh bony margins and chemical cauterization (carnoy's solution) by preserving the inferior alveolar neve [Figure 3]. The histopathological examination of the specimen was carried out.

Histopathological examination showed epidermal cyst filled with keratin lined by squamous epithelium with a prominent granular cell layer supported by bone. There were no features to suggest this is an odontogenic keratocyst, radicular or dentigerous cyst or a dermoid cyst [Figure 4].

On basis of clinical features and confirmatory histopathological findings, we conclude our final diagnosis as 'Epidermoid cyst' in mandibular angle region associated with right mandibular third molar.

Follow up: Post-operative Orthopantomogram after 6 month shows well defined radiopacity in the defect suggestive of good healing progress [Figure 5].

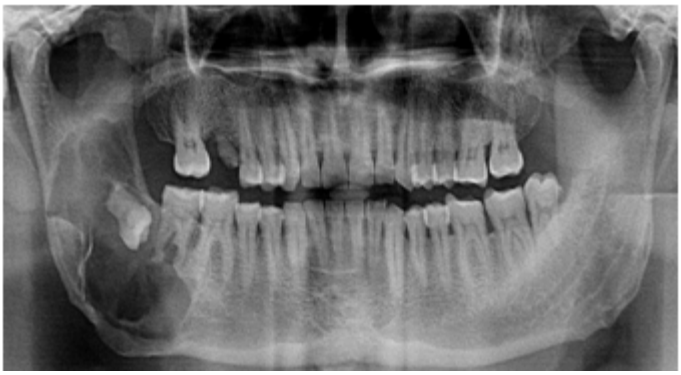

Figure 1: Pre-operative Orthopantomogram

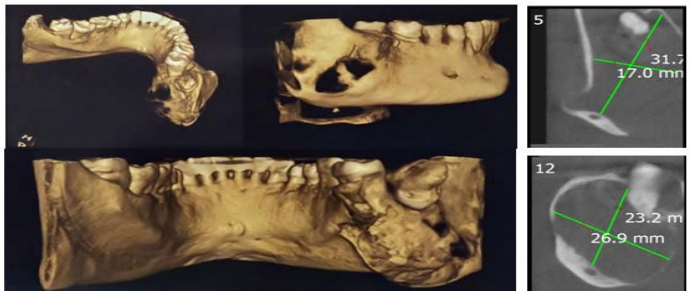


Figure 2: CBCT Scan shows well defined oval shaped radiolucent lesion in right body of the mandible and ramus, which was well demarcated, having internal septas, with corticated boundaries.

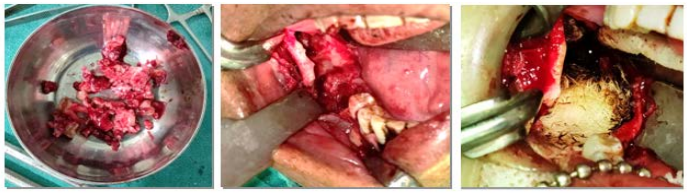

Figure 3: Enucleation of cyst followed by chemical cauterization with Carnoy's solution

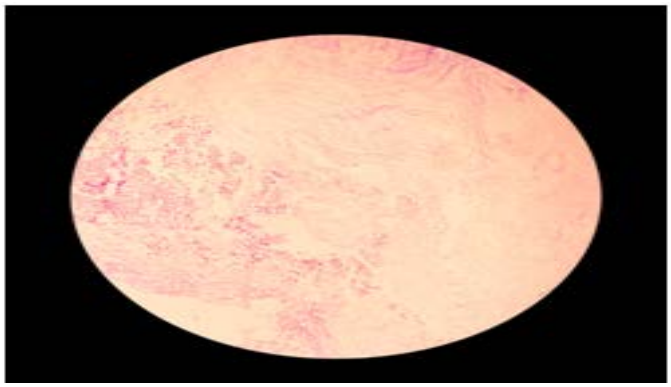

Figure 4: Photomicrograph shows epidermal cyst lining along with keratin lined by squamous epithelium with a prominent granular cell layer supported by bone (HxE Stain, x4).

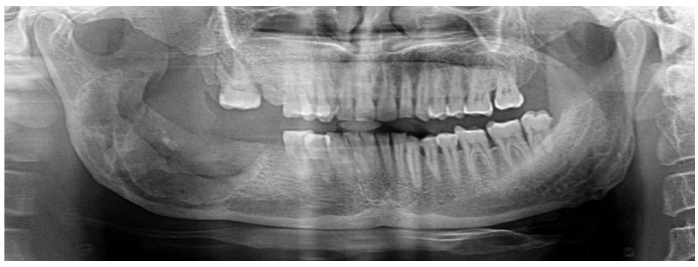

Figure 5: Post-operative Orthopantomogram after 6 month follow-up.

**Discussion**

Epidermal cysts are mostly associated with areas of embryonic fusion [1]. The causes of both epidermoids and dermoids include failure of surface ectoderm to separate from underlying structures, sequestration and implantation of surface ectoderm. Most congenital dermoid and epidermoid cysts possibly arise because of an embryologic accident during the early phases of development, between 3 and 5 weeks of gestation. Enclosed ectodermal cysts can begin when the surface ectoderm fails to separate entirely from the underlying neural tube. Consecutively, they may result from abnormal sequestration or invagination of surface ectoderm along the embryologic sites of dermal fusion which form the eyes, ears, and face [3].Epidermoid and dermoid cysts are rare, benign lesions found throughout the body, with 7% occurring in the head and neck area, 1.6% of which occur in the oral cavity. In the head and neck area they usually appear in the submental region. Only a few cases in literature describe intraosseous epidermoid cysts. Orbit is the most common location of epidermoid cyst at the head and neck (47%), followed by the mouth floor (23%) and the cervical area (9~24%), but in the jaw bone it is considered very infrequent [2]. According to the literature, etiologic factors of epidermoid cysts are congenital, but there are reports from many authors that trauma was the possible cause of this lesion. Perhaps, in our case it was associated with lower right impacted third molar, of which a similar case was reported by orcun topas et.al[3] Although clinical behavior of epidermoid cysts and keratocystic cysts is hard to distinguish, the characteristics features of histopathological elements of epidermoid cysts which distinguish them from keratocystic odontogenic cyst is laminated keratin in the cyst lined by stratified squamous epithelium, while keratocysts have keratinizing lining epithelium with corrugated parakeratin layer and satellite

cysts in cystic capsule [2]. Histopathologically, epidermoid cyst wall shows stratified squamous epithelial lining with orthokeratotic production which is similar to epidermis. Still, keratocystic odontogenic tumours have high level keratinising epithelial layer which is detached from basal cell layer and epidermoid cysts have mild keratinising epidermis. The absence of skin appendages eliminated the dermoid cyst in diagnosis [3]. The researchers suggests the diagnostic work up for IEC including ultrasonography, computed tomography or magnetic resonance imaging to evaluate the adjacent anatomical structures, determine the exact location of lesion and decide the appropriate surgical approach[3].

**Conclusion**

Epidermoid cyst located in the mandibular ramus associated with impacted tooth is rare. These lesions should be considered in the differential diagnosis of radiolucent lesions of the jaws, therefore during examination we should consider aspiration biopsy, ultrasonography and other advanced imaging techniques since conventional radiographs are not enough for differential diagnosis of cystic similar bone lesions. Surgically they have a very good prognosis, they are non-aggressive lesions.

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