# **ODONTOGENIC KERATOCYST WITH A SINUS TRACT: A CASE REPORT**

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### ABSTRACT

Odontogenic keratocysts are locally aggressive, benign, developmental odontogenic cysts. It occurs commonly in mandible and has high recurrence rate. It is the third most common odontogenic cyst. Various modalities of treatment are described in the literature which includes enucleation, marsupulization, (marsupialization) liquid nitrogen cryotherapy, chemical/ cryo-cauterization, resection etc. Though resection remains the gold standard of treatment in preventing recurrence, conservative methods are the first line of choice to prevent the morbidity associated with resection. However close follow up is necessary to identify any recurrence at an early stage. Here we present a case of odontogenic keratocyst of mandible in a 30 years old female patient.

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#### **INTRODUCTION**

The odontogenic keratocyst (OKC) is an unusual form of developmental odontogenic cyst which has high recurrence rate, shows potentially aggressive behavior, and has an association with nevoid basal cell carcinoma syndrome (1-2). According to WHO classification, it is the third most frequent odontogenic cyst after root and dental cysts (3) and Itaccounts for about 10% of all odontogenic cysts (4).

OKC shows bimodal age distribution. First peak is in the second and third decades whereas, the second peak is in the fifth decade or later. They are less common in maxilla (31.3%) than mandible (5).

Two variants are described: orthokeratotic and parakeratotic variant. The parakeratotic subtype is the most frequent (80%) and has a more aggressive clinical presentation than the orthokeratotic variant (5).

Owing to its high recurrence rate, various modalities of treatment are described in the literature. It includes marsupialization, enucleation and curettage, enucleation with peripheral ostectomy, resection and cryotherapy with the use of liquid nitrogen (1, 6).

Here, we present a case report of odontogenic keratocyst in a 30 year old female patient along with its radiological and histological findings.

### **CASE REPORT**

A 30 year old female patient presented with chief complaint of pus discharge from lower right side of face since 4 months. Patient gives history of pain and swelling in the same region 8 months back which ERA'S JOURNAL OF MEDICAL RESEARCH, VOL.7 NO.2

subsided on medication adviced by another doctor and which recurred after stoppage of medicines.

On extraoral examination, a sinus tract is(was) noted in the mandible along its lower border approximately 0.5x0.2cm in dimension (Figure 1). It appears(ed) erythematous. Also mild swelling is (Mild swelling was also) noted. On palpation, inspector findings are(were) confirmed. It is(was) tender, non-indurated, soft to firm in consistency. Right submandibular lymph nodes are(were) palpable, tender and mobile.(alsomention,whetherthelymphnodeswereten der bilaterally or unilaterally, if later mention the side).



Fig. 1: Pre OP Photographs

On intraoral examination, there is (was) a horizontally impacted 48(right mandibular third molar) (Figure.2). Mild (has to be one observation, either mild or no) swelling evident in the same region. No other abnormalities (were) detected on systemic examination.



Fig. 2: Pre OP Intraoral photograph

An orthopantamogramorthopantomogram(OPG) was done which showed a well defined unilocular radiolucency with respect to horizontally impacted 48 tooth measuring approximately 2 x 2 cm in maximum dimension. Superoinferiorly it extends(ed) from mandibular right third molar to lower border of mandible and anteroposteriorly from mesial aspect of mandibular right second molar to mandibular angle region(Figure 3). The distal root tip of the second molar appeared to have blunted/resorbed.



Fig. 3: Pre Operative OPG

3D CT Face reveals (ed) unilocular radiolucency with buccal and lingual cortical expansion and penetration (perforation) of buccal cortex of bone (Figure 4).



Fig. 4: 3D CT Face ERA'S JOURNAL OF MEDICAL RESEARCH, VOL.7 NO.2

It was provisionally diagnosed as odontogenic keratocyst and treated by surgical enucleation (Figure 5). Patient was taken for surgery under general anesthesia. Cyst was surgically removed and extraction done with respect to mandibular right second and first molar along with the tooth involved with the cystic cavity. Carnoy's solution soaked gauze pack was placed inside the cavity for 5 minutes. Closure was done with 3-0 vicryl. Extraoral sinus tract was also excised followed by closure in two layers using 3-0 vicryl for inner layers and 3-0 ethilon for skin.



Fig. 5: Intraoperative Photographs

Postoperatively follow up done after 1 week, 2 weeks, 1 month and 3 months clinically and radiographically (OPG). Healing iswas found to be satisfactory and no evidence of recurrence was noted (Figure 6 & 7).



Fig. 6: Post OP Clinically



Fig. 7: Post Operative OPG - 3 months

The H & E stained and studied section shows(ed) cvst lined by parakeratinized stratified squamous epithelium and supported by fibrous connective tissue wall. Epithelium shows varying thickness with corrugated to flat parakeratinized surface and basal cells columnar epithelium showing tomb stone appearance and hyperkeratotic nuclei with a flat epithelial to connective tissue interface. Few areas showing hyperplastic epithelium with arcading pattern and focal areas denuded of epithelial lining due to secondary inflammation. Also separation between epithelium and connective tissue wall is was also seen. Connective tissue shows(ed) loose to dense collagen fibers, dense inflammatory cell infiltrate chiefly composed of lymphocytes and plasma cells. Scattered blood capillaries and hemorrhagic areas are were also evident (Figure 8).



# Fig. 8: Histopathology Report

#### DISCUSSION

WHO defined Odontogenic keratocyst as"A benign unicystic or multicystic, intraosseous tumour of odontogenic origin with potential for aggressive infiltrative behaviour. Also it has a characteristic parakeratinised stratified squamous epithelium lining"(7). It was first described in 1876 and was further classified by Phillipsen in the year 1956 (8).

About 60%–80% of cases occur in mandible, with a noticeable tendency to involve the posterior body and ascending ramus (1). Patients may present with chief complaint of pain, swelling or discharge. Rarely paraesthesia of the lower lip is present. In some cases lesions may attain large size or develop pathological fractures. Some OKCs are identified unexpectedly during radiographic examination[1,9].Radiological imaging like panoramic radiographs, computed tomography (CT) and, in selected cases, magnetic resonance imaging (MRI), plays an important role in its diagnosis and management (10).The radiographic picture of OKC is unilocular or multilocular radiolucency with scalloped and well-defined margins (1, 11).

The choice of the treatment should be based on wellbeing of the patient as prime concern without compromising on the chances of recurrences (8). Management strategies can be divided broadly into two categories: conservative and radical management. However treatment modality should ideally be formulated individually for different patients. Resection should be kept as the last option, confined to large lesions which already destroyed bony architecture and has left no option for preservation of the native tissue (13). Most cases can be taken up for enucleation along with chemical cauterization using Carnoy's solution. Marsupialization is indicated when there is thinning out of underlying bone (12-13).

The recurrence of OKC has varied from 2.5% to62% in literature. This is attributed to incomplete removal of the cyst lining, growth of a new OKC from satellite cysts or development of a new OKC in an adjacent area (8).

One of the most popular adjunctive aids used in management of OKC is the Carnoy's solution(60 % ethanol, 30 % chloroform and 10 % glacial acetic acid with 0.1 Gm ferric chloride) (12). Voorsmit et al.compared two treatment methods. Group 1: 52 keratocysts treated with enucleation alone, and Group 2: 40 keratocyst removal along with excision of overlying mucosa and treatment of the cyst cavity with Carnoys solution. In the first group, 13.5 % of the cysts recurred, whereas 2.5 % of the cysts in the second group recurred (6).(suggestion-Font style should remain same throughout the text) However, the major disadvantage of using carnoys solution is that the vital structures like nerves and vessels in the vicinity will be subjected to its harmful effects(14).

In this case, the lesion was previously diagnosed as odontogenic keratocyst and careful surgical enucleation was done. Carnoys solution is also applied for 5 min. Diagnosis is was confirmed with the help of histopathological examination and the patient was kept on strict follow up because of the high recurrence rate.

Three months follow up was done and there was no signs of any recurrence. A long-term postoperative follow up is advocated for detecting recurrence at an early stage, to prevent local invasion and to prevent large defects caused by mutilating(check the spellings) surgeries.

## CONCLUSION

Due to the high recurrence rate of Odontogenic keratocyst, treatment modalities are still debated. The design of treatment should anime minimal morbidity while reducing the risk of recurrence. Treatment should be initiated at an early stage to preserve vital structures and to prevent mutilating (check the spellings) surgeries.

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