Case Report

# KERATOCYSTIC ODONTOGENIC TUMOR IN RAMUS OF MANDIBLE- A CASE REPORT WITH CT FINDINGS

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**ABSTRACT:**
Odontogenic keratocyst (OKC) is one of the most common critical cysts of the Jaw due to its aggressive behavior and high rate of recurrence. Recently studies prove that this lesion behaves like a tumour both in clinical presentation and histopathology, hence the term was renamed as keratocystic odontogenic tumor (KCOT) by WHO in 2005. The most common clinical presentation is swelling and affects mandible more frequently than maxilla. The diagnosis should be solely based on histopathological confirmation and computed tomography (CT) can be used as an adjunct to estimate the size, extent and effects on its adjacent structures. Herein, we report a case of extraneous type of KCOT in a 23-year-old male, involving left mandibular ramus which was diagnosed by a series of investigations and treated appropriately.
Key Words: Odontogenic Keratocyst; Keratocystic Odontogenic tumor; Ramus of mandible; Computed tomography

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## INTRODUCTION

Odontogenic Keratocyst was first described by Philipsen in 1956.[1] Pindborg and Hansen (1963) described the essential features of this type of cyst.[2] In the latest WHO classification of odontogenic tumors in 2005, these lesions have been renamed as "keratocystic odontogenic tumors" (KCOTs), are among the most controversial and frequent pathological entities affecting the maxillofacial region.[1] Their aggressive/destructive behavior and proneness to recurrence have led the condition to be classified as a benign neoplasm, in spite of actually being a simple cystic lesion.[3] KCOTs are twice more frequent in the mandible than in the maxilla.[4,5] They are 3 types- replacemental, envelopmental and excraneous. Their main clinical manifestations are swelling and/or pain, even though some asymptomatic cases have also been reported.[5-7] Multiple KCOTs are usually seen with cutaneous, skeletal, ocular and neurologic abnormalities as a component of nevoid basal cell carcinoma syndrome (NBCCS). The features of this syndrome were first described by Gorlin and Goltz in 1960, so it is also recognized as Gorlin- Goltz syndrome.[8] Radiographically, KCOTs present non-pathognomonic features[6,7,9]: they may appear as small or large, round or ovoid radiolucent lesions, often with scalloped, multilobulated, distinct margins. Involvement of an impacted tooth has been reported in 25 to 40% of cases.[10,11] Histopathologically, KCOTs present some distinguishing features compared with other odontogenic tumors. The epithelium may show budding of the basal layer into underlying connective tissue, with formation of detached microcysts, termed daughter cysts.[9] Treatment remains controversial, and different approaches have been reported in the literature.[12] As a conservative method, simple enucleation with or without curettage and marsupialization can be performed. More aggressive

methods include peripheral osteotomy, chemical curettage with Carnoy's solution, and resection.[5,13]
The present article describes the case of a 23-year old man who presented with a KCOT involving left ramus of mandible. Diagnosis and treatment features are discussed.

**CASE REPORT:**

A male patient aged 23 years reported with chief complaint of swelling in left lower cheek region since 3 months. Swelling was initially small and gradually increased to the present size. It was also associated with dull, continuous pain that would subside on taking medications. Patient also reported with the history of difficulty in opening of mouth from the last one month. Patient's family, medical and past history were non-contributory. On general physical examination, the patient was moderately built and nourished, with normal gait and posture and well oriented to time, place and person. On extraoral examination, gross facial asymmetry (Fig 1) was present on left-half of face with a diffuse swelling in the left lower cheek region. The swelling was roughly oval in shape and measured about 2.5-3 cm anteroposteriorly. It extended from 1 cm below the zygomatic arch superiorly to 3 cm below the lower border of the mandible inferiorly and upto mental region anteriorly and angle and posterior border of ramus posteriorly. The skin over the swelling was normal and the surface was smooth with diffuse borders (Fig. 2). On palpation, the swelling was firm and tender. Intra oral examination revealed normal dentition; no growth or mass was present. Panoramic radiography (Fig. 3) revealed unilocular, radiolucent area with thin radioopaque border involving left mandibular ramus, extending anteroposteriorly 14-15 mm from the anterior border of ramus to 6-7mm from posterior border of ramus and supero-inferiorly from 12-14mm from sigmoid notch to 18-20 mm above from lower border of mandible. A CT scan (Fig 4)for mandible showed expansile osteolytic lesion with areas of cortical break and heterogeneously enhancing soft tissue components of size approximately 15 × 11 mm in left ramus of mandible. FNAC from cystic swelling in left ramus of mandible was performed and was reported as acute inflammatory lesion with presence of squamous epithelial cells. Surgical evacuation and excision of lesion from ramus of mandible were done under Local Anaesthesia.

**Figure 1:** Gross facial asymmetry was present on left-half of face

**Figure 2:** Diffuse swelling in the left lower cheek region.


**Figure 3**: Panoramic radiograph showed unilocular, radiolucent area with thin radioopaque border involving left mandibular ramus.

Aspirated material and excised tissue from ramus of mandible were subjected for histopathological examination and were reported as Keratocyst, parakeratinised with acute suppurative inflammation.

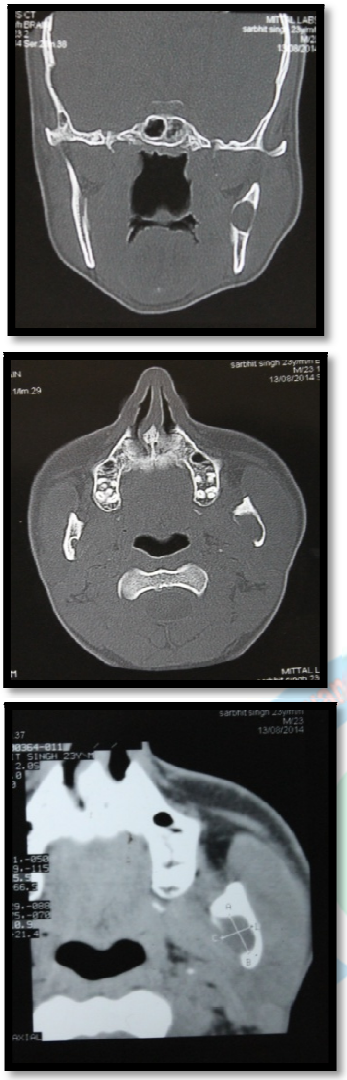

**Figure 4:** A CT scan for mandible showed expansile osteolytic lesion with areas of cortical break.

Based on clinical examination and investigations, final diagnosis of Excraneous type of Kerato cystic Odontogenic Tumour (KCOT), with suppurative inflammation was made.

**DISCUSSION:**

KeratoCystic Odontogenic Tumour (KCOT) generally present as a swelling, with or without pain.[14] Odontogenic keratocysts may occur at any age and are commonly diagnosed in patients between 10-40 years of age with a slight male predilection. The posterior body and ascending ramus of the mandible are usually involved. Small lesions are usually asymptomatic and are discovered only during the course of radiographic examination whereas larger lesions maybe associated with pain, swelling, trismus, sensory deficits, infection or drainage.[15] Conventional radiographic examinations such as panoramic and intraoral periapical radiographs are usually adequate to determine the location and estimate the size of a KCOT. Radiographically, KeratoCystic Odontogenic Tumour (KCOT) present as a well-defined radiolucent lesion that is either unilocular or multilocular, with smooth and usually corticated margins, unless they have been secondarily infected.[6,7] In 25-40% of cases, there is an unerupted tooth involved with the lesion ; adjacent teeth may be displaced, but root resorption is rarely seen. Maxillary lesions tend to be smaller than mandibular lesions; however, more extensive involvement can be appreciated in the maxilla because of the cancellous nature of the bone. Larger lesions can cause bony expansion with or without perforation of the cortical plates.[16] Because these radiological features are non-pathognomonic, differential diagnosis should include dentigerous cysts, ameloblastomas, radicular cysts, simple bone cysts, central giant cell granulomas, arteriovenous malformations, and fibro-osseous lesions. Histologically, KCOTs present the following features: presence of a well defined, often palisaded, basal layer consisting of columnar or cuboidal cells; intensely basophilic nuclei of columnar basal cells oriented away from the basement membrane; parakeratotic layers, often with a corrugated surface; and mitotic figures frequently present in suprabasal layers.[17,18] Surgical enucleation, curettage, enblock resection, hemimandibulectomy are the modes of treatment, depending on the size and extent of the lesion. However, post-operative follow-up is a must, to check for recurrences.[17] The present case was treated by surgical enucleation, as it is considered the first line of treatment. The patient is under regular follow-up since last three months, with currently no signs of recurrence.

**CONCLUSION:**

OKC, better known as KCOT is an aggressive lesion, due to its characteristic to recur more commonly. Notwithstanding, even in the presence of clinical and radiological features indicative of KCOT, a definitive diagnosis cannot be made without microscopic analysis. Additional benefit can be obtained fron recent investigating measures such as CT scan.

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