

KERATOCYSTIC ODONTOGENIC TUMOR -A CASE REPORT

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INTRODUCTION

Keratocystic Odontogenic Tumor (KOT) in the stimulation of osteolytic activity of arises from the cell rests of dental lamina. It is one of the most aggressive odontogenic cysts of the oral cavity. There is rapid growth in KOT and it is known for its tendency to invade the adjacent tissues including bone. It is commonly seen during the second to fourth decades of life with a slight male predilection. It is most commonly found in the lower jaw- especially in the angle and in the maxillary third molar region. Its growth is in the anteroposterior dimension. Increased activity of the epithelial cells of the cyst lining results in the accumulation of hyperkeratotic substances in the cystic lumen. The recurrence rate of the parakeratinized variant is higher than the orthokeratinized variant. Thus, due to the aggressive features of KOT, enucleation with peripheral Ostectomy, curettage and liquid nitrogen cryotherapy, curettage and application of Carnoy’s solution and mandibular segmental resection are the recommended treatment options.

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CASE HISTORY

A 48-year-old female reported to our Department of Oral and Maxillofacial Surgery with a complaint of pain in the lower right back tooth region over 2 months. Her medical history was noncontributory.

Intraoral examination revealed erythema extending from 47 to retromolar region [Figure 1]. The site was tender. There was no bleeding or discharge. OPG revealed an ill-defined radiolucency of 4x3cm in size, extending anteroposteriorly from the mesial root of 47 till 2cm in front of posterior border of the ramus of mandible and superoinferiorly, 1.5cm above the inferior border of mandible till 2.5cm below the sigmoid notch of the mandible [Figure 2]. On aspiration, a dirty white creamy material was obtained. Histopathologic examination showed desquamative epithelial cells with prominent nucleus in the centre with eosinophilic cytoplasm. As suggestive of KOT, Enucleation, Peripheral Ostectomy and Carnoy's solution application was planned under GA. Informed consent was obtained.

Under general anesthesia, through intraoral incision, the site was exposed. Enucleation of the lesion was done. [Figure 3] Then, peripheral ostectomy of the whole surgical area was completed, followed by a single application of Carnoy's solution for 5 minutes. The cystic lesion was sent for

histopathologic examination [Figure 4]. The post operative care was given. The patient was given 200 mg Cefixime twice a day for 5 days and 0.2% Chlorhexidine rinse twice a day for 5 days. Healing was uneventful and, at the 1-month recall, results were satisfactory.



Fig 1: Intra-oral view of the site involved



Fig 2: Orthopantomograph reveals a unilocular radiolucency



Fig 3: Intraoperative radiograph after Cyst enucleation



Fig 4: The removed cyst lining

Histopathologic evaluation disclosed a cystic lining epithelium underlying an inflamed fibrovascular connective tissue. The epithelium is corrugated parakeratinized with 5 to 8 cell layer thickness. The basal layer shows tall columnar cells and hyperchromatic nuclei with reversal polarity in palisading arrangement. In certain foci, thickness of the epithelium is increased with prominent intercellular bridges in the parabasal layer. The underlying connective tissue is moderately collagenous with chronic inflammatory cells infiltrate. Few areas of odontogenic rest were seen in the connective tissue. Hence, thus reported as Keratocystic Odontogenic Tumor. At 3 months follow-up, the area was completely healed. The patient reported that she was comfortable. No evidence of recurrence was noted.

DISCUSSION

KOTs are common developmental odontogenic cysts. It arises from the cell rests of dental lamina. It usually occurs as a

single lesion. Multiple lesions are associated with Gorlin–Goltz syndrome. The incidence is at its peak in the second and fourth decades of life with a gradual decline thereafter. It is most commonly found in the lower jaw- especially in the angle. The mandible is the more affected than the maxilla. It grows in anteroposterior direction.

In most of the patients, lesion is asymptomatic. In symptomatic cases, pain, swelling, expansion and bone perforation are seen. These KOTs often penetrate the bone rather than expand it.

Histologically, an KOT has a fibrous wall lined by epithelium. A thin layer of stratified squamous epithelium is seen. This epithelium has a six to eight cells thick basal layer. The luminal content can have consistencies such as a “straw-coloured fluid” or a caseous, thick, cheesy, milk white. KOTs have been classified into parakeratinized and orthokeratinized variants. The parakeratinized type is the most common (80%) and has a higher aggressive clinical presentation. These types are described by the histological characteristics of the lining and the type of keratin produced. In the orthokeratinized variant, the keratin does not contain nuclei. In the parakeratinized variant, the keratin contains nuclei.

Radiologically, lesion is characteristically demonstrated as a well-defined radiolucent

area with smooth and often corticated margins. It can be unilocular or multilocular. There can be displacement and extrusion of teeth. In the panoramic radiograph, a radiolucent lumen can be seen with a cloudy or milky appearance.

The diagnosis of KOT is based on the histopathologic features. The radiographic findings, often highly suggestive, but are not diagnostic.

The management of KOT has different opinions in treatment options. These cysts are most aggressive forms because of the high recurrence rates due to the presence of epithelial remnants of satellite cysts in the osseous margins. The parakeratinized variant has a higher recurrence rate than the orthokeratinized variant. For this reason a more aggressive treatment has been advocated. Recommended treatment includes enucleation with peripheral Osteotomy, curettage and liquid nitrogen cryotherapy, curettage and Carnoy's solution application and mandibular segmental resection. Enucleation with postoperative intra-oral suction and rinsing the bone defect with 3% hydrogen peroxide in order to detect and remove the remains of the capsule can also be done. The aim of using Carnoy's solution is to kill epithelial remnants in the osseous margins. Use of liquid nitrogen facilitates new bone formation. Carnoy's solution is a tissue fixative that penetrates bone to a depth of

1.54 mm and decreases risk of recurrence, by destroying the epithelial remnant or satellite cysts. Recurrence is usually characterized radiologically by evidence of further bone destruction with or without clinical evidence of infection. In the case we have reported, we have done enucleation with peripheral osteotomy followed by Carnoy's solution application. There was no sign of recurrence on a follow up of 3 months. Patient is asymptomatic and under regular follow-up.

CONCLUSION

The clinical, radiographic and histopathological correlations are essential for proper patient treatment and follow up. This will avoid the further complications since KOTs are highly aggressive and have high recurrence rate.

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KERATOCYSTIC ODONTOGENIC TUMOR

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