ROLE OF OBTURATOR IN CONSERVATIVE MANAGEMENT OF KERATOCYSTIC ODONTOGENIC TUMOR WITH MARSUPIALIZATION IN A YOUNG ADULT

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ABSTRACT

Background and Objectives: Keratocystic odontogenic tumor (KCOT) is a fairly common oral and maxillofacial lesion that is derived from remnants of the dental lamina. It grows rapidly, has an aggressive behavior and hence invades the adjacent tissues. Owing to its specific histo-pathological features, aggressive behavior and high recurrence rates, the odontogenic keratocyst was reclassified and renamed "keratocystic odontogenic tumor" (KCOT) in the World Health Organization (WHO) classification of head and neck tumors in 2005.

Methods: Considering the young age of the patient, a less invasive treatment option i.e. marsupialization was done which resulted in a window in the sulcus region between central and lateral incisors. An acrylic obturator was used for keeping the window patent and decompression. Various treatment modalities and differing recurrence rates have been reported for KCOT. This case report describes the assistance of an obturator in the management of KCOT. As most of the time obturators are used in maxillofacial prosthesis, here it has been used for the conservative management of KCOT to keep opening patent until cyst reduces in size.

Results: The cystic lesion decreased to a pinhole.

Conclusion: Marsupialization is the simplest treatment option which should be considered as first line of action in such cases.

Key words: Keratocystic odontogenic tumor, marsupialization, obturator.

INTRODUCTION

The keratocystic odontogenic tumour (KCOT) was first described by Philipsen in 1956[1] and its attributes were outlined by Pindborg and Hansen.[2]

It is a benign, uni or multi-cystic intra-osseous tumor, which originates from the dental lamina and its remnants, with a characteristic lining of Para-keratinized layered squamous epithelium. It has a potential for aggressive, infiltrative behavior. Multiple KCOTs are suggestive of the presence of the nevoid basal cell carcinoma syndrome.[4] KCOT incidence rates vary from 4% – 16.5% and it forms 7.8% of all cystic lesions of the jaws.[5] KCOT generally occurs in the second and third decades of life and affect more males than females.[6] Although the most common locations for this tumor are the angle/ramus of the mandible with a rate of 75%, it can also affect other locations i.e. premaxilla, maxillary 3rd molar region and maxillary sinus.[4,5]

The term "Obturator" is derived from the Latin word "Obturare" that means "to stop up". It is a maxillofacial prosthesis used to close congenital or acquired defects mostly of the hard palate and/or adjoining alveolar/soft tissue structures.[14]

The role of obturator in treatment of KCOT with marsupialization is very significant.

The surgical approach to cystic lesions of the jaws is either marsupialization or enucleation. Enucleation is complete excision of lesion and marsupialization, or Partsch's technique, consist of removing a window from the lesion and suturing the surrounding mucoperiosteum to the margins of the cyst wall. The fabrication of obturator is than required to keep it open which follows all the basic prosthodontic principles used in conventional oral prosthesis. However, some principles are modified because of the location of the defect and behavior of the residual tissues. The defect, in conjunction with the remaining tissues, should be employed to provide support, retention and stability to the obturator.[12]

The result of an obturator for any prosthodontic application can be affected by the extent and site of post-surgical bony anatomy, availability of abutment teeth, magnitude of the defect, quality of the mucosa, radiation therapy, patient's previous dental experience and neuromuscular control of the patient.[15] Therefore, an adequate prosthodontic care for the patient with the developed defect should include cautiously designed prosthesis combined with regular follow-up to

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deliver comfort, function and esthetics, without compromising remaining structures.[12]

CASE REPORT

An 18 years old female reported to dental department at Fatima Memorial Hospital with pain in the left premaxilla (lateral incisor and canine region) and slight swelling. She was referred to the oral and maxillofacial surgery department. Thorough medical and dental history, detailed clinical examination, along with panoramic and occlusal view radiographs was done. By combining radiographs with clinical picture, a cystic lesion was diagnosed (Fig. 1 and Fig. 2). Biopsy confirmed the diagnosis of Odontogenic Keratocyst.

Enucleation and marsupialization are both recommended treatment options for management of KCOT. The treatment suggested for the patient was marsupialization combined with obturation of the defect.

When electing the treatment procedure, it is essential to consider the age of the patient, the size of the lesion, localization and relationship with the nearby soft tissue and whether it is a primary or a recurrent

Figure 1: *Panoramic view.*

Figure 2: Occlusal view.

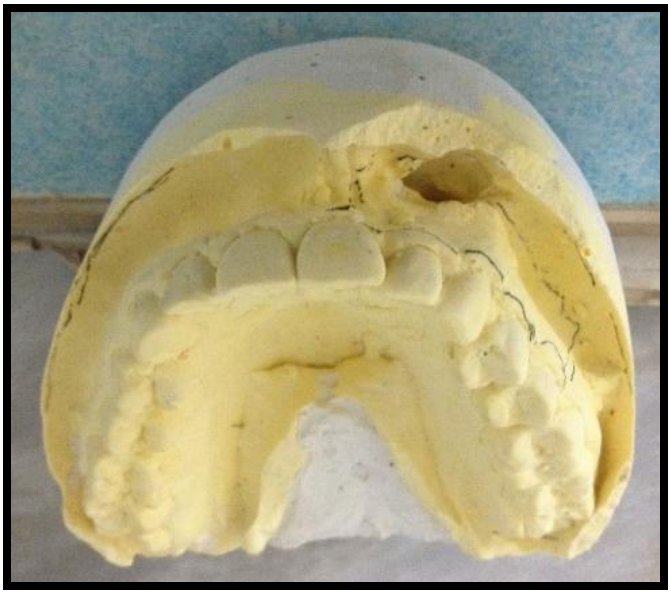

Figure 3: *Cast.*

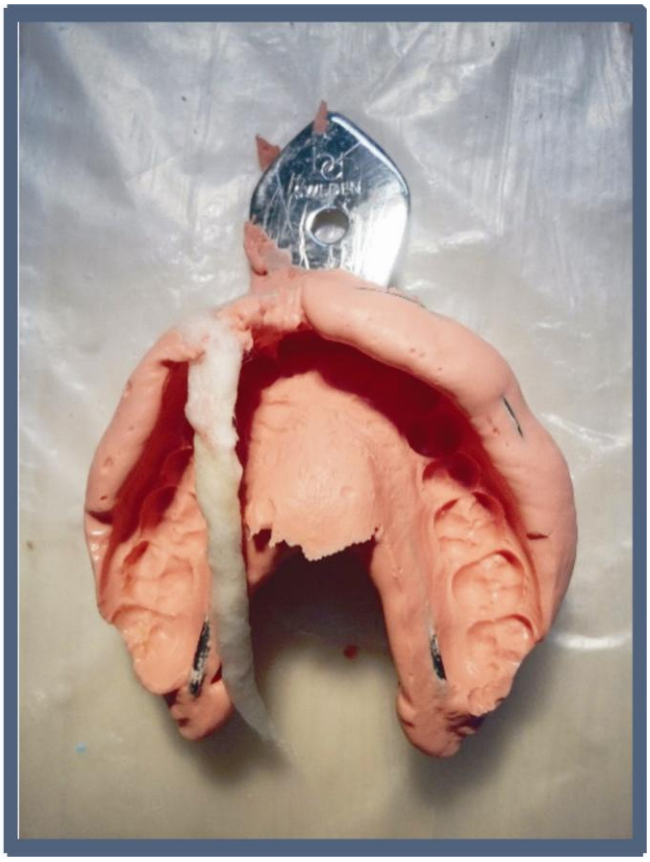

Figure 4:

lesion.[8] Considering the age of the patient and nature of the lesion a less invasive treatment option was planned i.e. marsupialization, which resulted in a window in the sulcus region between central and lateral incisor.

After marsupialization, a primary impression was taken by packing surgical cotton smeared with petroleum jelly into the defect and making a stop at the opening of the defect, so that it could be embedded in the impression material and the cotton could then be taken out without displacement (Fig. 3). After the impression, 1/4th portion of the cotton was cut as the defect was too long and the end of the cotton wool was distorted (Fig. 4).

After the surgical procedure the patient was referred to the department of Prosthodontics for provision of an obturator, further treatment and follow up. For decompression and to keep the surgical window patent an acrylic obturator was planned which had a retentive and an obturating component (Fig. 5).

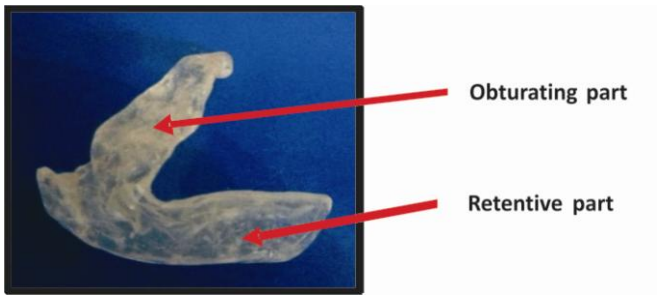

Figure 5: *An obturator made of acrylic resin showing retentive part (RP) and obturating part (OP). When the bottom of the cystic cavity becomes shallower, the head of the obturator (arrow) can be shortened gradually.*

The prosthesis was fabricated in heat cured Poly Methyl Meth Acrylate (PMMA) which is used as the routine material for this kind of prosthesis. Then it was adjusted to fit the defect. For further refining and increasing the length of the obturating part, tray adhesive was applied on the extension of this part. A detailed impression of the defect was made with regular body addition silicone. It was poured in hard plaster, processed and an obturator with more precise dimensions was fabricated in heat cured acrylic resin (Fig. 5).

Retention was achieved by extending the labial flange up to cervical third of maxillary left central incisor up to the second premolar. It was ensured that there was close adaptation and adequate peripheral seal of the flange.

The biomechanics of obturator is that it keeps the opening patent for decompression at one end while bone deposition at the other end of the lesion. The patient had multiple fortnightly review appointments for trimming and adjustment of the obturating part. Subsequently the cystic lesion decreased in size to a little pinhole. The patient was called for follow up for further three months.

DISCUSSION

A long treatment span varying from several months to years has been proposed as the major disadvantage of marsupialization including obturation.[11] As this patient was young, the size of the lesion was small and the site did not interfere with speech or mastication, therefore, the size of the cyst reduced in much shorter period of time. However, slight ulceration of the surrounding mucosa was visible because of the extension of the labial flange in the sulcus, which was managed at early follow up visits. The patient co-operation, oral and denture hygiene maintenance and acceptability of the prosthesis are important factors for the successful outcome of the treatment.[15]

It is ***concluded*** that for the treatment of KCOT many options from aggressive surgery, enucleation marsupialization with decompression are reliable. Marsupialization for KCOT is beneficial to help avoid extensive surgery, and this option should be considered as the first line of treatment modality for the management[11] of KCOT's, as in the case of this patient.

Conflict of Interest: None.

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Author's Contribution

This case study was done by S. B., N. Y. and A. A. data collection and case was done by S. B., A. A. assisted it during the case and helped in taking photographs and record keeping, N. Y. supervised the case, did literature review and helped in manuscript editing.

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