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REMOVAL OF LARGE COMPLEX ODONTOMA- CLOSURE OF DEFECT WITH BUCCAL PAD OF FAT

[1] Sreelakshmi N [1] Professor
[2] Suresh kumar M [2] Associate Professor
[3] Visalakshi [3] Senior Lecturer
[4] Sasidhar reddy [4] Senior Lecturer

[1] Department of pedodontia, Kamineni institute of Dental Sciences,Narkatpalli
[2,3,4]Department of Oral and Maxillo Facial surgery, Meghana institute of Dental Sciences,Nizamabad
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ABSTRACT

odontomas are mixed benign odontogenic tumors because of their origin from epithelial and mesenchymal cells. Complex odontomas involve more pathological changes than compound odontomas. Odontomas are commonly treated by conservative surgical approach and have less probability of recurrence. During Surgical treatment of large odontomas, a large portion of bone has to be excised. Different Graft options have been discussed in the literature for continuity of this defects. In this case report , an attempt was made to reconstruct a large surgical defect created after surgical excision of a considerably large complex odontome of maxilla by using autografts harvested from the neighbouring buccal area to avoid morbidity of the donor site and the results are satisfactory.

KEYWORDS: Odontoma, Surgical excision, Graft, Buccal Pad

INTRODUCTION

Odontogenic tumors develop from ectodermal and ectomesenchymal odontogenic tissues. They may be independent or in different combination. They may be calcified , soft, or mixed. According to Lu et al ameloblastomas are the most common odontogenic tumors followed by adenomatoid odontogenic tumors, odontogenic myxoma, complex and compound odontoma[1].

The term “odontoma” was introduced by Broca in 1863 to comprise all benign odontogenic tumors[2]. At present, odontomas are classified by the World Health Organization as mixed benign odontogenic tumors because of their origin from epithelial and mesenchymal cells, exhibiting different structures of dental tissue (enamel, dentin, cementum and pulp)[2,3]. Complex odontomas involve more pathological changes than compound odontomas.

Odontomas are treated by conservative surgical removal and there is little probability of recurrence[4]. Depending on the size of the tumor and associated pathological changes ,the surgical procedure may be suitably altered for a better outcome. Large tumor resection can result in significant bone or soft tissue loss and subsequent post operative changes in normal anatomy. Grafting has been recommended to prevent or minimize such alterations in the normal anatomical pattern.

Keeping in view the advantages and disadvantages of various graft materials, an attempt was made to reconstruct a large surgical defect created after surgical excision of a considerably large complex odontome of maxilla by using autografts harvested from the neighbouring surgical site to minimize complications of surgical site tissue loss with no donor site morbidity and a near satisfactory outcome was achieved.

Case Report

A twelve year old girl reported to our clinic with a complaint of swelling over the left side of face . Intraoral examination revealed a swelling in left maxillary tuberosity region with both palatal and buccal cortical expansion (**Fig.1**). The swelling was hard and painless with the absence of first and second molar teeth on the affected side. Orthopantomogram revealed radiopaque mass in the left tuberosity region and the impacted tooth with

Fig.1. Swelling in the left tuberosity region with clinically missing molars

Fig.2. Orthopantomogram revealed radiopaque mass in the left tuberosity region and the impacted tooth with associated cystic changes

Fig.3. Exposure of the lesion by a mucoperiosteal flap.

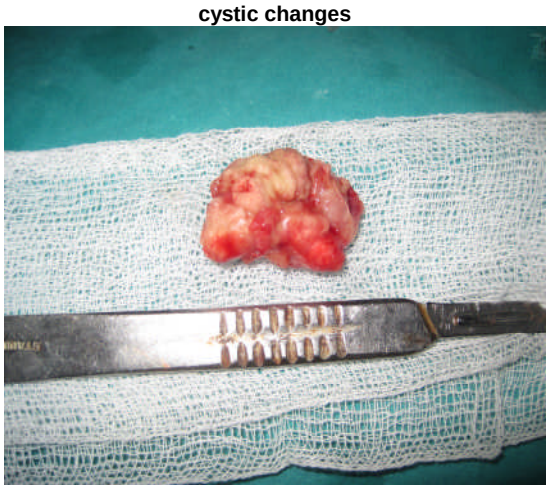

Fig.4 Excision of odontoma along with impacted tooth and the cystic lining

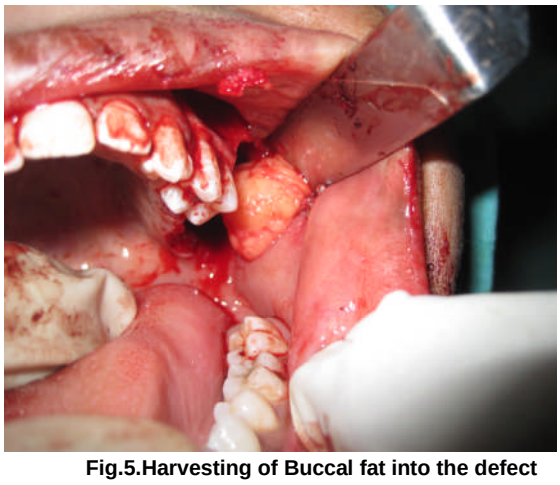

Fig.5.Harvesting of Buccal fat into the defect

Fig.6.Uneventful healing

associated cystic changes (**Fig.2**), the cystic lesion extending into the maxillary sinus. Case was posted for surgery under General Anaesthesia. A crevicular incision given from the left upper canine to second premolar was extended to the posterior aspect of tuberosity along the crest of ridge. A vertical releasing incision was given at canine region . Mucoperioseal flap reflected and lesion exposed (**Fig.3**). Excision of odontoma was done and through the same defect the impacted tooth along with the cystic lining was removed (**Fig.4**).

After removal of the impacted tooth and tumour, a communication into maxillary antrum was noted. Initially it was planned to close the wound by advancing the buccal flap. But the possibility of obliteration of the buccal vestibule after such a procedure resulted in change in the line of management . It was then planned to close wound by grafting the site with buccal pad of fat. A horizontal incision was given over the periosteum of the buccal mucoperiosteal flap at zygomatic buttress region , through which buccal fat was harvested and pulled onto the defect (**Fig.5**). The buccal flap and palatal flap were pulled onto the buccal fat without any tension and were sutured with 3-0 vicryl. Good postoperative healing with epithelialization of fat was observed without any obliteration of sulcus depth(**Fig.6**).

The postoperative follow-up was satisfactory, with the patient developing no oral sinus fistula and showing no signs of maxillary sinusitis

Discussion

Odontomas are benign odontogenic tumors composed of enamel dentin and pulp tissue. Rarely they erupt into oral cavity [3,5]. Odontomas may develop from the enamel organ or the dental lamina, either in place of a normal tooth or a supernumerary lamina or even in association with the follicle of an unerupted tooth. The aetiology is unknown but there is some evidence in favour of a genetic basis for odontomas. Usually they are asymptomatic, some times maxillary odontomas may present with maxillary sinusitis[2]. Caboc et al[6] reported that odontomas in the maxillary sinus may cause pain, facial asymmetry and chronic congestion of the sinus.

Most odontomes occur in the first and second decades of life, and the mean age at the time of diagnosis is 14 years. Odontoma is frequently associated with an impacted tooth and occasionally with a dentigerous cyst,and it has a marked predilection for the maxilla and for the anterior region of the jaw[7]. Although complex odontomas are found in the posterior jaw, Chang[7] found them most commonly in the anterior maxilla Complex odontomas are usually located in the first and second molar areas of the mandible. Although the compound type is equally distributed between the genders, 60% of complex odontomas occur in women. Compound odontomas seldom cause bony expansion, while complex odontomas of-ten cause slight to marked bony expansion[7].

It is of interest to note that majority of odontomas in anterior segment of jaw are compound composite in type (61%) whereas the majority in posterior segment, are complex composite odontoma. Interestingly, both type of odontomas occurred more frequently on the right sideof jaw than on the left [8] . The lesion was however seen on the left side in the present case, though in the posterior segment. Radiologically, the compound odontoma appears as a collection of tooth like structures while composite type appears as a calcified mass with a radiodensity of tooth structure, both are further surrounded by a narrow radiolucent zone, followed by outer thin sclerotic border[8] . These radiographic features, suggestive of complex composite odontoma were seen in our case.

Different surgical procedures were explained in the literature for removal of odontomas. Since they do not recur, treatment is by surgical removal. When small they shell out easily owing to the presence of a surrounding capsule. However, when large and irregular in outline they must be sectioned and removed, otherwise a fracture of the containing bone may result[9]. Some surgeons have choosen LeForte-1 osteotomy for removal of large odontoma[10]. Cases of complex odontomas involve pathological changes which occur in the jaws twice as often as compound odontomas. Two methods are possible in the surgical treatment of large examples of complex odontomas of the mandible. One is the classical intraoral approach, as in the case of alveotomy of retained or impacted teeth, which is simple to perform in the case of small examples of odontomas, where the bone is still sufficiently preserved, and there is consequently no danger of iatrogenic or pathological fracture of the jaws[2]. It is also possible in the case of large tumours which are easily denucleated from the bone, as described by Kitano et al in 1994[2] . Kne.eviE et al[1,2] in 1995wrote of the dynamics of growth of odontogenic jaw tumours and presented an example of a relatively large odontoma in the mandibular ramus, which was surgically removed through the buccal and mesial wall of the ramus. Postoperative healing was enabled by placement of a permanent postoperative intraoral suction, and complete restoration of the bone defect was achieved within a period of 6 months.

Another possible method is to remove the tumour by means of so-called sagittal osteotomy of the mandible(Rittersma and VanGool, 1979)[1]. Similar surgical procedures were later occasionally presented in the literature on the treatment of large examples of odontomas or other odontogenic tumours, (Barnard,1983; Frame, 1985; Petti, Weber and Miller, 1987; Wong, 1989 and Laskin, 1989)(1). Two stage surgical approach for large complex odontomas also has been reported[1].

Sabri Cemil isler et al described about the use of the cone beam computed tomography to localize a large complex odontoma and accurately establish its relationship with the maxillary sinus and maxillary posterior teeth[11]. In present case we removed the complex odontoma and associated impacted tooth along with cystic lining in conventional trapezoidal incision only. But the defect which was left after removal of odontoma was very wide due expansion of both bucal and palatal cortices. In this condition to achieve primary closure either bone must be sacrificed bone or buccal flap may be advanced. Advancing the buccal flap has the disadvantage of buccal sulcus obliteration, removal of bone will lead to reduction of alveolar ridge height and thickness.T o prevent these complications buccal pad of fat was brought onto the defect. Both buccal and palatal flaps were then brought onto the fat and sutured to obtain tension free closure. Postoperatively excellent epithelialization of fat was noted without any other complication.

CONCLUSION

Odontomas can be smaller or larger. In case of removal of large odontomas different procedures can be advocated.Whatever may be the procedure chosen, obtaining the satisfactory surgical outcome with minimal complications is the goal. In the present case, a large odontoma with associated impacted tooth along with the cystic lining could be safely removed avoiding any post operative complication.

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Corresponding Author

Dr.M.Suresh kumar M.D.S
Reader,
department of oral&maxillofacial surgery
Meghana institute of dental sciences
NIZAMABAD.
E-mail:medikonda.suku97@gmail.com
Mobile no: 9441686080