Surgical and Prosthodontic Management of Large Radicular Cyst in Anterior Maxilla: A Case Report

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Abstract
Key words: Radicular cyst, Anterior prosthesis, Esthetics, Ovate pontic

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Introduction

Odontogenic cysts are the most common type of cystic lesion that affects the maxillofacial region. Traditionally, they can be divided into a developmental group and inflammatory group. Radicular cysts are the most common inflammatory cystic lesions affecting the jaw and form about 52% to 68% of all the cysts which affect the jaw[1]. It develops as a result of pulp necrosis due to untreated dental caries and periapical infection[2]. Pulp necrosis results in an inflammatory process which stimulates the epithelial remnants to proliferate, representing a chronic inflammatory process. Various treatment options include convention root canal therapy, surgical endodontic treatment, extraction of the offending tooth, enucleation and marsupialization[1,2].

This case report presents the multidisciplinary management of a young female patient who presented with a large radicular cyst in the anterior maxilla.

Case Report

A 20 year old female patient reported to VSPM Dental College and Research Centre, Nagpur, with the chief complaint of poor esthetics and difficulty in speaking due to missing anterior teeth. On intraoral examination, in the maxilla, the right central incisor and the lateral incisors were missing, and the deciduous canines were over-retained. The permanent central incisor and the deciduous canines were labially inclined, on extraoral examination; it was observed that the lips were incompetent, with the display of anterior teeth. The CBCT revealed large cystic lesions with the left central incisor and the two over-retained deciduous canines, with the loss of buccal bone and local tissue destruction (Fig. 1). On the basis on clinical and radiological findings, a provisional diagnosis was made of an odontogenic cyst. Considering the size of the lesion and the prognosis, extraction of the affected teeth and cyst enucleation was planned under local anesthesia.

Using intrasulcular incision and vertical release, a full thickness flap was reflected. The cyst was enucleated and it was followed by curettage of each defect (Fig. 2). Wound closure was done with silk sutures and the patient was prescribed antibiotics and analgesics. The enucleated cyst was further sent for biopsy. Microscopic examination of H and E stained section showed cystic lumen with thin lining of non-keratinized stratified squamous epithelium at one place. The connective tissue capsule consisted of fibro cellular stroma with dense chronic inflammatory cell infiltrate chiefly of lymphocytes and plasma cells. Few endothelial lined blood capillaries were present some of which engorged with RBCS. Another field showed bony trabaculae. Clinic pathological co-relation suggestive of Radicular cyst. The diagnosis of radicular cyst was confirmed (Fig. 3). The sutures were removed after 7 days. The healing of the wound was uneventful. The patient was given a provisional fixed partial denture extending from canine to canine and was recalled after 12 weeks to assess the healing and continue with further prosthodontic rehabilitation. Patient was given a treatment partial denture in meantime.

Poor bone quality and quantity precluded the placement of implants in that region. Also, due to financial constraints, the patient did not opt for grafting. Therefore, treatment plan consisted of porcelain fused to metal fixed partial denture using the canines as abutments. To improve the emergence profile, ovate pontics were planned. Upper and lower diagnostic impressions were made in irreversible hydrocolloid impression material. A second surgery was planned, in which a full thickness flap was raised, osteoplasty was performed, and crown lengthening was performed with the canines. A new provisional restoration in heat cured acrylic resin (DPI, India) was fabricated on a modified cast with scalloping, which was cemented in the patient's mouth with temporary cement (Fig. 4). The patient was recalled after 2 weeks. The provisional restoration was removed and the tissue was checked for inflammation and contouring. The tooth preparation was modified and a new impression was made in addition silicone by putty and light body combination

(Aquasil, Dentsply). The impressions were poured in stone and a wax-up of the planned FPD was made and tried in the patient's mouth. Final restorations were fabricated in metal-fused to ceramic. After the esthetic and phonetic requirements were fulfilled, a bisque trial was done in a similar manner (Fig. 5). Adjustments were performed, final glazing was done and the prosthesis was cemented in Glass Ionomer Cement (GC Fuji 2). Post-treatment improvement in smile as well as lip support and competency was satisfactory (Fig. 6).

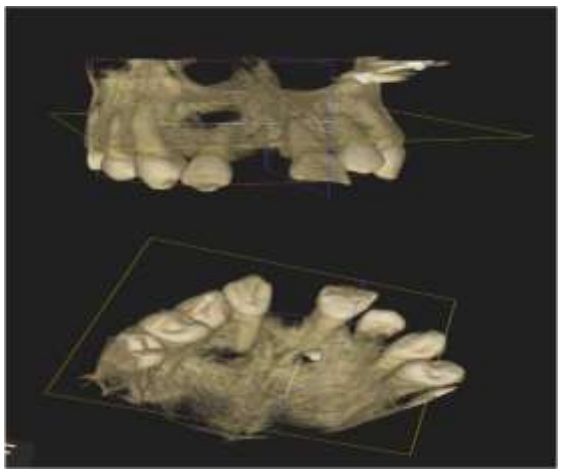

Fig. 1:

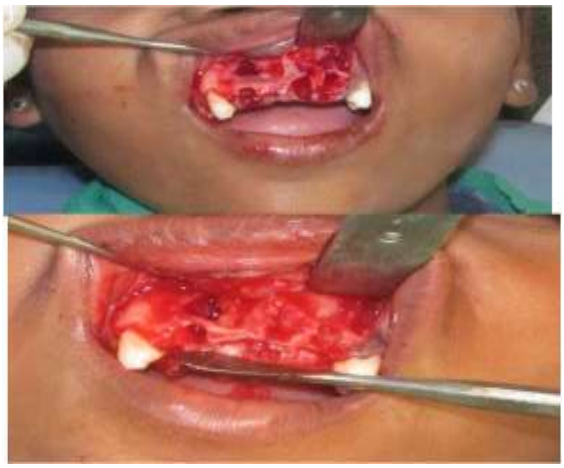

Fig. 2:

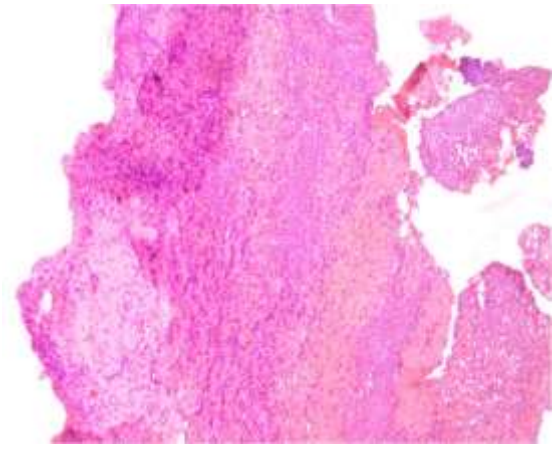

Fig. 3:

Fig. 4:

Fig. 5:

Fig. 6:

Discussion

Radicular cysts are the most common inflammatory cystic lesions affecting the jaw and form about 52% to 68% of all the cysts which affect the jaw[1]. It develops as a result of pulp necrosis due to untreated dental caries and periapical infection[2]. Pulp necrosis results in an inflammatory process which stimulates the epithelial remnants to proliferate, representing a chronic inflammatory process. Various treatment options include convention root canal therapy, surgical endodontic treatment, and extraction of the offending tooth, enucleation and marsupialization[1,2].

Although radicular cysts are and their management is reported in literature, they are generally of smaller dimensions, located primarily in posterior segments of jaws, can be easily managed by endodontic therapy and do not involve loss of bone and soft tissues. Present case report presents the multidisciplinary management of a young female patient who presented with an unusually large radicular cyst in the anterior maxilla.

Small cystic lesions usually heal following endodontic therapy. However, larger lesions may need additional treatment, since untreated cysts may expand and lead to local tissue destruction[3]. Usually surgical treatment may be the preferred option for treating a large periapical cyst, since a longstanding infection may be deemed refractory to conventional treatment[4]. In this case, the patient had a long standing infection with a considerable amount of tissue destruction and loss of the buccal bone. The bone support for the remaining teeth was very poor. Hence, an endodontic treatment was not opted for, and was managed surgically.

Treatment options after extraction included an implant retained prosthesis, a fixed partial denture and a removable partial denture. Since the quantity and quality of bone was poor, implant retained prosthesis was not possible without considerable augmentation procedures. Due to financial constraints, the patient did not opt for bone grafting procedures. Since the patient was young, she did not wish for a removable partial denture. Therefore, it was decided to treat the patient with a fixed partial denture using canines as the abutments. Recreating anterior esthetics was a challenge in this case owing to many factors viz., high lip line, multiple missing teeth, loss of soft tissue including gingival papillae. Several factors needed to be addressed successfully. These include the size, shape, shade and position of the pontic, as well its emergence profile from the soft tissues. Therefore, ovate pontics were planned to improve the emergence profile[5].

A soft tissue recontouring was done to provide scalloped appearance and provisional restoration with 2mm extensions apically was cemented. The contour was adjusted till a satisfactory emergence profile was established.

The premolars were not used as abutments, because of the biomechanical disadvantage of crossing the canine position in the arch. Even though the restoration was a long span one, the loads on the anterior teeth are comparatively less due to minimum vertical overlap (overbite) of patients existing dentition. To reduce the loads even further, a slight open bite was provided with the incisors. Since the patient had incompetent lips, the overjet and overbite were reduced to almost an edge to edge relation to reduce the display of anteriors at rest and prevent an elongated appearance of the prosthesis. By providing such an arrangement, the incompetency was improved to a large extent, as well as it resulted in better esthetics.

Patient was pleased with her appearance and satisfied with improved phonetics. In future, the bone quality and quantity will be assessed, and bone augmentation can be done depending on the financial situation of the patient then. Following an improvement in the bone condition, implant retained prosthesis can be planned in the future.

Conclusion

Long standing cystic lesions of jaws can have a deleterious effect on oral form and function. Surgical treatment results in loss of bone and soft tissues which is difficult to replace with artificial prosthesis. The management becomes even more critical in anterior maxillary area due to esthetic implications. Comprehensive planning and interdisciplinary approach is key to successful rehabilitation of such patients.

References

1. Bramley, P. A. Treatment of cysts of the jaws. Proceedings of the Royal Society of Medicine 64;5(1971):547.
2. Dexter Brave, Madhusudan A.S, Gayathri Ramesh, V.R Brave. Radicular cyst of anterior maxilla. International Journal of Dental Clinics 2011:3(2):16-17.
3. Riachi, Fawzi, and Carine Tabarani. Effective management of large radicular cysts using surgical

enucleation vs marsupialisation. International Arab Journal of Dentistry 1;1(2010).
4. Torres-Lagares, Daniel, et al. Treatment of a large maxillary cyst with marsupialization, decompression, surgical endodontic therapy and enucleation. J Can Dent Assoc 77;77(2011):b87.
5. Gahan, Matthew J., et al. The ovate pontic for fixed bridgework. Dent Update 39;6(2012):407-8.