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MANAGEMENT OF LARGE RADICULAR CYST OF ANTERIOR MAXILLA IN GERIATRIC PATIENT

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ABSTRACT

Radicular cysts are the most common inflammatory periodontal jaw cysts derived from epithelial debris of Malassez and develop as a sequel of untreated dental caries with pulp necrosis and periapical infection. A case of 64 year old female patient is presented with a dome shaped, fluctuant swelling of approximately 3 cm size on the right side of anterior hard palate. Odontogenic cysts are derived from the odontogenic epithelium of the stomodeum. Cysts are generally slow growing, expansile lesions and radiographically they often display radiolucency surrounded by thin radio-opaque border. Radicular cysts are not a clinical rarity however being slow growing most of them do not cause any problem to the patients and are generally detected during routine radiographic examination or when some of them become symptomatic.

INTRODUCTION

A cyst is a pathological cavity lined by epithelium, fibrous tissue and occasionally lined by neoplastic tissue. Its contents may be fluids, semi-fluids or semi-solids[1]. Cysts enlarge slowly and are asymptomatic till they lead to local complication and disfigurement. There constant expansile nature may lead to erosion of bone, displacement of teeth, pressure on adjacent vital structures, expansion in to the maxillary sinus and if they get infected can cause pain. They are frequently diagnosed accidently in radiographs taken for some other clinical problems. Cystic lining also possess potential for malignant changes, therefore treatment of such lesions considered at the very first instance.

Cystic lesions of the jaws may be divided into three groups; odontogenic, fissural cysts and bone cysts [1]. The odontogenic cysts arise from the epithelium concerned in the tooth formation and comprises three main types: follicular, periodontal and kerotosis.

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Radicular cysts are the most common inflammatory periodontal jaw cysts derived from epithelial debris of Malassez and develop as a sequel of untreated dental caries with pulp necrosis and periapical infection[2]. The incidence of radicular cysts is approximately 60-65% of all jaw cysts [3]. This cyst represents a chronic inflammatory process and develops only over a prolonged period of time. It is mostly seen in adults in relation to maxillary incisors and molars. Radicular cysts may be asymptomatic unless secondarily infected. Occasionally the associated is sensitive to percussion and rarely the lesion may be associated with fistula. The patient often gives a history of pain in the tooth and subsequent relief. These lesions do not produce gross deformity of the involved jaw. Radiographically, the lesions are usually well circumscribed unilocular radiolucency and are located below the apex of involved nonvital teeth.

A number of studies have even shown poor correlation between the size of radiolucency and histological findings of radicular cysts and periapical granulomas [4]. However, it is apparent that there is a greater likelihood of radiolucency being radicular cysts rather than chronic periapical periodontitis lesions with

increasing size of radiolucency, particularly those over 2 cm in size [5]. Hence this case report presents a case of radicular cyst in the maxillary anterior region involving multiple teeth.

Case Report

A 64 year old female patient reported to the department of Oral & Maxillofacial Surgery, PGIDS, Rohtak with chief complain of inability to chew food and desired to get her remaining teeth removed so that she can wear complete denture. On examination, a dome shaped, fluctuant swelling of approximately 3 cm size was present on the right side of anterior hard palate (Fig-1). Mandibular arch was completely edentulous and maxilla was partially edentulous. There was grade-III mobility in central and lateral incisors and right maxillary canine and all were nonvital. Approximately 10 ml pus was aspirated. Occlusal view radiograph of maxilla revealed a well defined round radiolucent lesion of approximately 3 cm in diameter with sclerotic margins apical to right maxillary anterior teeth just crossing the midline (Fig-2).

Management: After going through routine investigation patient was planned for enucleation of the lesion under local anaesthesia, along with the removal of the nonvital teeth as patient was not interested in saving of the same. A customised acrylic maxillary splint was fabricated preoperatively.A muco-periosteal palatal flap from the gingival margin was raised showing egg-shell thinning of palatal bone and exposure of cystic lining (Fig-3). Afterward an opening was made in the thin bone and cystic lining was enucleated from this aspect (Fig-4), along with the teeth i.e. 11, 12 and 13(Fig-5) with less risk of damage to vital structures. Intrabony cavity after enucleation thoroughly cleaned and irrigated (Fig-6). After primary closure done, the prefabricated splint was placed to eliminate dead space and to achieve haemostasis (Fig-7). The removed tissue was submitted for histopathological examination and that comes out to be a radicular cyst.

Figure 1. Preoperative photograph showing swelling right side of anterior hard palate.

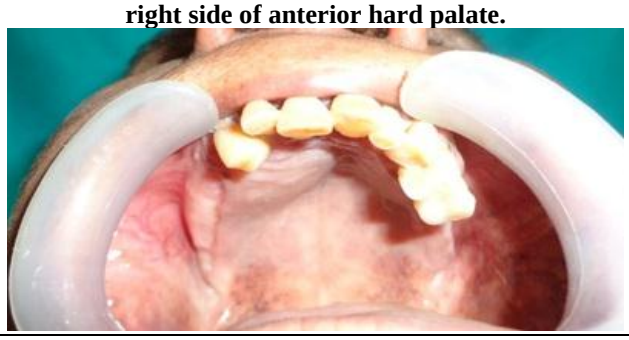


Figure 2. Preoperative occlusal view radiograph showing well-defined radiolucent lesion with sclerotic margins

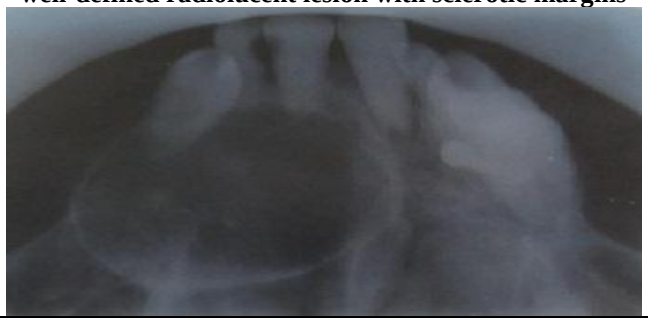


Figure 3. Intraoperative photograph showing egg-shell thinning of palatal bone and exposure of cystic lining.

Figure 4. Release of cystic lining from the bony walls

Figure 5. Enucleated cyst along with teeth.

Figure 6. Bony cavity after enucleation.

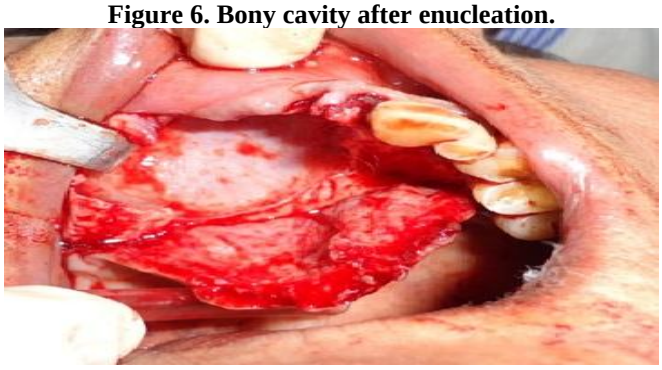
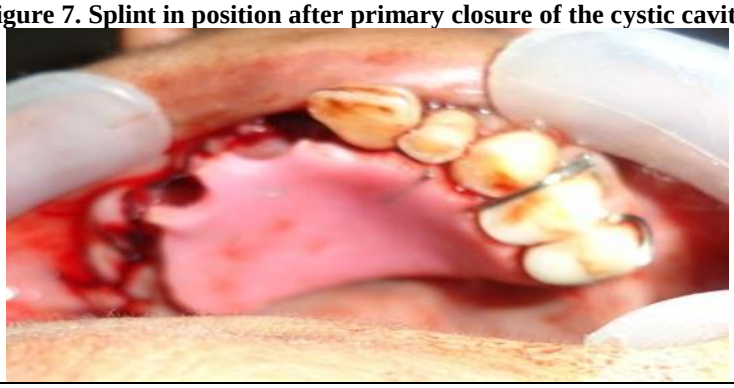


Figure 7. Splint in position after primary closure of the cystic cavity.



DISCUSSION

Odontogenic cysts are derived from the odontogenic epithelium of the stomodeum [6]. All four odontogenic epithelial stages namely- enamel organ, reduced enamel epithelium, remnants of dental lamina and remnants of Hertwig's root sheath (cell rests of Malassez) have the potential to become cyst. Cysts can occur with in the bone or soft tissues. They are of different types and may be asymptomatic or associated with swelling or pain. Cysts are generally slow growing, expansile lesions and radiographically they often display radiolucency surrounded by thin radio-opaque border.

The radicular cyst has been classified as inflammatory for the reason that in the majority of cases it is a consequence to pulpal necrosis following caries, with related periapical inflammatory response. These cysts can occur in the periapical region of any teeth, at any age but seldom seen associated with the primary dentition [7]. Few studies in the UK and the South African population have shown that radicular cysts occur more commonly between the third and fifth decades of life and more frequently found in the anterior maxilla than other parts of the mouth [8]. Our present case is consistent with the above findings presenting with the lesion in the anterior maxillary region.

The pathogenesis of radicular cysts has been described as comprising of three distinct phases: the phase of initiation, the phase of cyst formation and the phase of enlargement [9]. The initiation process is different for each group of cysts, but with variations the enlargement process is probably similar for all epithelium lined cysts.

The nature of the epithelial lining depends on the stage of development of the cyst, and also the severity of inflammation. In the majority of cases the epithelium is from 6 to 20 cell layers thick, but may be up to 50 cell layers thick in some areas. The early stage of radicular cyst formation usually shows a proliferative epithelial lining, associated with an intense inflammatory infiltrate and marked intercellular oedema, while the epithelium may show an arcading pattern penetrating into the underlying capsule. The epithelium may also show spongiosis and be permeated by neutrophils [10]. Almost all radicular cysts are lined partially or completely by non-keratinized stratified squamous epithelium. Keratinisation is seen in approximately 2% of cases, and when present orthokeratinization is more common than parakeratinization.

Earlier methods of treatment of jaw cysts included simple opening of the lesion or extraction of the involved teeth. Small radicular cysts up to 1.5 cm diameter regressed when the necrotic pulp remnants were removed and proper root canal obturation was done. Braunley (1971) reviewed clinical reports on treatment of jaw cysts and suggested that small unilocular cysts should be enucleated completely and wound closure whereas small multilocular lesions might best be treated by excision of the block of surrounding bone containing the lesion. Several treatment options are available for a radicular cyst such as surgical endodontic treatment, extraction of the offending tooth, enucleation with primary closure, and marsupialization followed by enucleation. In this case, surgical enucleation was preferred and was performed uneventfully.

CONCLUSION

Radicular cysts are not a clinical rarity however being slow growing most of them do not cause any problem to the patients and are generally detected during routine radiographic examination or when some of them become symptomatic. Treatment of such lesions at the first instance of detection is important to avoid development of complications like malignancies and obliteration of maxillary sinuses. A prolonged follow up of treated cysts both clinically and radiographically is mandatory so as to check the progress of healing and recurrence, if any.

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