Radicular cyst of anterior Maxilla
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Abstract

The radicular cyst has been classified as inflammatory cyst, as a consequence to pulpal necrosis following caries, with an associated periapical inflammatory response. Many times it is difficult to differentiate radicular cysts from the obligatory pre-existing chronic periapical periodontitis lesions radiographically. This paper presents a case of radicular cyst in the maxillary anterior region.

Key Words: Radicular Cyst; Inflammatory Cyst; Histiocytes; Odontogenic Cyst; Periapical Cyst

Introduction

Radicular cysts are the most common inflammatory jaw cysts and develop as a sequel of untreated dental caries with pulp necrosis and periapical infection. (1) Around 60% of all jaw cysts are radicular or residual cysts. (2) This cyst represents a chronic inflammatory process and develops only over a prolonged period of time. A number of studies have even shown poor correlation between the size of radiolucencies and histological findings of radicular cysts and periapical granulomas. (3, 4) However, it is apparent that there is a greater likelihood of radiolucencies being radicular cysts rather than chronic periapical periodontitis lesions with increasing size of radiolucencies, 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 male patient aged 25 years reported to the department of Endodontics with a chief complaint of pain, swelling and pus discharge in upper left front region of mouth since 3 to 4 months. On radiological examination, there was large periapical radiolucency in relation to 21, 22 and 23. On probing and radiograph examination there was extensive bone loss in relation to the same teeth (Fig 1). Vitality testing by heat test with a hot gutta-percha stick and electric pulp testing revealed no response in these teeth. Affected teeth were slightly tender on percussion and showed grade 1 mobility.

There was a presence of a soft fluctuant swelling palatal to the above mentioned teeth with pus discharge. Swelling was approximately 3 cm in diameter. The cyst was curetted by raising the flap and tissue was submitted for histopathological examination. All the affected teeth were root canal treated and were kept under observation for the healing of the cystic space.

Histopathological report revealed the presence of varying thickness of epithelium with fibro cellular connective stroma. On higher magnification the epithelium was disrupted with infiltration of chronic inflammatory cells along with vacuolations within the epithelium. Connective tissue showed dense infiltration of lymphocytes and plasma cells with few macrophages (Fig 2). A diagnosis of radicular cyst was given.

Discussion

The radicular cyst has been classified as inflammatory, because in the majority of cases it is a consequence to pulpal necrosis following caries, with an associated 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. (6) 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, more common in males than females, and more frequently found in the anterior maxilla than other parts of the mouth. (7) Our present case is consistent with the above findings, which is seen in male patient in the third decade 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 (8).

The initial swellings of these radicular cysts are usually bony hard, but as they increase in size, the covering bone may become very thin despite initial sub-periosteal bone deposition. Finally, with progressive bone resorption, the
swellings exhibit ‘springiness’ or ‘egg shell crackling’. The associated teeth are always non-vital, and may show discoloration. Although the associated teeth usually show no root resorption, there may be smooth resorption of root apices. When cysts are intact, cyst cavities may be filled with brown or straw-colored fluid, while the cyst fluid may have a shimmering gold appearance when light passes through it.

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 arcing pattern penetrating into the underlying capsule. The epithelium may also show spongiosis and be permeated by neutrophils.

Almost all radicular cysts are lined partially or completely by non-keratinized stratified squamous epithelium. Keratinization is seen in approximately 2% of cases, and when present orthokeratinization is more common than parakeratinization. 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**

To conclude, a radicular cyst is a common condition found in the oral cavity. However, it usually goes unnoticed and rarely exceeds the palpable dimension. This case illustrates the successful management of a radicular cyst with enucleation and endodontic treatment.

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