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CASE REPORT

RADICULAR CYST: A CASE REPORT

**Anjali S, *Prashanth Shenai, Laxmikanth Chatra, Veena KM, Prasanna Kumar Rao,
Rachana V Prabhu, Tashika Kushraj, Prathima Shetty and Shaul Hameed**

Department of Oral Medicine and Radiology, Yenepoya Dental College, Yenepoya University,
Mangalore, Karnataka, India

***Correspondence author:** prashanthshenai4@gmail.com

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ABSTRACT:

Radicular cysts are the most common inflammatory odontogenic cystic lesions. It usually originates as a sequel to a periapical inflammatory process, following chemical, physical or bacterial injury. Due to its chronic etiology, the cyst usually appears towards the later stage of life. It has a male predilection. The maxillary anterior region is the most common site of involvement. This case report presents the clinical features, radiographic features and management of radicular cyst.

Key words: radicular cyst, odontogenic cyst, maxillary anterior

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INTRODUCTION:

Radicular cysts are the most common inflammatory odontogenic cystic lesions [1]. It originates from the epithelial cell rests of the Malassez, periodontal ligament or of the surrounding bone, secondary to inflammation [2]. Around 60% of all jaw cysts are radicular cysts. The cyst is most common in third and fifth decade of life [3]. These cysts are considered to be rare in primary dentition [4].

The radicular cyst commonly shows a male predilection with maxillary anterior region as its prevalent site of involvement. Radicular cysts have been regularly associated with carious, non-vital teeth or teeth with a history of trauma. Radicular cysts can heal spontaneously after root canal treatment or extraction. However, some authors propose that suspected radicular cysts must be totally enucleated surgically to remove all epithelial remnants [5].

Here we report a case of large radicular cyst in the maxillary anterior region in a 35 year old female patient. Ethical clearance was obtained from the University Ethical Committee.

CASE REPORT:

A 35 year old medically fit female patient reported to the department of Oral Medicine and Radiology with a chief complaint of pain on the upper left front teeth region since fifteen days. Patient gave history of swelling on the hard palate since fifteen years. Swelling was initially small in size which increased to the current size a month ago (Figure 1). She had difficulty in speech for the past one month. Patient had a fall and blunt trauma to the upper lip about twenty years ago. No obvious swelling or facial asymmetry was noted on extra oral examination. No sinus or fistula was evident extra-orally. Regional lymph nodes were non-enlarged and non-palpable. A diffuse, soft, swelling was noted on the hard palate extending from maxillary right first premolar to maxillary left first premolar which was approximately 4 x 4cm in diameter. Anteriorly it extends from rugae and posteriorly up to anterior two-third of hard palate. Mucosa over the swelling appears stretched. Dull pain was elicited on palpation. Swelling was fluctuant and not fixed to underlying structure. No local rise in temperature, pus discharge and paraesthesia was noted. Maxillary left central incisor was tender on percussion. Gingiva bleeds on probing in relation to maxillary left

central incisor. Maxillary left central incisor was discoloured. All teeth were vital on electric pulp vitality testing except maxillary left central incisor.

A maxillary anterior occlusal radiograph was taken which showed well circumscribed unilocular radiolucency involving the apex of maxillary right incisors and maxillary left incisors and canine, with well defined, radio opaque sclerotic borders (Figure 2). Aspirational biopsy was done which revealed straw coloured fluid.. On histopathological examinations presence of shiny cholesterol crystals were identified suggestive of radicular cyst. Based on clinical, radiologic and histopathologic examination, a diagnosis of radicular cyst was given. The patient was advised to go for endodontic treatment followed by surgical enucleation and referred to concerned department.

DISCUSSION:

Odontogenic cysts constitute frequent benign lesions of the jaw bones, due to the ubiquitous presence of epithelial rests after odontogenesis. Radicular cysts appear as the most common of all odontogenic cysts, with an incidence around 50% [6, 7, 8]. It is also known as periapical cyst, apical periodontal cyst, root end cyst or dental cyst. Radicular cyst commonly occurs in the maxillary anterior region in the third to fifth decade of life, more commonly in men. In the present case, the radicular cyst was in a female patient.



Figure 1: Swelling on the palatal rugae area



Figure 2: Well-defined unilocular radiolucency associated with maxillary right and left incisors and canine with sclerotic margin

The pathogenesis of radicular cyst is commonly considered as occurring in three phases: initiation, cyst formation and cyst enlargement [9]. A radicular cyst is one which arises from the epithelial residues in the periodontal ligament as a result of inflammation. The inflammation usually follows the death of dental pulp and cysts arising in this way are found most commonly at the apices of the involved tooth. Most of the radicular cyst are symptomless and are usually discovered during routine radiographic investigations [3]. Pulpal necrosis leading to inflammation appears as the most frequent etiology of the radicular cyst. A lesser known but likely cause of pulpal necrosis is traumatic injury to teeth. In the present case, none of the associated teeth were found to be carious, while only one left maxillary central incisor was found to be non-vital but non-carious. The patient however did

report blunt trauma to the upper lip about twenty years ago. No injury or bleeding was reported and no treatment was taken at that time. Thus, significant trauma twenty years ago appears to have initiated the pathology.

Radicular cyst most commonly occurs in maxilla. It may be due to the spongy nature of the maxillary bone and reluctance to extract anterior teeth, the over retention of which leads to cyst formation. 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'. Differential diagnosis of adenomatoid odontogenic tumor (AOT) and traumatic bone cyst can be given.

AOT shows maxillary swelling. The AOT is a benign, non-neoplastic (hamartomatous) lesion

with a slow progressing growth. The tumor has three clinicopathologic variants, namely, intra-osseous follicular, intra-osseous extra follicular and peripheral [10]. The extra follicular type (24%) has no relation with an impacted tooth, whereas follicular type (73% of all AOT cases) is associated with an unerupted tooth [10]. The peripheral variant (3%) is attached to the gingival structures. Follicular and extra follicular types are more common in the maxilla than in the mandible, and most of the tumors involve anterior aspect of anterior maxilla. There is a slight female over male predilection, almost 2:1. Radiographically, they usually appear unilocular and may contain fine calcifications, and irregular root resorption is rare [10].

The traumatic bone cyst (TBC) is an uncommon non-epithelial lined cavity of the jaws. TBC occurs most commonly during childhood and adolescence, usually in the second decade of life. Some reports [10] suggest that males are affected more often than females (3:2). In the maxillofacial region, most TBCs occur in the mandible, rarely the maxilla have been reported. Expansion of the cortical plate of the jaw bone is often noted, usually buccally, resulting in intraoral and extraoral swelling and seldom causing deformity of the face.

On radiological examination, a traumatic bone cyst usually appears as unilocular radiolucent area with an irregular but well defined (or partly

well defined) outline, with or without sclerotic lining around the periphery of the lesion [11].

Several treatment options are available for a radicular cyst which includes surgical and non-surgical method. Surgical methods include Enucleation and Marsupialization. Enucleation procedure is usually indicated for a small cyst, which can be done when the vital structures are not involved [12]. Combined approach reduces morbidity and hastens complete healing of the defect [12]. In this technique marsupialization is done first and the enucleation is done at a later date.

Non-surgical methods include conservative endodontic treatment, decompression technique, active nonsurgical decompression technique, aspiration and irrigation technique, method using calcium hydroxide, lesion sterilization and repair therapy, and apexum procedure [13]. Other methods under research are the use of Simvastatin and Epigallocatechin [13]. In our case, root canal treatment followed by surgical enucleation was done.

CONCLUSION:

Radicular cyst is a common condition found in the oral cavity. However, it usually goes unnoticed and rarely exceeds the palpable dimension. In the present case the clinical features were examined, investigations carried out and successful management of a radicular cyst was achieved.

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