



## **Giant Radicular cyst- A case report**

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### **Abstract**

Amongst the various cyst of the jaws, radicular or periapical cysts is the most frequently encountered odontogenic cyst of the jaws. In the present case, a 30-year-old male patient reported to the Department of Oral Medicine and Radiology with a chief complaint of pain and swelling on the anterior palate region for the last 1 week. He gives a history of trauma in the upper front teeth region 15 years back and states the swelling was intermittent for the past 6 years and healed spontaneously with pus discharge. The radiographic examination suggested the presence of a well-defined large unilocular radiolucency crossing the midline extending from 12 to 25 and root canal treatment w.r.t 12, 21, and 25. Surgical enucleation along with

endodontic intervention was performed for the involved teeth. Regular follow-up revealed uneventful healing of the lesion and the patient was asymptomatic with no recurrence.

Key words: periapical cyst, multilocular, CBCT

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## Introduction

A radicular cyst is the most commonly encountered inflammatory odontogenic cyst of the jaw and is associated with the apex of a non-vital tooth [1]. It originates due to an inflammatory response following pulpal injury and consequent necrosis leading to activation and proliferation of the cell rests of Malassez in the periodontal ligament [2]. It commonly occurs in the maxillary anterior region and clinically presents as a hard swelling with or without pain [3]. Radicular cysts are mostly asymptomatic [3]. However; it can cause pain and swelling in secondary infected cases. It radiographically appears as an oval to round well-defined radiolucency with a thin radiopaque border located at the apex of the tooth/teeth [3]. In cases of early detection of the lesion, a more conservative approach of marsupialization is preferred while enucleation is done in cases with large cystic lesions[4].

## Case Report

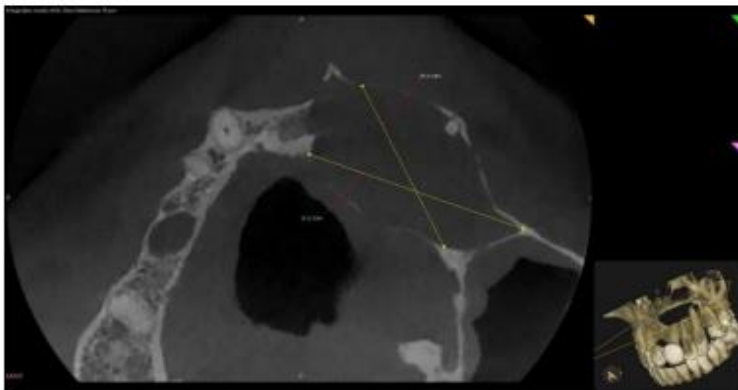
A 30-year-old male patient in a well-conscious state reported with a chief complaint of pain and swelling in the palatal region from the past 1 week. The patient's medical or family history was not significant. Past dental history revealed root canal treatment w.r.t 12 and 21 followed by replacement with a 3-unit prosthesis due to a history of trauma 15 years back. No significant findings on extraoral examination. Intraoral examination revealed, a well-defined swelling with a regular border present on the anterior palate region (Figure 1), measuring approximately 3 x 4 cm, extending Super inferiorly 2 cm posterior from the palatal margin of 11 and 12 till the distal surface of 1st maxillary premolars. Mesiodistally, it extends from the distal surface of 11 to the distal surface of 22. On palpation, the swelling was soft and fluctuant in consistency, tender without any discharge and with a slight increase in temperature. Bicortical expansion was noted. Fine needle aspiration cytology was performed. The lesion was provisionally diagnosed as a radicular cyst and a differential diagnosis of dentigerous cyst and ameloblastoma was made.



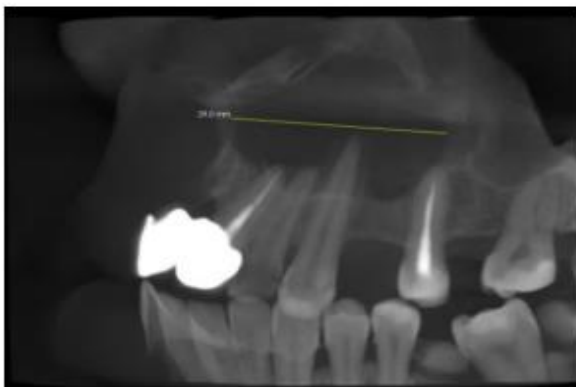
Figure 1 Preoperative picture showing intraoral swelling in the anterior palate region.

Further radiological investigation was carried out by panoramic radiograph and cone-beam computed tomography. CBVI [Figure 2] revealed a well-defined large expansile unilocular radiolucency with an irregular border, measuring approximately 25.5 X 31.0 mm in maximum dimension crossing the midline extending from mesial of 11 till mesial of 26. On para sagittal section the anteroposterior dimension of the lesion measured 29mm. (Figure 3). Imaging was suggestive of bicortical expansion along with thinning and disruption of the plates. Thinning and breach in the floor of the nasal cavity along with superior displacement of the floor is seen. Discontinuity in the left wall of the nasopalatine canal is noted. Thinning and breach in the anterior wall of the maxillary sinus is seen along with thickening of the mucosal lining. Radiographically, the diagnosis of the radicular cyst and differential diagnosis as unicystic ameloblastoma and odontogenic keratocyst was given. A turbid, blood-coloured fluid obtained from fine-needle cytology revealed admix of neutrophils and few macrophages giving an impression of an acute inflammatory lesion.

Treatment involved complete cyst enucleation with aseptic precaution. Apicectomy was performed w.r.t 21, 22, 23, and 25 with retrograde filling. Re-root canal treatment was performed w.r.t 12 21 and 25. Postoperative follow-up was advised after 1 week. The excised specimen measured approx. 3× 4.5 cm was sent for histopathological examination, which revealed non-keratinized stratified squamous epithelial cells surrounding a cystic cavity. The connective tissue capsule adjacent to the lining epithelium is infiltrated by dense chronic inflammatory cells. Histological features confirmed the clinical diagnosis of the radicular cyst. The patient was followed up after 1 week and had no discomfort. Follow-up after 1 month showed complete healing of the palatal swelling clinically. Follow-up OPG (Figure 4) and CBVI were taken which showed endodontic treatment w.r.t 21,22, 23, and 25 and mild reduction in the size of the lesion



**Figure 2** CBVI image (AXIAL VIEW) showing maximum dimension.



**Figure 3** CBVI image (PARASAGGITAL VIEW) shows the Anteroposterior dimension of the lesion.



**Figure 4** Post-operative OPG taken after 1 month.

## Discussion

A radicular or periapical cyst is the most frequently encountered odontogenic cyst<sup>[1]</sup>. It usually arises at the apex of a non-vital tooth due to the proliferation of the epithelial remnants of the epithelial cell rests of Malassez in the periodontal ligament following a pulpal injury and consequent necrosis<sup>[2]</sup>. It has a maximum occurrence in the 3rd decade of life and commonly occurs in the maxillary anterior region<sup>[3]</sup>. Clinically, the radicular cyst is firm to hard on palpation with eggshell crackling<sup>[3]</sup>; however, in some cases due to chronicity and secondary infection, the cystic wall feels soft on palpation due to resorption of the cortical bone. Similarly in our case, the palatal swelling was soft and fluctuant in consistency. The general appearance of radicular cystic fluid on aspiration is straw-coloured fluid of thin consistency<sup>[3]</sup>. However; it is not uncommon to find sanguineous fluid with or without pus discharge as in this case<sup>7</sup>. As radicular cyst is mostly asymptomatic, diagnosis of these lesions is usually incidental and often gets delayed except in cases where pain and swelling are consistent<sup>[3]</sup>. In the present case, the patient had an intermittent occurrence of swelling followed by pus discharge and consequent spontaneous regression for the past 6 years. Likewise, some patients have clinically infected and histologically inflamed cysts which are not painful (Shear, 1961a)<sup>[3]</sup>. Similarly; as this patient has swelling but without pain, the patient never felt the necessity to seek dental treatment. Hence no intervention was performed in the past.

Radiographically, the lesion has a classical appearance of round to oval well-defined radiolucency originating from the root apex of the involved tooth/teeth<sup>[5]</sup>. The radiographic picture shows a well-circumscribed radiolucent lesion with thin corticated borders<sup>[3]</sup>. Bi-cortical expansion is a common feature as well<sup>[4]</sup>. In certain cases, the radiographic representation mimics the features of benign odontogenic tumours such as displacement, resorption, and mobility of the adjacent tooth<sup>[5]</sup>. However, for the present case, though the lesion mimicked few characteristic features of a radicular cyst such as its site of occurrence and its association with a non-vital tooth, its radiographic features such as the expansile nature of the lesion crossing the midline and irregular scalloped borders are more inclined towards the imaging features of odontogenic keratocyst or unicystic ameloblastoma.

Histopathologically, sheets of stratified squamous epithelial cells along with a fibrous capsule with chronic inflammatory cells confirmed the diagnosis of a radicular cyst; however, cholesterol crystals were absent in this lesion which is a usual finding in a radicular cyst<sup>[5]</sup>.

Earlier the diagnosis, a more conservative approach can be considered. Parameters that affect the treatment options are the size of the cyst, closeness to vital structures and how intact is the bony wall around the cyst<sup>[6]</sup> In this case, because of the chronicity and the massive extent of the lesion involving multiple teeth, surgical enucleation followed by the endodontic intervention was performed.

## Conclusion

As radicular cysts are mostly asymptomatic, delayed diagnosis of this inflammatory lesion is more common<sup>[7]</sup>. Prompt and accurate clinical and radiographic diagnosis can lead to a more conservative treatment approach and better patient adaptability.

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