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Case Report

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Infected radicular cyst - a case report and review of literature

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Abstract

Radicular cysts, are the in1lammatory odontogenic cysts, involving the root apex ofthe offending tooth. Chronic trauma, untreated dental caries are its contributing etiological factors.[1] It shares its clinical characteristics with ameloblastoma, Odontogenic keratocyst, periapical granuloma - thus careful histopathological, clinical and radiographic investigations must be performed to narrow down the 1inal diagnosis from these differential diagnosis.[2] The present case report documents a case of infected radicular cyst in the anterior maxillary region. Upon thorough investigations, the diagnosis of radicular cyst was con1irmed. Surgical enucleation ofthe cyst was carried out, followed by extraction of the offending tooth.

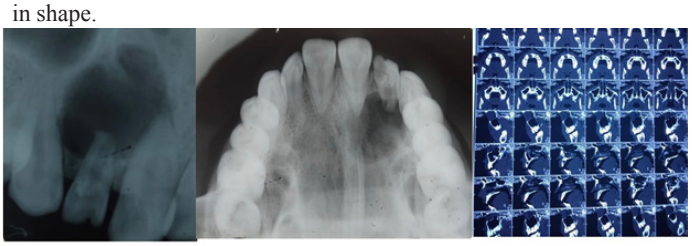
Introduction

A cyst is a pathological cavity, which is lined by epithelium, and its composition being 1luid or semi1luid material, but not exudate.[1] Cysts in the jaw bones are classi1ied as developmental, in1lammatory and neoplastic. Radicular cyst is the most common in1lammatory odontogenic cyst which arises from epithelial rests of malassez basically due to pulp necrosis.[2] Chronic trauma such as dental caries or any injury to the tooth when left untreated can cause pulpal necrosis and further down the road, cause chronic apical periodontitis thus causing cells to proliferate and cystic degeneration.[3] Talking about the prevalence of odontogenic cysts - radicular cyst is the most common odontogenic cyst.[2] Among cysts affecting the jaws, radicular cyst's are about 65-70% of all cysts at the apex of affected tooth.[3] The treatment of periodical cyst depends on the size of the cyst - cysts small in size can be treated by conservative root canal therapy and cysts larger in size are treated surgically by enucleation. When the involved tooth is non vital, enucleation of the cyst followed by extraction of the involved tooth is recommended. In this case report we present a case of an infected radicular cyst in a 21 year old male.[4]

Case report

A 21 year old reported to the department of Oral Medicine and Radiology of our college with the chief complaint of swelling in the upper left maxillary region, for the past 30 days. The patient had dull intermittent pain for the last 15 days, however recently pain aggravated and was sharp. On further questionnaire patient gave a history of trauma 2 months ago. On extra oral examination a diffuse swellingwas present on the right side of the face (Figure1) On intraoral examination, a solitary soft to bony hard swelling approximately 2 by 2.5 cm was seen in tooth number #11, 12 region (Figure 2) Notching was present on tooth number 12 (max right lateral incisor), the tooth was non vital and had severe yellowish discoloration

(Figure 3). Patient had a poor oral hygiene index and complained of bleeding gums while brushing. Apical periodontitis was present with respect to tooth number 12. Patient was advised to get various radiographic investigations done - IOPAR, occlusal radiograph and CT scan were suggested. Intraoral periapicalradiograph revealed a well de1ined solitary radiolucency involving periapical regionwith respect to tooth number# 21(maxillary left central incisor). This radiolucency around the apex of 21 had a corticated, sclerotic border and was oval in shape.



IOPAR OF 21 OCCLUSAL RADIOGRAPH CT SCAN

Radiographic Investigations

Pre-Operative Photographs

Figure 1

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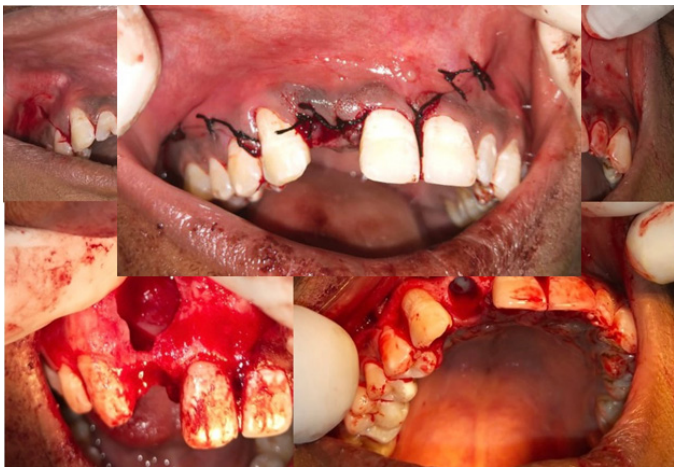
Figure 2

Figure 3 Intra Operative



Post-Operative

Patient was advised to get various routine blood investigations done. The viralmarkers of the patient were non-reactive.

On the basis of clinical and radiographic investigations we have a differential diagnosis of periapical cyst, periapical granuloma, keratocystic odontogenictumour.[5]

The surgical treatment option was chosen. The patient was explained about the procedure and proper consent was taken. Vestibular incision was made with releasing margins in tooth number 21 and 14 region. Surgical enucleation of the cystfollowed by curettage and extraction of the involved tooth i.e 21 was carried out.

Enucleation and primary closure of the cystic cavity was done with black silk through simple interrupted sutures. Iodo form pack was given. This entire procedure was carried out under local anaesthesia. The wound healed uneventfullyand the patient was called for suture removal after a week.

The excised tissue was sent for histopathological examination which revealed non keratinised squamous epithelium with an arcading pattern at a few places and discontinuous at others. Epithelium had variable thickness. The underlying connective tissue consisted of in1lammatory cell in1iltrate mainly lymphocytes and plasma cells and was 1ibrocollagenous and edamatous. Eiosinophillic material resembling hyaline bodies and mucus cells are seen. Giant cells were seen at a few places. Many blood vessels were also noted. At some places osseous tissue was also noted. At few areas eiosinophillic globular structures indicating Russell bodies wereseen.

Thus correlating the Histopathological, diagnostic and clinical evidence our diagnosis of radicular cyst was con1irmed. Patient was called regular for follow upsand no evidence of recurrence was seen.

Discussion

Radicular cyst - also called the periodical, root end cyst is the most common odontogenic in1lammatory cyst which is caused because of pulp necrosis. Factors contributing to pulp necrosis are dental caries, trauma, chronic irritation.[6] Its prevalence is highest in the third decade of life and has a male predilection. It affectsthe permanent dentition more than the primary dentition. The sequence of events occurring is - dental caries and trauma cause pulpal necrosis, when this spreads to the root apex it, it causes the provocation and proliferation of epithelial rests of malassez, thus it forms a periapical granuloma and 1inally a periapical cyst.[7] The basic pathogenesis of radicular cyst has 3 phases - initiation cyst formation and enlargement. Simon had discovered two distinct types of cysts - true cysts and pocket cysts. True cysts had cavities completely enclosed in epithelial lining and pocket cysts were epithelium lined cavities that are open to root canals.

Clinically the patient will be assymptomatic until there is some acute in1lammatory exacerbation. Thus generally radicular cysts are diagnosed radiographically but however cases with acute exacerbation of the cystic lesion show signs and symptoms like pain, swelling, inability to eat, large cysts may show tooth mobility.Mild sensitivity maybe noted in the area.[3]

Radio graphically the cyst appears as a round radiolucent lesion in the periodical region with well de1ined corticated borders.[3] Histo pathological examination reveals that radicular cysts are lined by non keratinised strati1ied squamous epithelium. It has a varying thickness from 1-50 cells. It has an arcading pattern. In the early stages epithelium shows proliferation and severe in1lammatory in1iltrate predominantly leukocytes. In the later stages, as the cyst enlarges it becomes regular and has a certain degree of differentiation.[6] The criterias according to whichthe treatment modality are chosen are size of the cyst, relation with adjacent structures, the clinical presentation of the lesion. For a small cyst the treatment maybe limited to conventional root canal and for larger lesions enucleation, marsupilisation and decompression can be done.[8-10]

Conclusion

Radicular cyst is an in1lammatory odontogenic cyst occurring as a result of trauma, untreated caries. To narrow down the differential diagnosis, thorough histopathological, clinical, radiological evaluation is needed. Various treatment options have been suggested depending

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upon the site, location and extent of the cyst. Treatment options for radicular cysts may vary from conventional, nonsurgical root canal treatment to surgical techniques (enucleation, marsupilisation). In this case report, of a 21 year old male surgical enucleation of the cyst was done followed by curettage and extraction of the involved tooth. No further complications were noticed.

Acknowledgments

None.

Conflicts of Interest

None.

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