Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr Index Copernicus value = 85.10

(e) ISSN Online: 2321-95 (p) ISSN Print: 2348-6805

Case Report

Radicular cyst: A case report

Dr. Shalini N.Waghmare[1], Dr.Vijaya R. Kamble[2], Dr. Mangala Meti[3], Dr. Aditi Rangari[4], Dr.Santosh Chhattani[5], Dr. Pritam Pohankar[6]

[1,2,4]PG Student, Dept. of OMDR, SDDCH, Parbhani, Maharashtra, India;
[3]Head of Dept. of OMDR, SDDCH, Parbhani, Maharashtra, India;
[5]PG Student, Dept. of Periodontology, Parbhani, Maharashtra, India;
[6]Sr. Lecturer, Dept of OMDR, SDDCH, Parbhani, Maharashtra, India

ABSTRACT:
Radicular cyst also called as Periapical cyst, Root end cyst, Apical periodontal cyst and Dental cyst. Radicular cyst is most commonly occurring odontogenic cyst and accounts for 60% of all the jaw cysts. It is an inflammatory type of odontogenic cyst and is always associated with non-vital tooth.

Received: 12 May, 2021 Accepted: 16 June, 2021

Corresponding author: Dr. Shalini N.Waghmare, PG Student, Dept. of OMDR, SDDCH, Parbhani, Maharashtra, India

This article may be cited as: Waghmare SN, Kamble VR, Meti M, Rangari A, Chhattani S, Pohankar P. Radicular cyst: A case report. J Adv Med Dent Scie Res 2021;9(7):29-32.

INTRODUCTION

A radicular or periapical cyst could be a cyst that almost all likely results when rests of epithelial cells of Malassez within the periodontal ligament are stimulated to proliferate. Inflammatory products from a non-vital are released which is the reason they undergo cystic degeneration(1). This condition usually produces no symptoms, unless secondary infection occurs(2). The incidence of radicular cyst is found at any age but most commonly occurs to be highest among patients in their third to sixth decade of life with slight male predominance than women. The foremost common site of radicular cyst is that the maxillary anterior region than the mandibular region(3).

CASE REPORT

A 21 years old male patient reported to the Department of Oral medicine, diagnosis and radiology, Saraswati Dhanwantari Dental College and Hospital & Research centre, Parbhani with the chief complaint of discolouration with 21. Patient gave a history of trauma to the involved tooth 6 years ago and developed a blackish pigmentation due to same. Past medical history was non-contributory. The patient was well oriented with a moderate build and well nourished. Extra-oral examination revealed no facial asymmetry. Intraoral examination revealed discolouration with 21. The associated tooth was non-tender to percussion and showed no signs of mobility. Based on clinical features, the provisional diagnosis was given as Ellis class IV fracture with 21. The patient was advised for an Intraoral Periapical Radiograph (IOPA), Anterior maxillary occlusal radiograph for radiographic evaluation. On IOPA, there was a well defined radiolucency appreciated at the periapical region with respect to 21,22 approximately of 2 X 1.5 cm in dimension. There was loss of cortical borders. Loss of lamina dura appreciated in relation to 21,22,23. There was no evidence of root displacement with 22 nor any evidence of root resorption of adjacent teeth. On maxillary anterior occlusal radiograph (fig. B) the epicenter was present apical to the lateral incisor and loss of cortex was appreciated which is indicative of a secondarily infected cyst. The overall radiographic findings were suggestive of Secondarily infected Radicular cyst. (Fig A)

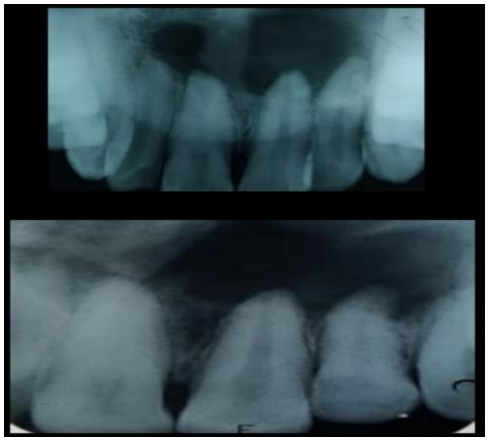

Fig A: RADIOGRAPHIC PICTURE

HISTOPATHOLOGICAL FINDINGS

Enucleated cystic lining was sent for histopathological examination which revealed, non-keratinized stratified squamous epithelium of 6-7 cell layered thickness. There was lack of well-defined basal cell layer. Connective tissue capsule showed the presence of cholesterol crystals along with acute & chronic inflammatory cells which confirmed the diagnosis of an Infected Radicular cyst. (Fig B)

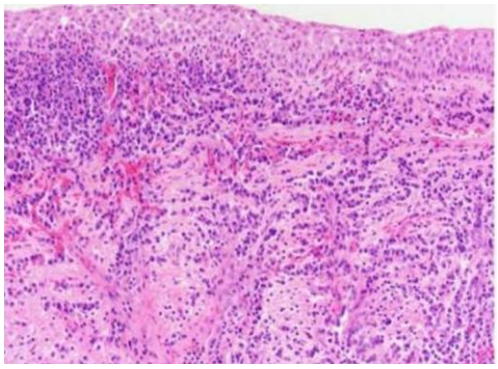

Fig. B: HISTOPATHOLOGICAL PICTURE

FINAL DAIGNOSIS

Pertaining to the overall clinical features, radiographic features and histopathological findings the final diagnosis was given as Secondarily infected radicular cyst.

RADIOGRAPHIC DIFFERENTIAL DIAGNOSIS

1) Periapical granuloma: It is a well defined radiolucency which is usually less than 1.5cm in dimension. Since the lesion in the present was larger than 1.5cm, the diagnosis of periapical granuloma is ruled out.
2) Periapical scar and surgical defect: In these lesions normal bone may never fill in the defect completely. The patient's history helps with the differentiation.
3) Odontogenic Keratocyst: It is always associated with a vital tooth, since our case showed a non-vital tooth because of history of trauma, it was easy to differentiate from OKC.

TREATMENT

Complete Root canal treatment with obturation followed by Enucleation of cyst and Apicectomy done. (Fig C & D)

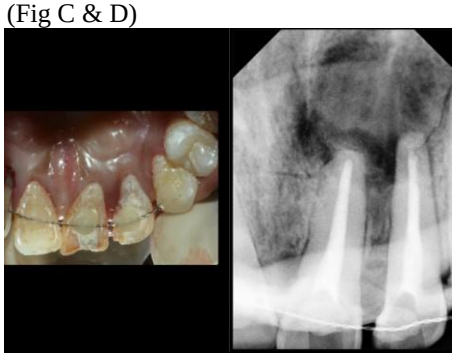

FIG C: INTRA OPERATIVE PICTURES

FIG D: POST OPERATIVE PICTURES

OUTCOME and FOLLOW UP

The patient was recalled every 8 days to check for the resolution of the lesion. The lesion slowly resolved along with new bone formation within a period of 2 months. The IOPA of the involved tooth showed that the lesion is completely resolved.

DISCUSSION

The word "Cyst" is derived from a Greek word "Kystis" meaning "a sac" [(4).] A cyst can be defined as a pathological cavity lined by a epithelium, which grows in a centrifugal expansion mode[(5).] Radicular cyst can be defined as a fluid filled cavity which arises from the epithelial cell rests of Malassez in the periodontal ligament as a result of inflammation, usually following non-vital pulpal tissue of tooth[(6).] Radicular cyst arises as a result of pulp necrosis or trauma which causes inflammation further leading to proliferation and cystic degeneration of epithelial cell rests of Malassez in periodontal ligament[(7).]

Pathogenesis:

An infected tooth, which leads to necrosis of pulp. Toxins are released from the infected tooth at the apex which causes periapical inflammation, that stimulates the epithelial cell rests of Malassez present in the periodontal ligament, resulting in the formation of a periapical granuloma (sterile or infected). Eventually, due to lack of blood supply, this epithelium undergoes

necrosis and the granuloma becomes a radicular cyst [2]. (Fig E)

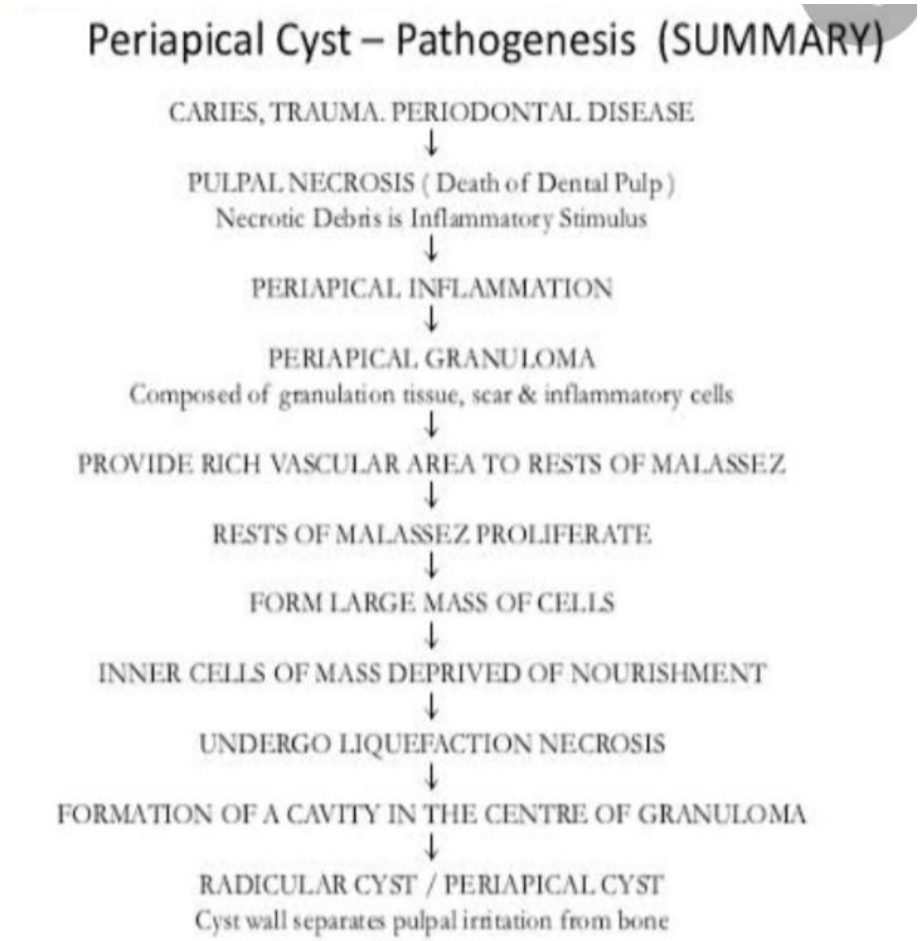

FIG E: PATHOGENESIS OF FORMATION OF CYST

CLINICAL FEATURES

Most of the radicular cysts(60%) occurs in the maxilla than the mandible, especially around incisor and canines[8]. This is also present in our present case. Cysts that arise from the maxillary lateral incisor may invaginate the antrum because of the distal root inclination. Radicular cysts can also be found in deciduous non-vital molars and can be positioned buccal to the developing bicuspid[1]. This cyst occurs more commonly at the age between third to sixth decade of life with a slight male predilection than female[9]. The majority of cases of radicular cysts are asymptomatic and left unnoticed, until it may be secondarily infected[2]). However, some long standing cases may be associated with signs and symptoms like swelling, tooth mobility and displacement of unerupted tooth likely to be caused by acute exacerbation of the cystic lesion.[10] Associated teeth are always non vital and show discolouration, can also be associated with pain or loosening of the tooth. [11,12] At the very beginning, thee swelling may be bony hard as the cortex tends to be intact. But as the cyst grows and increases in size, the bony covering starts thinning out and the swelling exhibits rubbery and fluctuant consistency. The change in consistency is due to the cyst which causes cortical expansion and renders to cortical plate thinning.[13]

RADIOGRAPHIC FEAUTURES

The periphery of the cyst usually has a well defined cortical border. This cortical border can be lost or there can be an alteration of this cortical border into a more sclerotic border, due to the inflammatory reaction of the surrounding bone that occurs when the cyst is secondarily infected.[1] Loss of cortical border is seen in the present case, which was highly suggestive of a secondarily infected radicular cyst. Resorption of the affected and adjacent tooth root, cortical expansion and displacement of the adjacent teeth are some of the commonly seen radiographic features[14].

TREATMENT

Treatment of a tooth with a radicular cyst include extraction, endodontic treatment and apical surgery. Surgical removal or marsupialization of cyst is indicated for large radicular cyst. Recurrence of a radicular cyst is less if it has been completely removed[1].

CONCLUSION

Radicular cyst is most common lesion encountered in the dental practice. In the present case report we have tried to illustrate clinical and diagnostic features of the cyst along with the pathogenesis of cyst formation. Proper treatment and long term follow- up of patient with cyst is recommended as there are chances of neoplastic transformation that can take place within the epithelial lining of cyst.

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