

Bilateral Radicular Cyst: A Case Report

Uday Patel^{1*} Rina Shah² Alpesh Patel³ Rahul Muchhadia⁴

¹Reader, Department of Oral Pathology, Goenka Research Institute of Dental Science, Gandhinagar, Gujarat, India.

²Professor, Department of Oral Pathology, Index College of Dental Science, Indore, Madhya Pradesh, India.

³Professor and Head, Department of Oral Pathology, Goenka Research Institute of Dental Science, Gandhinagar, Gujarat, India.

⁴Reader, Department of Orthodontics, Goenka Research Institute of Dental Science, Gandhinagar, Gujarat, India.

ABSTRACT

Background: The radicular cyst is the most common inflammatory odontogenic cyst. Around 60% of all jaw cysts are radicular cysts. The usual etiology is an infected tooth, leading to necrosis of pulp. Toxins exist at the apex of tooth leading to periapical inflammation that stimulates the epithelial rests of Malassez, which are found in the apical periodontal ligament.¹ Here we report a case of bilateral radicular cyst in a 13 year old girl developed in relation to carious permanent mandibular right & left first molars with expansion of buccal & lingual cortical plates on right side. Radiographically, it shows a well defined radiolucency with sclerotic border. Histologically, it shows arcading pattern of nonkeratinizing stratified squamous epithelial lining with chronic inflammatory cell infiltration in underlying connective tissue.

Keywords: Radicular cyst, Enucleation, Bilateral.

INTRODUCTION

Inflammatory jaw cysts comprise a group of lesions that arise as a result of epithelial proliferation within an inflammatory focus due to a number of causes. Radicular cysts are the most common inflammatory cysts and arise from the epithelial residues in the periodontal ligament as a result of periapical periodontitis following death & necrosis of pulp.¹ Radicular cysts are considered to be rare in the primary dentition, comprising only 0.5-3.3% of the total number of radicular cysts in both the primary and permanent dentition.² It is most commonly unilateral³, so its bilateral presentation is unusual.

CASE REPORT

A 13 year old girl reported to the department of pedodontics with a complaint of pain & swelling in the lower right back region of the jaw since last 4 days. Patient gave a history of removal of carious 46 in the department of pedodontics

before one month. On extraoral examination, a diffuse, nontender & bony hard swelling was noticed on the right side of face.

Intraoral examination revealed an extraction socket of 46. There was an expansion of both buccal & lingual cortical plates. Swelling extended from 44 to 47 leading to obliteration of buccal vestibule, ovoid in shape & 5x3 cm in size. All first molars were carious. Right submandibular lymphnodes were tender & palpable. 47 were lingually erupted (Fig. 1 & 2).

Orthopantomograph revealed a large well defined radiolucency with sclerotic border periapically extending from distal of 45 to mesial of 48. Root piece of 46 was seen as radio-opaque foreign body as it was lost from the socket inside the cyst cavity. Accidental appearance of radiolucent cyst on left side without any clinical symptoms in relation with carious 36 (Fig. 3).

Received: Apr. 19, 2016; Accepted: June. 21, 2016

*Correspondence Dr. Uday Patel.

Department of Oral Pathology, Goenka Research Institute of Dental Science, Gandhinagar, Gujarat, India.

Email: uday7246@yahoo.co.in



Fig 1: Photograph showing swelling in right posterior mandibular region with expansion of buccal cortical plate.



Fig 2: Photograph showing swelling in right posterior mandibular region with expansion of lingual cortical plate.



Fig 3: Orthopantomograph showing a large well defined radiolucency with sclerotic border in region of mandibular right first molar & another well-

defined radiolucency is seen in relation to mandibular left first & second molar.

Based on history, clinical & radiographic examination, a provisional diagnosis of radicular cyst associated with 46 & 36 was made. Radicular cysts of both sides were enucleated under general anaesthesia. Surgically excised lesion of right side shows 4 soft tissue bits with root piece attached to larger bit. The larger bit is measuring about 4.5x3 cm in size, creamish brown in colour, soft in consistency. Other bits are measuring approximately 2x1 cm in size. Surgically excised lesion of left side shows soft tissue bit of 2x1 cm in size, ovoid in shape, creamish brown in colour & soft in consistency (Fig. 4 & 5).



Fig 4: Photograph showing gross appearance of surgical specimen of right side



Fig 5: Photograph showing gross appearance of surgical specimen of left side.

H&E stained section shows varying thickness of nonkeratinized stratified squamous epithelial cystic lining. In few areas, discontinuous arcading pattern of lining epithelium with infiltration of chronic inflammatory cells were also

noted. The connective tissue shows moderate amount of collagen bundles and blood vessels with chronic inflammatory cells predominantly lymphocytes. Cholesterol clefts were also seen (Fig. 6 & 7).

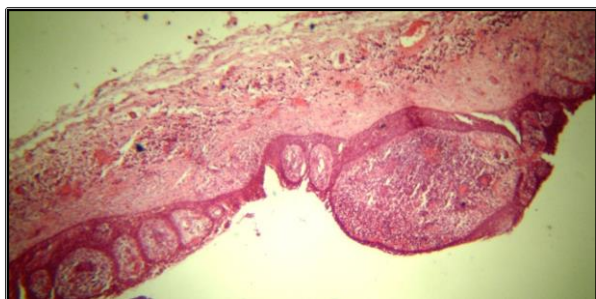


Fig 6: Photomicrograph showing discontinuous arcading pattern of nonkeratinized stratified squamous epithelium lining connective tissue wall with cholesterol clefts (H&E stain, 4X).

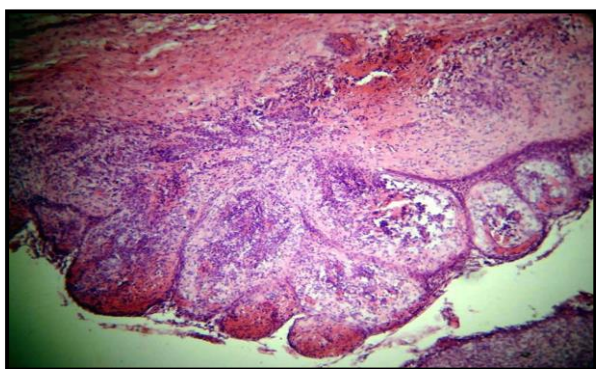


Fig 7: Photomicrograph showing arcading pattern of nonkeratinized stratified squamous epithelial lining with hemosiderin pigmentation & hyaline bodies, underlying connective tissue shows moderate amount of collagen bundles & blood vessels with infiltration of chronic inflammatory cells (H&E stain, 10X).

DISCUSSION

Many radicular cysts are symptomless and are discovered when periapical radiographs of teeth with nonvital pulps are taken.¹ Radicular cysts are probably the most common cause of swelling of the jaws.⁴ At first the enlargement is bony hard but as the cyst increases in size, the covering bone becomes very thin despite subperiosteal bone deposition and the swelling then exhibits 'springiness' or 'egg shell crackling'. Only when the

cyst has completely eroded the bone, the lesion will be fluctuant.² In the maxilla there may be buccal or palatal enlargement, whereas in the mandible it is usually labial or buccal and only rarely lingual.⁵ Multiple radicular cysts may also be seen in patients with hereditary dental defects (e.g. multiple dense in dente or dentinogenesis imperfect) but in these cases this is because of morphological defects resulting in early exposure and death of the pulp.¹

There are several differences between radicular cysts originating from primary teeth and permanent teeth. The mandibular primary teeth are affected more frequently than maxillary teeth.⁶ Bilateral radicular cyst was also recorded by Asha et al. in relation to maxillary central incisor of both sides.³ 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 the dental pulp and cysts arising in this way are found most commonly at the apices of the involved teeth.⁷ Many radicular cysts are symptomless and are discovered when periapical radiographs of teeth with nonvital pulps are taken.²

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

REFERENCES

1. Shear M. Radicular and residual cysts. In: Cysts of the oral region 3rd ed. Wright: 1992. p. 136-62.
2. Ramakrishna Y.A, Verma D. Radicular cyst associated with a deciduous molar: A case report with unusual clinical presentation; J Indian Soc Pedod Prev Dent - September 2006.
3. Asha Samanta. Bilateral Radicular Cyst. J Oral Surgery 1976;41:542-43.
4. Mass E, Kalpan F, Hishberg K. A clinical and histopathological study of radicular cysts associated with primary molars. J Oral Pathol Med 1995;24:458-61.
5. Grundy RM, Adkins KF, Savage NW. Cysts associated with deciduous molars following pulp therapy. Aust Dent J 1984;29:249-56.
6. Savage NW, Adkins KF, Weir AV, Grundy GE. A histological study of cystic lesions following

- pulp therapy in deciduous molars. J Oral Pathol Med 1986;15:209-12.
7. Block RM, Lewis RD, Sheats JB, Burke SH, Fawley J. Antibody formation and cell mediated immunity to dog pulpal tissue altered by formocresol within the root canal. AADR Abst 658. J Dent Res 1997;56:B241.