Case Report

Mandibular Infected Buccal Cyst :Two Case Reports

Ayushi Jindal [1], Ritu Namdev [2], Parul Singhal [3], Samir Dutta [4]
[1,3]Post graduate student, [2]Associate Professor, [4]Professor and Head , Dept. of Paedodontics and Preventive Dentistry
Post Graduate Institute of Dental Sciences, Rohtak

ABSTRACT

The mandibular infected buccal cyst is a relatively uncommon inflammatory odontogenic cyst that typically presents in children between the ages of 4 and 13 on the buccal aspect of vital mandibular permanent molars. The lesion classically presents with swelling and may be associated with delayed eruption of the involved tooth. The differential diagnosis of mandibular infected buccal cyst includes the radicular cyst, odontogenic keratocyst, lateral periodontal cyst, gingival cyst, dental follicles, and the dentigerous cyst. Familiarity with this cyst is essential to avoid unnecessary extraction of the associated permanent molar tooth.

Keywords: children, enucleation, mandibular infected buccal cyst

INTRODUCTION

Paradental cyst is defined as ''a cyst occurring near to the cervical margin of the lateral aspect of the roots as a consequence of an inflammatory process in the periodontal pocket.'' The frequency of the lesion reported in studies ranges from 3% to 5%[1,2] suggesting its rarity. However, the true incidence may be substantially greater than this as many such lesions are possibly misdiagnosed as dentigerous, radicular or lateral periodontal cysts. The term 'paradental cyst' was introduced by Craig in 1976[2] when he described 49 cysts related to partially erupted mandibular third molar teeth, which he regarded as a 'specific inflammatory odontogenic cyst'. However, in 1970, it was Main [3] who used the term ''inflammatory collateral cyst'' and was credited for first describing this lesion. Conklin[4] described a similar case as a 'hidden cyst'.

A cyst similar to the paradental cyst is seen in association with the buccal surface of erupting mandibular first or second permanent molar teeth of young children.[5] So close are the similarities with paradental cysts that the lesions are considered by some to be the same entity.[6]

This cyst had been described as a new variety of inflammatory jaw cyst by Stoneman & Worth in 198[5] referring it as "mandible infected buccal cyst". Most of these lesions affect mandibular first molars in children 4 to 8 years of age.

CASE REPORTS

Two young cases with mandibular infected buccal cyst affecting the buccal aspect of permanent mandibular first molar are presented.

CASE I

An 8 year old boy reported to the Department of Pedodontics & Preventive Dentistry, Post Graduate Institute of Dental Sciences (PGIDS), Rohtak for the evaluation of an asymptomatic swelling on the buccal aspect of permanent mandibular right first molar (LR6) since 3 months. Clinical examination included observation, palpation, periodontal probing,

Correspondence: ***Dr. Ayushi Jindal****; e-mail:* ***jindal_ayushi@yahoo.com***

and electric pulp testing of the involved tooth. Clinical signs of inflammation were absent and the mucosa around the involved site appeared clinically normal. Buccal tilting and a deep periodontal pocket (7 mm) were noted on the distobuccal surface of the tooth. The vitality of the tooth was confirmed with an electric pulp tester.

An intraoral periapical radiograph revealed a sharply delineated unilocular ovoid radiolucency (14mm X 10mm) surrounded by a fine radiopaque line, epicentered around the distal root and furcation area of the mandibular right first molar [Figure 1a]. Furthermore, panoramic and occlusal radiograph were taken to affirm the radiological findings[Figure 1b].

The surgical removal of the lesion was decided under local anaesthesia. Aspiration of the cystic cavity was done before raising the flap to rule out any vascular lesion. A yellowish color fluid was aspirated. After that a crevicular gingival incision with a vertical releasing incision was made and the full thickness vestibular mucoperiosteal flap was mobilized. The buccal bone plate was found to be thin and expanded. After removal of the buccal bone plate, a cavity lined with membrane and filled with a yellowish fluid was visible beneath it. The lesion was firmly attached to the distobuccal aspect of the first molar roots, which appeared denuded from the furcation to the apex. Enucleation of the cystic cavity was done. The extraction of the mandibular molar was not necessary. Irrigation with sterile saline and suturing was done with black silk 3/0. The excised specimen was sent for histopathological examination. The lesion consisted of a lining of nonkeratinized, stratified squamous epithelium with a dense chronic inflammatory infiltrate in the connective tissue wall of the cyst, supporting a definitive diagnosis of a paradental cyst. Post operative radiographs at 6 months revealed bone formation and on clinical examination resolution of the swelling was evident [Figure 2a and 2b].

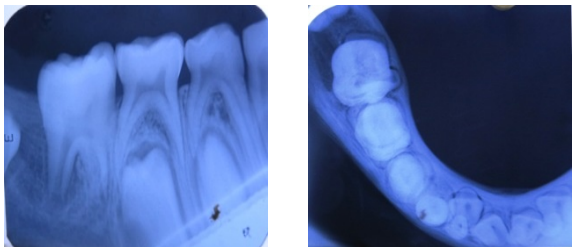

Figure 1: (a) Intra oral periapical radiograph of permanent mandibular right first molar (LR6) showing radiolucency around the distal root and furcation area. (b) Occlusal radiograph showing radiolucency on the buccal aspect with periosteal reaction on lateral surface.

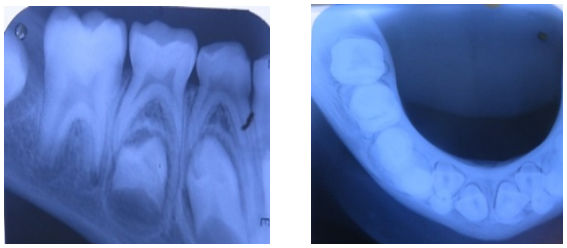

Figure 2: (a) Intra oral periapical radiograph of permanent mandibular right first molar (LR6) (b) Occlusal radiograph performed after 6 months showing evidence of bone formation.

CASE II

A 7 year old boy reported to the Department of Pedodontics & Preventive Dentistry, PGIDS, Rohtak with the chief complaint of dull pain and swelling on the buccal aspect of permanent mandibular right first molar (LR6) since 4 months. On clinical examination, the tooth was partially erupted with slightly oedematous mucosa [Figure 3a]. The involved site was tender on palpation. Electric pulp testing was positive. A panoramic radiograph revealed a unilocular radiolucency (13mm x 10mm) bordered by a fine radiopaque line. An occlusal radiograph was taken further to confirm the findings [Figure 4a]. The treatment was undertaken for this case similar to that mentioned in case I[Figure 3b]. After 6 months of surgery, eruption of the tooth was observed [Figure 3c] and the occlusal radiograph performed 1 year after the enucleation showed a complete bone regeneration with no recurrence [Figure 4b].

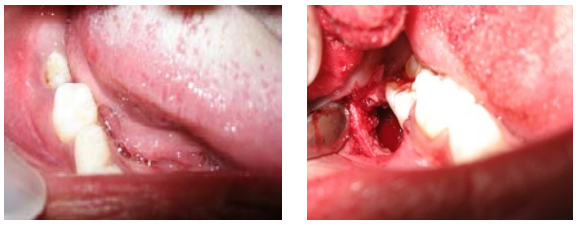

Figure 3: (a) Pre-operative clinical photograph showing partially erupted permanent mandibular right first molar (b) Intraoperative photo.

Figure 3 : (c) Clinical photograph after 1 year showing eruption of the tooth.

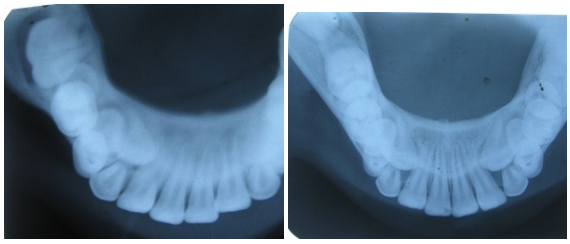

Figure 4: Occlusal radiograph (a) pre-operative showing radiolucency on the buccal aspect (b) 6 month post-operative showing evidence of bone formation.

DISCUSSION

Since 1970s, various taxonomic proposals like inflammatory collateral cyst[3], mandibular infected buccal cyst[5], mandibular buccal bifurcation cyst[8], inflammatory lateral periodontal cyst[9] and inflammatory paradental cyst[10] have been suggested for paradental cyst. In 1989, Vedtofte and Praetorius[10] suggested the use of the descriptive term "inflammatory paradental cyst" because they concluded that inflammation is important for its development and is located at the side of the tooth. Eventually, second edition of WHO classification of odontogenic tumours as cited by Kramer et al [11] included these cysts as separate entity. The nomenclature given to such cyst was "Paradental cyst" (Inflammatory Collateral, Mandibular Infected Buccal cyst).

Recently, Pompura et al[8] reviewed 31 cases of paradental cysts, situated buccally and associated with mandibular first molars, published in the literature from 1970 to 1995 and presented 44 additional cases. These authors evaluated the clinical, radiographic, and microscopic features of these lesions and considered that they represent a distinct site-specific and age-specific clinical entity. In contrast, some authors consider that the mandibular infected buccal and paradental cysts are the same entity, because these cysts share same etiological, radiological, clinical, and microscopic features.[7]

There are many hypotheses for the origin of this cyst. Previous reports postulated that the cyst could have originated from the crevicular epithelium, the cell rests of Malassez, the reduced enamel epithelium, or the dental follicle. Although the etiology is not completely understood, formation of a buccal pocket at the site of an enamel extension or an inflammatory response in the tooth follicle is speculated [5,12]

The average age of the patients at the time of diagnosis is related to the tooth associated with the cyst. Lesions on the permanent first mandibular molar occur in children with an age range of 6 to 9 years, while the age range of the patients with lesions associated with the permanent second mandibular molar is 11 to 15 years, and with the mandibular third molar is 18 to 35 years.[10] Since the lesion is localized on vestibular aspect of the roots, the involved molar is usually tilted so that the root apices are adjacent to the lingual cortex with the crown showing buccal tipping.[13] Most studies[1,5,6] report that a positive electric pulp test is a diagnostic criterion for paradental cyst. The diagnosis would be a lateral radicular cyst if the associated tooth is nonvital.[10]

The panoramic, periapical as well as occlusal radiographs reveal a well demarcated unilocular radiolucency on the distal or distobuccal aspect of the involved tooth with a variable diameter. If the lesion superimposes over the roots, it mimics periapical pathology. However on closer inspection, the periodontal ligament space is intact.[14] Histologic features of paradental cyst are similar to those of other inflammatory odontogenic cysts. The walls of fibrous connective tissue show dense, chronic

inflammatory cell infiltration and are lined by a nonkeratinized stratified squamous epithelium of varying thickness and morphology, according to the extent of inflammation.[2,5,6]

The relation between paradental cysts and dentigerous cysts is worth discussion because these lesions may be confused when seen in radiographs. Shear described different radiological variation of dentigerous cyst: a circumferential type where the entire tooth appears to lie within the cyst; a central type enveloping the crown of the affected tooth symmetrically; a lateral type commonly seen when an impacted mandibular 3rd molar is partially erupted so that its superior aspect is exposed. The presence of Colgan's sign which is the preservation of the distal follicular space in a radiograph is useful diagnostic feature to distinguish paradental cyst from dentigerous cyst.[2] Today, the treatment of choice of the paradental cyst involving the mandibular permanent first or second molar is simple enucleation and thorough curettage of the cyst without extraction of the involved tooth. Recurrence of paradental cysts has never to our knowledge been recorded. This may be because the third molar tooth is removed at the time of cyst enucleation, but even when the related tooth is preserved, as in the series of mandibular infected buccal cysts reported by Pompura et al[8], the cysts never grow back.

In the present cases, the clinical, radiographic and histopathologic features suggested the diagnosis of mandibular infected buccal cyst. Enucleation of the cystic cavity without the extraction of the involved tooth was done.

CONCLUSION

Several cases of paradental cysts have been described in relation to teeth other than third molars in recent years. In our case reports, the mandibular infected buccal cyst was localized in the mandibular region on the distobuccal surface of a completely and partially erupted first molar and treated by surgical enucleation. Both the cases presented successful resolution with a favourable outcome.

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