

CASE REPORT



Paradental cyst of mandibular third molar - A case report

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Abstract

The term paradental cysts (PC) was first introduced by Craig in 1976 and is described as “A cyst of uncertain origin found primarily on the distal or facial aspect of a vital mandibular third molar, consisting of intensely inflamed connective tissue and epithelial lining.” It is included in the group of rare lesions constituting 1–5% of all odontogenic cysts. PC is often associated with mandibular third molars and less frequently, with the second and first molars and rarely with premolars or canines/incisors. Not many cases of PC have been reported in maxillary teeth. The PC has been misdiagnosed as dentigerous cyst, lateral radicular cyst, pericoronal abscess, or some other entity related to the inflammatory conditions of the dental follicle. Lesions like dentigerous cyst may transform to an ameloblastoma, squamous cell carcinoma, or mucoepidermoid carcinoma which requires moderate to extensive surgical interventions with varied prognosis. Lateral radicular cyst and pericoronal abscess require minimal intervention. On the other hand, the topography, behavior, and clinical management are different with a better prognosis for PC. Therefore, it is important to diagnose PC by correlating the radiographic and histologic findings from other entities.

Keywords: Dentigerous cyst, mandibular third molars, odontogenic cysts, paradental cyst

Introduction

The paradental cyst (PC) has been cited by diverse designations, such as inflammatory collateral cyst, mandibular infected cyst, mandibular buccal bifurcation cyst, inflammatory lateral periodontal cyst, and inflammatory PC.^[1]

However, as specified by the WHO classification, in two clinically discrete conditions, the term “PC” can be used: Either a lesion that involves the buccal or distal aspect of a partially erupted mandibular third molar in an adult or the buccally located lesion involving the mandibular first or second permanent molar in children.^[2]

Similar lesion was first described in the English literature by Main (1970) who used the term inflammatory periodontal cyst or inflammatory collateral cyst.

The first detailed report of the PC was given by Craig who described a cyst of inflammatory origin which occurred on the lateral aspect of the roots of partially erupted mandibular third molars where there was an associated history of pericoronitis.

He proposed that the term “PC” was suitable for this lesion.^[3]

Case Report

A 52-year-old male patient visited the Department of Oral Medicine and Radiology with a chief complaint of pain and

swelling on the right side of face for 2 months. The primary incidence of pain and swelling was 1 year ago for which the patient consulted a dentist and he was prescribed medication. The patient was asymptomatic for 6 months. Similar history of pain associated with swelling was reported 6 months ago which was again relieved on medication. 2 months back, the patient has again developed swelling associated with pain. Swelling was of gradual onset. It was of smaller size when the patient noted and gradually increased to the present size. Pain is of moderate intensity, continuous and aggravates on chewing on the right side. There were no relieving factors and no secondary changes such as discharge and ulceration associated with swelling.

On extraoral examination, a diffuse swelling was noted on the right side of face measuring approximately about 5 cm × 3 cm, superoinferiorly and anteroposteriorly in the right ramus region. The skin over the swelling and surrounding skin appeared normal. There were no visible pulsations and no evidence of ulceration or discharge from the swelling was noted. On palpation, there was no evidence of a local rise in temperature. Swelling was mildly tender on palpation, was soft in consistency, and compressible but not reducible. There was no evidence of bleeding or discharge on digital manipulation. On intraoral examination, there was no evidence of vestibular obliteration and tenderness. Partially erupted 48 (only occlusal surface was seen) with no evidence of caries w.r.t 44, 45, 46, and 47 was noted. Ascending

ramus could not be palpated due to limited mouth opening and bulky buccal mucosa. There was no evidence of lingual cortical bone expansion [Figure 1a and b].

A provisional diagnosis of infected dentigerous cyst w.r.t 48 was made. The differential diagnosis included ameloblastoma/unicystic ameloblastoma, keratocystic odontogenic tumor, infected radicular cyst, and pericoronal abscess.

Panoramic radiograph revealed two radiolucencies, in the right ramus distal to 48. A well-defined, flame-shaped radiolucency of different density is seen on the distal aspect of 48 and adjacent to it another well-defined, solitary, unilocular, oval radiolucency on the distal aspect of 48 measuring about 3 cm × 2 cm in dimension in the right ramus region. Superoinferiorly, the lesion extends 2 cm below the sigmoid notch of ramus until the periapical area of 48. The lesion extends from 5 mm anterior to the posterior border of ramus with no evidence of corticated border and discontinuity of the crestal bone. Lesion was completely radiolucent. Periodontal ligament space widening at the apex of distal root w.r.t 48 with intact lamina dura was noted [Figure 2].

Posteroanterior skull view showed expansion of the buccal cortical plate [Figure 3].

Computed tomography (CT) scan showed a unilocular low-density lesion in the right mandibular posterior teeth region around the periapical region of 48 extending into the ramus, measuring about 29.7 mm mediolaterally and 22.6 mm buccolingually, mesially it extends up to the mesial CEJ area of 48. Bilateral cortical plate expansion was noted along with perforation of both cortical plates. The cortical lining of the mandibular canal appeared to be intact around the 48 region, and distally, it appeared to merge with the lesion. The root tips of the mesioangularly impacted 48 appeared normal [Figure 4a-c].

Hematoxylin and eosin stained sections from soft tissue specimens revealed a cystic lining made of non-keratinized stratified squamous epithelium proliferating in an arcading pattern. The connective tissue wall contains fibrous connective tissue with intense inflammation. Edema, fibrin, as well as a dense inflammatory infiltrate of neutrophils, lymphocytes, plasma cells, and macrophages were seen. Many dilated and engorged blood vessels were observed [Figure 5].

Discussion

PC is an inflammatory cyst which involves the lateral surface of tooth root, and it arises from odontogenic epithelium. It has been showed that the presence of an extension of reduced enamel epithelium over the enamel projections might be the source and could explain the frequent buccal location of the cyst.^[3-5]

It has been suggested that cyst formation occurs as a result of unilateral expansion of the dental follicle secondary to inflammatory destruction of the periodontium and the alveolar bone.^[6] Most lesions arise in relation to an erupting tooth or may be initiated during tooth eruption. The mean age of presentation correlates well with the chronological stage of eruption with lesions most often presenting a few years after the eruption of the associated tooth.^[2]

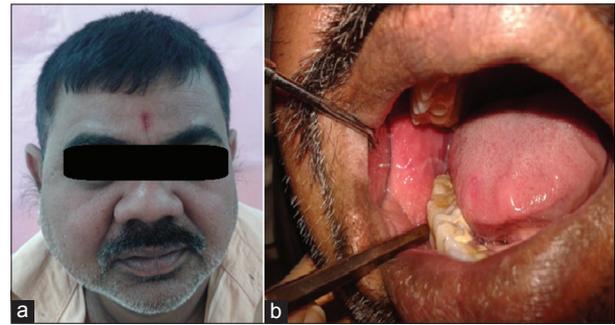


Figure 1: (a) A diffuse swelling on the right side of face, (b) intraoral picture showing partially erupted 48

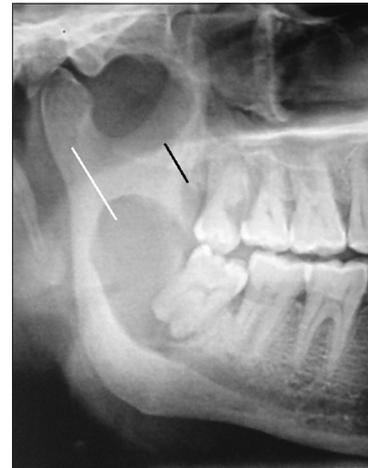


Figure 2: Panoramic radiograph showing a well-defined, flame-shaped radiolucency of different density is seen on the distal aspect of 48 (black arrow) and a well-defined, solitary, unilocular, oval radiolucency on the distal aspect of 48 (white arrow)



Figure 3: Posteroanterior view skull showing expansion of the buccal cortical plate

Mandibular third molars are the most favored location (over 60%) for the occurrence PC and may present in an older age

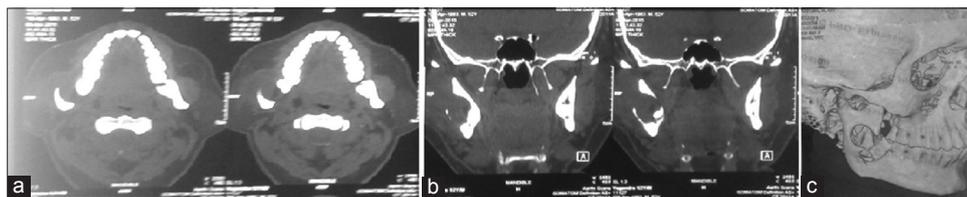


Figure 4: (a) Axial section of computed tomography (CT) showing perforation of buccal and lingual cortical plates, (b) coronal section of CT showing expansion of both the cortical plates of ramus, (c) 3D CT showing cortical perforation of ramus

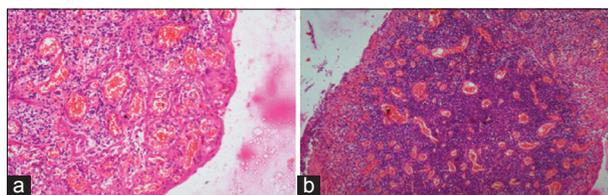


Figure 5: (a) Hematoxylin and eosin stained sections from soft tissue specimens reveal a cystic lining made of non-keratinized stratified squamous epithelium proliferating in an arcading pattern, (b) the connective tissue wall contains fibrous connective tissue with intense inflammation

group, most commonly between the ages of 10 and 39 years.^[3] In the present case, the PC was involving the mandibular third molar in a 52-year-old male patient.

There is usually a history of recurrent or persistent pericoronitis with symptoms of pain, and in some cases, suppuration through the gingival sulcus. Lesions are most often located in a buccal or distobuccal location and cover the root surface, usually involving the bifurcation.^[3] In the present case, the features are similar wherein the patient gave a history of pericoronitis and complained of pain and had tenderness. Moreover, the lesion was present in relation to the distobuccal aspect of 48.

Radiographically, these lesions are often superimposed on the buccal root as well-demarcated radiolucencies with a corticated margin. In most of the cases, the periodontal ligament space is not widened and the lamina dura is intact around the roots. In PCs associated with third molars, there is usually a distal as well as a buccal radiolucency. The distal element is well defined and is distinct from the distal follicular space.^[7]

In the present case, panoramic radiography revealed flame-shaped radiolucency immediately distal to 48 which was consistent with the feature of pericoronitis, and immediately adjacent to this, there was a well-defined unilocular radiolucency involving a part of the ramus with well-corticated margins. Expansion of the buccal cortical plate was evident on posteroanterior view skull. CT scan showed buccal and lingual cortical plate expansion along with perforation of both cortical plates.

Dentigerous cyst, ameloblastic fibroma, keratocystic odontogenic tumor, and unicystic ameloblastoma were considered as radiographic differential diagnosis.^[8]

Dentigerous cyst surrounds the crown of an impacted, embedded, or unerupted tooth and attaches at the

cemento-enamel junction. It causes resorption of adjacent tooth roots.

Ameloblastic fibroma is associated with impacted or unerupted tooth commonly involving mandibular molar region and causes considerable displacement of teeth. It presents as huge expansile swelling with well-corticated borders. CT may reveal a layer of subperiosteal new bone and cortical perforation is rare.

Keratocystic odontogenic tumor is usually seen in second and third decades of life. The lesion grows in an anteroposterior direction with minimal without cortical expansion. Resorption of the root of adjacent tooth is rare. Aspiration may yield yellow cheesy material.

Unicystic (mural) ameloblastoma usually presents as an asymptomatic swelling. Radiographically presents as a pericoronal radiolucency i.r.t unerupted mandibular third molars with knife edge type of resorption of adjacent tooth roots and displacement of teeth.

PC is usually treated by enucleation. Within 1 year of surgery, there is usually complete healing of the surgical site. However, a recent report described three cases that resolved without surgery either with no treatment at all or by daily irrigation of the buccal pocket with saline and hydrogen peroxide.^[9]

Conclusion

PC is a rare odontogenic cyst. Knowledge of PC as one of the complications of the pericoronitis is very important for clinician as early management of later condition can prevent its transformation into PC which requires more extensive management.

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