

Radicular cyst or a Odontogenic Keratocyst: A clinical dilemma report of a case

Ambrose WC¹, Praveena NM², Krithika C³, Vasudevan⁴

^{1,2}Senior Lecturer, ³Reader, Department of Oral Medicine and Radiology, ⁴Professor & Principal, Department of Oral and Maxillofacial Surgery, Thai Moogambigai Dental College and Hospital, Chennai, India

Abstract

Odontogenic keratocysts can occur at any age with a peak incidence within the second and third decades and are found in the mandible in approximately a 2:1 ratio.

Radiographically an unerupted tooth is involved in the lesion in 25% to 40% of cases. Here is a case report of a 13 year old girl with a retained carious primary second molar and an impacted premolar with a dilacerated root. There was a well circumscribed radiolucent lesion between the root of the deciduous tooth and the crown of the impacted permanent tooth, leading to a provisional diagnosis of a radicular cyst or a dentigerous cyst. However, upon histopathological examination, it turned out to be an odontogenic keratocyst. Although OKC is known to present like dentigerous cyst, its association with an impacted mandibular premolar is very rare, and the presentation in a periapical region of carious deciduous molar is even more uncommon.

Key words: Odontogenic keratocyst, Radicular cyst, Deciduous tooth, Mandibular cysts, Impacted mandibular premolar

Introduction

The causes of failure of tooth eruption include the presence of supernumerary teeth in the line of eruption, impaction, displacement, or retained deciduous teeth. Dilaceration of the root or ankylosis of root secondary to trauma to the deciduous tooth can also contribute to the failure of tooth eruption¹.

Most reports of failure of eruption of mandibular molar has been due to the development of inflammatory cysts of deciduous teeth, odontogenic keratocyst, dentigerous cysts, or ameloblastomas².

Here is a case report of a 13 year old girl with a retained carious primary second molar and an impacted premolar with a dilacerated root. There was a well circumscribed radiolucent lesion between the root of the deciduous tooth and the crown of the impacted permanent tooth, which prompted a provisional diagnosis of a radicular cyst with a differential diagnosis of a dentigerous cyst. However, upon histopathological examination, it turned out to be an odontogenic keratocyst (OKC).

Case Report

A 13 year old girl presented with the complaint of a carious retained left deciduous molar. She also complained of painless small bony swelling in the left side of the mandible for the past one year. Extra oral examination showed a painless, 1x1 cm bony hard swelling on the lower right side of the mandible. On intra oral examination, all the permanent teeth had erupted except 35 which had a retained 75 in its place. 75 was grossly decayed and was also tender on percussion. A well circumscribed swelling of about 1x1 cm was noticed in the left lower buccal sulcus extending from the distal aspect of 34 to the distal aspect of 75 causing obliteration of the vestibule. Periapical radiographs showed a well defined radiolucency with a faint sclerotic border around the apex of mesial root of 75 encircling the crown of impacted 35, extending up to the middle third of root of 35. The occlusal radiograph showed a radiolucency extending into the buccal cortical bone without causing significant expansion or discontinuity. A provisional diagnosis of a radicular or dentigerous cyst was considered and the cyst enucleation was planned under local anaesthesia. On extraction of deciduous

Correspondence

Dr. Winnifred Christy A, No.7, Mayor Chittibabu St, Triplicane, Chennai- 600005, Tamilnadu, India
E-mail: winnifred80@yahoo.com

tooth, the impacted 35 was seen obliquely with the crown placed buccally, entirely masking the cystic lesion. In order to enucleate the cystic lesion, it was decided to sacrifice 35. On removal of 35, severe dilaceration was found at the lower end of the middle third of the root. A mass of tissue was enucleated in toto and sent for histopathologic examination. The given section showed

a cystic lining and connective tissue wall. The lining epithelium was absent in most of the areas except in one area where it showed basal palisading of cells with reversed polarity. The epithelium was 2 -6 layers thick with parakeratin in certain areas. Connective tissue wall was infiltrated with chronic infiltratory cells. All these features were suggestive of odontogenic keratocyst.



Fig 1: Extra oral photograph showing bony hard swelling on the lower left side of the mandible

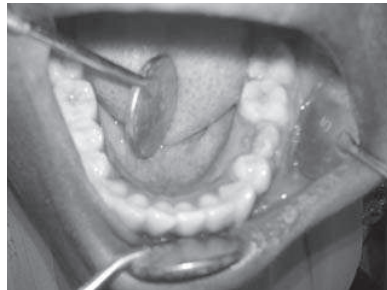


Fig 2: Intra oral photograph showing a carious retained 75 with A well circumscribed swelling of about 1x1 cm in the left lower buccal sulcus extending from the distal aspect of 34 to the distal aspect of 75.

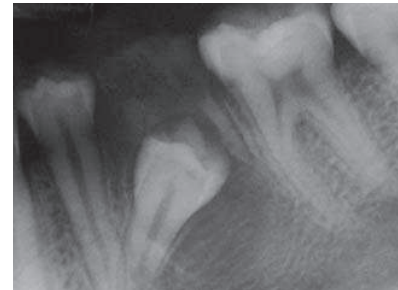


Fig 3: Periapical radiograph showing a carious 75 and a well defined radiolucency with a faint sclerotic border around the apex of mesial root of 75 encircling the crown of impacted 35 extending up to the middle third of root of 35.

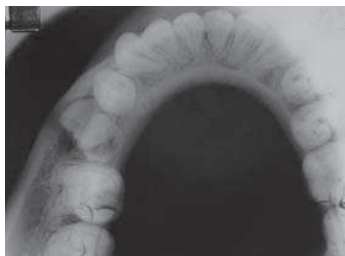


Fig 4: Occlusal radiograph showing a radiolucency extending into the buccal cortical bone in 75 region



Fig 5: Photograph showing the enucleated mass of tissue and the impacted 2nd premolar with dilacerations of the apical third of root.

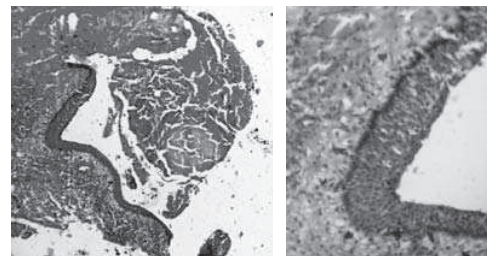


Fig 6 & 7: H&E section (40X & 10 X) showing the epithelium of 2 -6 layers thick with parakeratin in certain areas and basal palisading of cells with reversed polarity.

Discussion

OKCs can occur at any age with a peak incidence within the second and third decades. Also OKCs are found in the mandible in approximately a 2:1 ratio especially in the ramus and the posterior portion of the body³. The new World Health Organization classification for head and neck tumors has designated OKC as keratocystic odontogenic tumor (KCOT) and reclassified it as a neoplasm in view of its intrinsic growth potential and propensity to recur⁴.

Radiographically, an OKC characteristically presents as a well circumscribed radiolucent lesion with radiopaque margins and multilocular or unilocular internal structure³. An unerupted tooth is involved in the lesion in 25% to 40% of cases⁵.

In our case the cyst presented in the premolar region of a 13 year old female patient. On clinical examination there was a retained carious primary molar tooth which was tender on percussion, which led to an initial diagnosis of radicular cyst. The reported incidence of radicular cysts associated with primary teeth has been 0.5%- 3.3%⁶.

On proceeding with the investigations, the radiograph revealed a well circumscribed radiolucency in the periapical region of infected deciduous molar, circumscribing the entire crown of the impacted premolar up to its cemento enamel junction and hence a radiographic diagnosis of an inflammatory dentigerous cyst was taken into account. Shibata Y et al found that the most common site of development of dentigerous cyst in transitional dentition was the lower premolar. They also

observed that the lower deciduous molar has a higher susceptibility to caries, and its roots are more intimately associated with the follicle of its successor than are the other deciduous teeth and hence an inflammatory change at the apex of the deciduous tooth may cause a dentigerous cyst of the permanent successor⁷. As to OKC's they originated from dental lamina or surface epithelium or as hamartomatous proliferation of odontogenic epithelium⁸. Review of literature did not suggest any inflammatory etiology in the development of OKC as in case of dentigerous cyst.

The periapical location of the radiolucency under a carious primary molar and also its circumcoronal location over the impacted premolar coupled together directed towards either a radicular or dentigerous cyst.

A diagnosis of an odontogenic keratocyst was considered less likely because of the small size of the lesion and since the reported incidence of OKCs with an impacted mandibular premolar is low.

Considering the small size of the lesion and age of the patient, we decided to directly excise the lesion. Since the diagnosis of OKC was not considered very likely at the time of presentation a rather conservative approach was adopted for enucleation. But on histopathological confirmation of the diagnosis of OKC, patient was counselled about the risk of recurrence. The patient is now being reviewed every 3 months clinically and radiographically. Currently 6 month follow up period has showed no signs of recurrence.

Although OKC is known to present like dentigerous cyst, its association with an impacted mandibular premolar is very rare, and the presentation in a periapical region of carious deciduous molar is even more uncommon.

In conclusion, possibility of OKC should be always considered in any radiolucent lesion associated with an impacted tooth irrespective of age of the patient, size of lesion or site of its presentation. This case also serves to emphasize the importance of histopathological

examination of all excised specimen. This case thus highlights a very rare presentation of small size OKC associated with an impacted premolar and a retained carious deciduous tooth.

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