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Occurrence of radicular cyst in anterior maxilla of adolescent patient: A case report and its management

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Abstract

The most common type of cyst in the jaws are radicular cyst. They emanates from grossly decayed teeth, large restorations, or previous trauma. Prevalence rate is 60% that is found in the maxilla, more commonly around the incisors and canines region and most commonly occur in men presenting in the 3rd to 5th decade of life. Their recurrence rate is unlikely to occur. In this article we report a case of radicular cyst and their treatment and discuss about the their clinical features, etiology, occurrence rate, radiographic features, differential diagnosis and their management briefly.

Keywords: Radicular cyst, common type, emanates, prevalence, maxilla, decade

Introduction

Case report

- A 15years old female came to Department of Oral Medicine and Radiology Department, Vyas Dental College and Hospital on 22/5/2018 with the chief complaint of pain in the left front teeth region of upper jaw since 2-3 months. Patient was apparently alright nearly 2-3 months back then she felt pain and she also revealed history of trauma before 2years. No history of bleeding. There was no contributory history of medical and dental illness.



Fig 1: Extraoral profile of the patient.

- Extraorally, a solitary diffuse swelling seen on the left side of the upper lip which was raised in temperature and tender on palpation. It was firm, roughly oval shaped and 2*2cm by dimension. Lip was incompetent.
- Intraorally, soft tissue enlargement seen at the level of mucogingival junction in relation with 21, 22, 23 and consistency was firm and 21,22,23 was RCT treated.

Provisional Diagnosis

- Radicular cyst

Investigation

OPG; Well circumscribed radiolucency is seen in apical third of 21, 22 and medial aspect of 23 (fig.2). The medial and lateral aspect is surrounded by the corticated border.



Note: The size of the lesion is more than 2cm (indicates Cyst)

Fig 2: Well defined radiolucency is seen in the apical third of 21, 22 and medial aspect of 23. The medial and lateral aspect is surrounded by the corticated border.

Excisional biopsy; The features are suggestive and compatible with the clinical diagnosis made. H and E stained section reveals cystic lumen lined by connective tissue containing dense chronic inflammatory cell infiltrate and bundles of collagen fibres, varying sized blood capillaries and haemorrhagic areas at places are also noticed throughout the section and no evidence of epithelial lining.

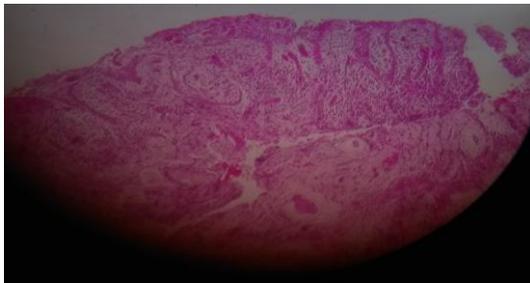


Fig 3: Mucous cells in the surface layer of the stratified squamous epithelial lining of a radicular cyst (H & E)

- Patient was not willing for occlusal radiograph as she was having severe gag reflex.

Differential diagnosis

- Radicular cyst
- Residual cyst
- OKC

Final Diagnosis

- Infected Radicular Cyst.

Management

Intraoral approach done after related Local anesthetic block had given. Vertical releasing incision on distal aspect of 11 and distal aspect of 23 followed by crevicular incision in relation with 11, 21, 22, 23. Mucoperiosteal flap was raised.



Fig 4, 5: Surgical picture of mucoperiosteal flap elevated (osseous window) and pathological area was exposed; picture taken during cystic enucleation.

Once the flap has been elevated, an osseous window created with help of a rotating round bur (fig. 4). Then followed by cystic enucleation (fig. 5). In this technique, a dental curette is used to peel off the connective tissue wall of the specimen from surrounding bone and then the bony cavity is inspected after irrigation with sterile saline. Apicoectomy done (root end resection) and preparation performed followed by retrograde filling done with MTA (mineral trioxide aggregate) at 90 degree with straight fissure bur on hand piece. Bone graft (bio-oss) placed for better recovery of osseous window and Suturing and closure of flap done with 3.0 silk suture (fig.6).



Fig 6, 7: Placement of MTA after apicoectomy with 21,22,23 and after the placement of 3-0 silk sutures; Picture taken after 1 week of treatment.

Postoperative medication given and recalled after 1 week for suture removal and further postoperative follow up examination after 2 weeks and 3 months. In this case we found satisfactory soft tissue healing with normal function of teeth (fig.7). Absent of any symptoms like trismus, pain and swelling were elucidated postoperatively.

Discussion

Radicular cyst has been classified as most common inflammatory cyst of jaw [1]. According to White and Pharoa, 'Rests of epithelial cells of (Mallasez) in the periodontal ligament are stimulated. It proliferate and undergo cystic degeneration by inflammatory products from non-vital tooth' [2]. According to Kramer, it has been defined as 'a pathological cavity having fluid, semifluid or gaseous contents and which is not created by the accumulation of pus' [3].

Early descriptions of cystic lesions of the jaws were written by Aulus Cornelius Celsus (early part of 1st century), Pierre Fauchard (1690–1762) and John Hunter (1729–1793), among others [4].

Its occurrence is 60% [1] but Actual prevalence of cysts is only about 15% of all apical periodontitis lesions. Men has shown significant predilections (3rd to 4th decades of life) [5,6]. Radicular cyst can occur at any site of teeth but more commonly occur in the anterior maxilla than other parts of mouth [7] and seldom seen with primary dentition [8].

The pathogenesis of radicular cysts has been described as consisting of three distinct phases [9]: the phase of initiation, the phase of cyst formation and the phase of enlargement

- the phase of initiation
- the phase of cyst formation
- the phase of enlargement

The radicular cyst are bony hard during the initial swellings though the covering bone may become very thin despite initial sub-periosteal bone deposition when they increase in size. At last, the swellings exhibit 'springiness' or 'egg shell

crackling' due to the progressive bone resorption. The involved tooth are always non-vital and may show discoloration though the tooth often show any root resorption, there may be smooth resorption of root apices. When cysts are intact, cyst cavities may be filled with brown or straw-colored fluid, while the cyst fluid may have a shimmering gold appearance when light passes through it ^[10]. Most of the radicular cysts are asymptomatic, Patient often complains of slowly enlarging swellings. Pain and infection may present in radicular cysts and it is painless until it is secondarily infected. There may be buccal or palatal enlargement in maxilla on the other hand in the mandible it is usually labial or buccal and only rarely lingual ^[11]. According to Wood and Goaz, it is a slow growing cyst with a tendency towards bone resorption, generally 0.5 to 1 cm in size, nevertheless a few cases of large cysts have been occasionally reported ^[12].

Almost all the radicular cyst are lined by non-keratinized stratified squamous epithelium completely ^[13].

Differential diagnosis includes ^[12]; periapical cyst, surgical defect are frequently confused with a periapical cyst. In teeth that have received nonsurgical endodontic treatment for granulomas and cysts and are assumed to be well sealed, a persistent, asymptomatic, nonenlarging radiolucency is most likely a periapical scar. Similarly, an asymptomatic radiolucency that persists after root resection is likely a surgical defect. Periapical cementoosseous dysplasia (PCOD) in its lytic and fibroblastic stage cannot be distinguished from a periapical granuloma or cyst by radiographic examination. Though the pulp is vital and healthy, while the tooth with a granuloma or cyst has a nonvital pulp. PCOD frequently involved the lower teeth (in a ratio of about 9:1), especially incisors.

Traumatic bone cyst in a periapical area may be mistaken for a dental granuloma or cyst, as with PCOD, the pulps of the associated teeth are usually vital and intact lamina dura is seen in the case of a traumatic bone cyst.

When a patient's history indicates disorder (e.g., hyperthyroidism, primary malignant tumor, multiple myeloma), the working diagnosis of periapical granuloma or cyst must be broadened to include these more serious entities. Others includes periodontal disease and mandibular infected buccal cyst.

The treatment modalities of Radicular cyst are either root canal therapy when lesion is localized or surgical treatment like cystic enucleation, marsupialization or decompression when lesion is large. In our case we preferred enucleation and endodontic treatment ^[14].

Conclusion

A radicular cyst is the most common inflammatory odontogenic cyst that can lead to major facial deformities in both soft tissue and bone. It is most commonly arise from non-vital tooth. In this case, we followed the concept of nonsurgical methods though surgical management might be required in case of larger cyst. So, we managed the case successfully by performing surgical enucleation of the cyst and endodontic treatment.

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