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Case Report

Management of endodontic periapical lesion with palatal swelling: A case report

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ABSTRACT

Root canal infection is the primary cause of large periapical lesions. The primary protocol for treatment should be the elimination of etiological factors in the root canal system. An 18-year-old, female patient reported to our dental college and hospital with the chief complaint of swelling behind her upper front teeth on the roof of her mouth. Clinical and radiological findings revealed a large swelling and a large circumscribed radiolucency involving the apex of the tooth with open apex respectively. Non-surgical endodontic therapy was performed followed by apexification and periapical surgery was performed. Monitoring the healing of the affected region subsequently was done for upto 1 year. The ultimate goal was to return the involved tooth to a state of health and function, which was achieved.

1. Introduction

Diagnosing palatal swellings can pose a challenge for clinicians as they may stem from developmental, inflammatory, reactive, or neoplastic processes. It is crucial to include odontogenic causes such as cysts or tumors in the differential diagnosis, given their high prevalence.

Palatal swellings can arise from diverse underlying causes, originating either from structures within the palate or extending beyond it. These swellings may exhibit pain if infected, while benign ones can be painless.

Examinations of swellings are most effectively conducted through visual inspection and palpation, similar to the approach used for many oral lesions. Routine panoramic radiography is particularly useful in detecting maxillary bony masses. For a conclusive diagnosis, histological examination is essential. A biopsy, either excisional for smaller lesions presumed non-malignant or incisional for potentially malignant or larger lesions, is necessary.

In our situation, the swelling was identified as a radicular cyst. Radicular cysts (RC) represent the most prevalent odontogenic cyst, originating from the epithelial cell rests of Malassez in response to inflammation. These cysts can manifest in the periapical region of any tooth and at any age but are rarely observed in connection with primary teeth. Typically, they are situated at the apices of the affected teeth, although occasionally they may be observed at the lateral aspects of the roots in relation to lateral accessory root canals.

From a clinical perspective, a radicular cyst typically presents as a well-defined swelling, varying in consistency from firm to soft. This cyst is commonly situated in the anterior part of the upper jaw, especially where traumatic injuries are frequent. It is typically painless but may become painful if a secondary infection occurs.

Radiographically, most radicular cysts manifest as pear-shaped or round unilocular radiolucent lesions in the periapical region of the affected tooth. Occasionally, these cysts may displace adjacent teeth roots, causing mild

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resorption. Distinguishing between a granuloma and a cyst is challenging through radiographs alone. Aspiration of the swelling aids in distinguishing between cystic and solid lesions. To differentiate a radicular cyst from other similar palatal swellings, attention should be given to the presence of an associated discoloured and nonvital tooth. Treatment typically involves extracting the affected tooth or performing root canal treatment if the tooth can be preserved.

2. Case Report

An 18-year-old female patient visited our dental college and hospital with a chief complaint of swelling on the roof of her mouth behind her front upper teeth, for the past two months prior to seeking medical attention.

The patient reported an absence of pain or discomfort related to her teeth, and she does not recall experiencing any trauma. The patient provides a history of a soft, non-tender swelling behind her front upper teeth on the roof of her mouth, persisting for two months prior to her visit to our hospital.

During the extraoral examination, no abnormal findings were identified, and there was an absence of facial asymmetry.

Figure 1: Extra- oral examination

During the intraoral examination, a swelling measuring 3 x 2 cm, with an oval shape, was observed on the right side of the median of the hard palate, situated just behind the upper right central and lateral incisors. The swelling exhibited characteristics of being fluctuant, non-tender, well-defined, and soft in consistency.

An orthopantomogram (OPG) disclosed a well-defined radiolucency in the periapical region, encompassing the apices of the teeth 11, 12, and 13, measuring approximately 3 cm x 2 cm. It displayed an oval shape with well-corticated borders. Additionally open apex was observed in relation 12.

Electric pulp test was conducted and following were the responses:

No response in relation to the tooth 12,

Normal response in relation to the teeth 11, 13, 21, 22

Figure 2: Intra oral examination

Figure 3: Open apex observed in relation to the tooth 12

Routine laboratory investigations were within normal limits. Based on clinical and radiological findings, a provisional diagnosis of periapical pathology suggestive of radicular cyst was made.

3. Treatment Rendered

Root canal treatment followed by apexification with MTA Angelus (Mineral trioxide aggregate, Angelus Soluções Odontológicas, Londrina, Brazil) in relation to the tooth 12 was performed. Subsequently, the patient was recommended for surgical excision and biopsy.

Careful enucleation of cyst was performed. Apicoectomy followed by retrograde root end filling with MTA was

done in relation to the tooth 12 was executed. Intact bone was present all around the apices of adjacent teeth, eliminating the need for postoperative endodontic treatment on those teeth. Excised tissue was sent for histopathological investigation. Necessary prescriptions and postoperative instructions were given.

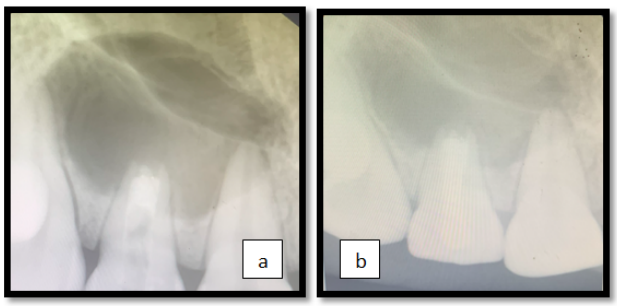

Figure 4: a): MTA apexification irt 12; **b):** Obturation irt 12

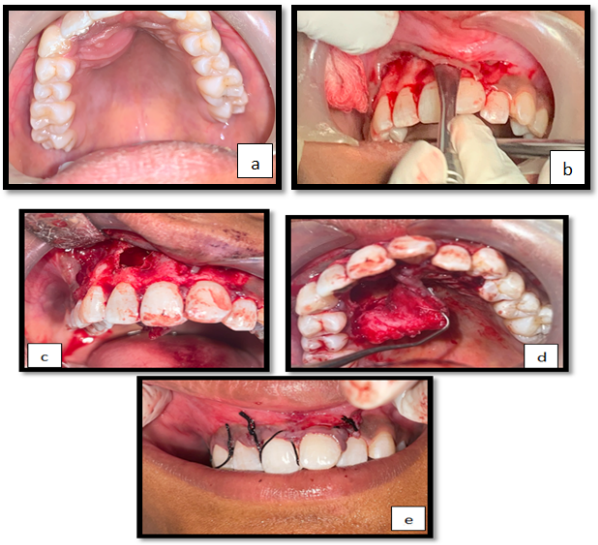

Figure 5: a): Flap reflection; **b):** Re-operative photograph; **c):** Fissurotomy irt; **d):** Cyst enucleation; **e):** Suturing done

4. Excisional Biopsy Results

Sections showed granulation tissue densely infiltrated with mainly chronic inflammatory cells like lymphocytes and plasma cells along with acute inflammatory cells, blood capillaries of varying sizes filled with RBCs, proliferating endothelial cells and areas of extravasated RBCs.

Corroborating with clinical, radiographic and above histopathology results a diagnosis of Radicular cyst in relation to the tooth 12 was rendered.

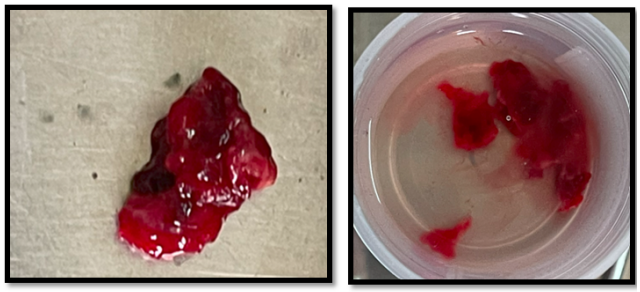

Figure 6: Excised cyst

Figure 7: Follow up after 1 year

5. Outcome and Follow up

At 1 year follow-up, no recurrence was observed.Radiographic investigation revealed a new bone formation at the site of cystic lesion.The remaining teeth were still in good condition, excluding the need for endodontic therapy.

6. Discussion

Radicular cysts are diagnosed either during routine radiographic examination or following their acute exacerbation.[1] Prevalence of the radicular cysts in the maxilla is 60% as compared with mandible, and is associated with buccal or palatal enlargement.[2] The present case was associated with a huge palatal swelling lacking any buccal involvement.

Radicular cysts typically exhibit slow growth rates, resulting in potential consequences such as tooth mobility, root resorption, and displacement. When these cysts become infected, patients may experience pain and swelling, bringing awareness to the underlying issue.

In the specific case mentioned, evidence of root resorption was observed. However, contrary to expectations, there was an absence of tooth mobility or displacement despite the presence of a substantial, chronically infected

Figure 8: Radiograph taken during follow up visit after 1 year

cystic lesion.

Radiographically, the radicular cyst appears as round or pear-shaped unilocular radiolucency at the apex of a non-vital tooth. The margin of a radicular cyst is radiopaque with hyperostotic borders, which continues with the lamina dura. However, this radiopaque margin might be absent in cases where the cyst is infected or rapidly enlarging. Chronic radicular cysts can lead to the resorption of the roots of the affected tooth.[3] Other odontogenic cysts, such as dentigerous cysts and odontogenic keratocysts, as well as odontogenic tumors like ameloblastoma, Pindborg tumor, odontogenic fibroma, and cementoma, can exhibit similar radiological features to radicular cysts.

Therefore, histopathological evaluation becomes essential in many instances for the accurate diagnosis of such giant lesions.

In extensive cases, relying solely on radiographs may not adequately reveal the complete extent of the lesions, and advanced imaging techniques may be necessary.[6] However, in our specific case, the patient expressed unwillingness to undergo expensive investigations due to financial constraints.

Despite its massive size, the current case did not exhibit any clinical or radiographic signs and symptoms of maxillary sinus invasion.

The recommended treatment option available for radicular cyst is the conventional endodontic approach combined with decompressionor surgical enucleation of a cyst with extraction of the offending tooth.[4,5]

However, in this particular case, the decision was made to preserve the offending tooth through endodontic procedures, deviating from the conventional approach of extraction. Lesions that fail to resolve with such therapy may be successfully managed by extraction of the associated non-vital teeth and curettage of the epithelium in the apical zone.[6,7]

A follow-up for the case is crucial to rule out recurrence and assess the potential endodontic involvement of other teeth. In our case, diligent follow-up was conducted for over one year, during which no recurrence was observed.

7. Conclusion

The diagnostic challenge associated with a palatal mass is widely acknowledged among clinicians. The swelling may manifest common characteristics, complicating clinical differentiation. Emphasis is placed on the importance of obtaining a thorough and comprehensive patient history, supplemented by pertinent laboratory information.

Ultimately, when faced with uncertainty, a biopsy of the palatal mass may become imperative to establish a definitive diagnosis and determine the most effective management for the patient.

8. Source of Funding

None.

9. Conflict of Interest

None.

References

1. Joshi NS, Sujan SG, Rachappa MM. An unusual case report of bilateral mandibular radicular cyst. *Contemp Clin Dent*. 2011;2(1):59–62.
2. Shear M. Cysts of the oral and maxillofacial regions. Boston: Wright; 1992.
3. Pekiner FZ, Borahan O, Ugurlu F. Clinical and radiological features of a large radicular cyst involving the entire maxillary sinus. *MUSBED*. 2012;2:31–37.
4. Tandri SB. Management of infected radicular cyst by surgical decompression. *J Cons Dent*. 2010;13(3):159–61.
5. Gurav T, Sontakke P, Thakare A, Reche A, Solanki D. The Surgical Management of a Radicular Cyst in the Maxillary Anterior Region - A Case Report. *Cureus*. 2024;16(4):59216.
6. Johann A, Gomes CO, Masquita RA. Radicular cyst: a case report treated with conservative therapy. *J Clin Pediatr Dent*. 2006;31(1):66–7.
7. Deshmukh J, Shrivastava R, Bharath KP, Mallikarjuna R. Giant radicular cyst of the maxilla. *BMJ Case Rep*. 2014;2:2014203678.

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