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Case Report

Infected Radicular Cyst: A Case Report

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ABSTRACT:
Radicular cysts are inflammatory odontogenic cysts of tooth bearing areas of the jaws. Most cases of the radicular cyst are asymptomatic and they are diagnosed accidentally during routine radiographic examination. These lesions involve the apex of offending tooth and appear as well-defined radiolucency.The present case report documents a radicular cyst associated with non-vital tooth.
Key words: Radicular Cyst,Non-Vital Tooth,Cell Rests Of Malassez, Root End Cyst, Odontogenic Cyst

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INTRODUCTION

Radicular cysts, also known as apical periodontal cysts, are the most common inflammatory odontogenic cysts of the jaw. Radicular cysts are defined as a cyst arising from epithelial residues (cell rests of Malassez) in the periodontal ligament as a consequence of inflammation, usually following pulp necrosis.Generally, radicular cysts have a predilection for the male gender, and they occur between the third and sixth decades of life[1]. A radicular cyst remains asymptomatic and the patient usually becomes aware of the cyst when a swelling becomes clinically obvious[2]. Radicular cysts are often slow-growing, and may cause sensitivity, mobility, root resorption and displacement of the affected teeth. When the cystic entity is infected, it can also cause pain and inflammation. A radicular cyst is clinically characterized by a slight increase in volume that is soft and fluctuating during palpation.Over the years, the cyst may regress, remain static or grow in size[4]. It is usually asymptomatic, and sometimes presents with mild pain and pain on percussion[1].

Understanding the intricacies of radicular cysts is crucialfor dental practitioners [3].

CASE REPORT

A 24-year-old male patient came to the Department of Oral Medicine and Radiology, St. Joseph Dental College, Duggirala, Eluru, with a chief complaint of sensitivity in lower front tooth region since 2 months. Patient gave history of trauma in lower front tooth due to blow by a ball 3 months ago. Patient gave history of sensitivity to cold foods which subsides by itself later. Patient gave no history of pain. Intra-oral examination revealed on inspection, a solitary swelling involving lower labial vestibule of size 2x1 cm approximately extending superior-inferiorly from the attached gingiva irt 31,41 to lower labial vestibule mediolaterally from distal aspect of 42 to distal aspect of 31(Figure-1). Discoloured tooth irt 41 is evident (Figure-2). On palpation all inspectory findings are confirmed on palpation. The swelling is non-tender, soft in consistency, smooth in texture and fluctuation is evident on palpation (Figure-1). On electric pulp testing 41 is non-vital.

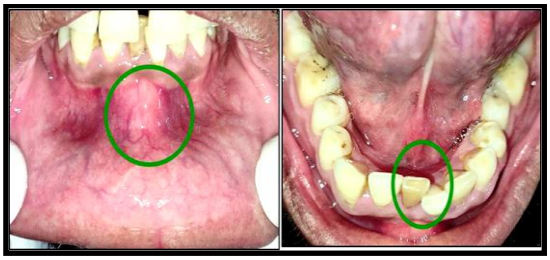

Figure-1 **Figure-2**

Based on the above observations, clinical diagnosis was given as Periapical Cyst irt 41. Treatment plan was discussed with the patient. He was advised to undergo fine needle aspiration. Fine needle aspiration was performed under local anesthetic agent, and it was sent to the histopathological laboratory for analysis.

INVESTIGATIONS

- Blood report
- OPG
- Fine needle aspiration

A complete hemogram was performed, and all the values were in the normal range. OPG reveals a well-defined pear shapedunilocular radiolucency surrounded by well-defined radiopaque border involving periapical region irt 31,32,41,42. Displacement of roots irt 31,41 is evident (Figure-3). Fine needle aspiration was performed in the lower labial vestibule region, and the aspirated fluid which is pus along with blood was sent for cytopathological analysis (Figure:4). Cytopathological examination revealed presence of lymphocytes, polymorphonuclear neutrophils, macrophages & extravasated RBCs in an eosinophilic background which is suggestive of inflammatory exudate.

Figure-3

Figure-4

Based on the clinical and cytopathological features, the final diagnosis is given as Infected radicular cyst irt 31,32,41,42.

DISCUSSION

The radicular cyst represents 55% of odontogenic cysts, and 52%-68% of all cysts of the jaws[1].The patient presented with a history of dental trauma which caused a long-standing pulpal necrosis and microbial infection. In the present case, it is speculated that, the development of the radicular cyst started once the epithelial cell rests of Malassez at the periapical area were stimulated from a continuous microbial infection from the pulp. The cells then continue to proliferate and multiply which later trigger an inflammatory process to release many IL-17, cytokines and macrophages, that mediate the attraction of neutrophils to the site. These ultimately promote the enlargement of the lesion.Series of radiographic features may help in the assessment and examination of the oral condition.Surgical biopsy and histopathological evaluation remain as the standard procedures for differentiating radicular cysts from other periapical pathologies[2]. Radicular cysts are common yet often unnoticed oral conditions, potentially affecting both primary and permanent dentition[3].

CONCLUSION

The treatment of choice may be determined by multiple factors such as lesion extension and its clinical characteristics, the involvement of important anatomical structures. Most radicular cysts can be managed with conventional root canal treatment without a surgical approach[2].The clinical case report presented in this article was managed successfully by endodontic therapy with emphasis on thorough debridement, disinfection and obturation of the root canal system. However, in specific situations where the size and extent of the lesion is of critical importance, surgical management is a viable option[4].

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