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The diagnostic dilemma of an infected radicular cyst: A case report

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Abstract

A variety of lesions with different etiologies exists in oral cavity. Some of these lesions if left untreated can cause tissue destruction or may interfere with mastication. Early identification whether it's a benign or malignant lesion followed by proper management of such lesion is the major clinical consideration. Confirmation can be done by histopathological and immunohistochemical examinations. One such case is being documented here where clinically it was difficult to diagnose the lesion and come to a conclusion.

Keywords: Radicular cyst, cell rests of malassez

Introduction

Radicular cyst is one of the most common inflammatory odontogenic cysts affecting the jaws. Also known as apical periodontal cyst and root end cyst, radicular cyst comprises of 50-70 % of the cysts affecting the human jaws/dentition. The origin is from Epithelial Rests of Malassez in the periodontal ligament. They are commonly seen in fourth and fifth decade of life with male predominance. They are generally asymptomatic unless infected. Many a times, diagnosis becomes a problem because of its similarities to pulpo-periodontal lesions in radiographs. Such a case, initially diagnosed and treated as a pulpo-periodontal lesion and later presented histopathological features of plasma cell lesion is presented here. Further diagnostic tests confirmed the lesion to be an infected radicular cyst.

Case Report

A 25 year old male patient reported to the department of Periodontics, Vydehi Institute of Dental Sciences and Research centre, Bangalore with a complaint of swollen gums and pus discharge in relation to his lower left front tooth since 2 months (Figure-1). The swelling started as a small nodule and progressed gradually; associated with sharp shooting pain which is non-radiating in nature which increased mainly during night time and gets relieved upon taking analgesics. He gave a history of trauma while eating because of lodgment of stone. An intra oral examination revealed a tender, firm, non- pedunculated growth involving marginal gingiva and interdental papilla of the mandibular left canine and first premolar area. Both the teeth were non-vital and showed grade 2 mobility, deep periodontal pocket measuring 14mm and tenderness on percussion. An intraoral radiograph revealed radiolucency extending to the periapical area in relation to the two teeth (Figure-2). Provisional diagnosis of pyogenic granuloma was made for the gingival growth considering the location, colour and consistency of the lesion. Oral prophylaxis was done and oral hygiene instructions were given to the patient. Patient was referred to the Department of Conservative Dentistry and Endodontics for management of non-vital teeth. RCT was done with respect to canine and first and second premolar teeth; following which splinting was done in order to stabilize them; internal bevel gingivectomy was performed, a full thickness mucoperiosteal flap was raised and PRF and HABG bone graft material was placed into the bone defect (Figure-3). Excised tissue was sent for histopathological examination which demonstrated a hyperplastic to atrophic stratified squamous epithelium. The underlying connective tissue was sparse with fibroblasts and infiltrated by diffuse sheets of plasma cells with few lymphocytes. Some of the plasma cells showed variation in size. Numerous proliferating capillaries, venules and areas of hemorrhage were also seen. Hence, a diagnosis of plasma cell lesion was given. (Figure-4) Patient reported

after 10 days for suture removal and re-evaluation (Figure-5). Healing was not satisfactory; it was associated with redness and ulcerated margins and the lesion had progressed further to the second premolar area (Figure-6). The block sample taken previously was sent to a second pathology lab to rule out any plasma cell malignancy. Reports revealed the lesion as a chronic inflammatory lesion without any malignant cells. The patient was recalled again after a week to check for healing which unfortunately showed no signs of improvement (Figure-7). It was then decided to take opinion from the Dept of Oral and maxillofacial surgery, CBCT was taken (Figure-8) and the extent of the lesion was analyzed. There was complete erosion of alveolar bone extending from the left lateral incisor to second premolar region. It was decided to excise the flap and sent for immunohistochemistry (IHC) as there was involvement of submandibular lymphnodes. The IHC reports revealed it as Infected radicular cyst as the plasma cells expressed CD138 and no Kappa and Lambda light chains were seen. Since malignancy was ruled out, the patient was advised to undergo extraction of the involved teeth followed by surgical excision of the lesion and was sent for the same.

Discussion

The present case, which initially gave the impression of an endo-perio lesion, and later presenting features similar to malignancy, after detailed histopathological examination and immunohistochemical analysis turned out to be an infected radicular cyst. Radicular cyst or Periapical cyst is the most common inflammatory odontogenic cystic lesion with a prevalence of 52-68%; mainly seen in the periapical area of the involved tooth [1]; usually asymptomatic in nature and slow growing. Their prevalence is highest among patients in their third decade of life, and higher among men than women [2]. Radiographically it shows a well circumscribed unilocular radiolucent lesion but in this case the lesion didn't have any boundaries. There are two distinct categories of periapical cysts, namely, those containing cavities completely enclosed in epithelial lining, and those containing epithelium-lined cavities that are open to the root canals. The latter was originally described as 'bay cysts' and has been newly designated as 'periapical pocket cysts' [1].

The pathogenesis of the true cyst has been described in three phases [1-3]. During the first phase, the dormant cell rests of Malassez begin to proliferate as a direct effect of inflammation [1], probably under the influence of bacterial antigens [1, 2], epidermal growth factors [4, 5] cell mediators and metabolites that are released by various cells residing in the periapical lesion. During the second phase, an epithelium-lined cavity comes into existence. During the third phase the cyst grows, but whose exact mechanism is still unknown. It is generally believed to be by osmosis Radicular cyst is derived from the remnants of cell rests of malassez; male to female ratio of 3:2, maxilla is more commonly affected than mandible. Treatment of these cystic lesion includes conservative approach i.e. endodontic therapy or surgical approach depending upon the size of the lesion.

Conclusion

Hence, through this case report we can conclude that not only the clinical findings but radiographic and histological reports equally play an important role in overall diagnosis and desired treatment planning of a case.



Fig 1: Pre- operative view

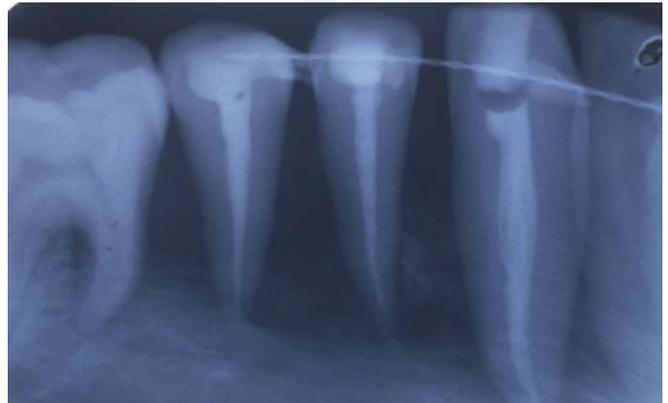


Fig 2: IOPAR irt 33, 34, 35



Fig 3: HABG bone graft with PRF placed inside the defect

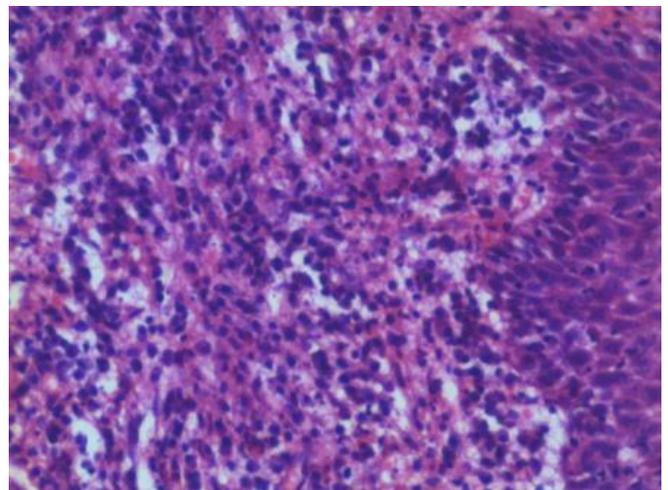


Fig 4: Histology showing plasma cell lesion



Fig 5: Post operative view after 10 days



Fig 6: Post operative view after 1 month



Fig 7: Post operative view after 2 months

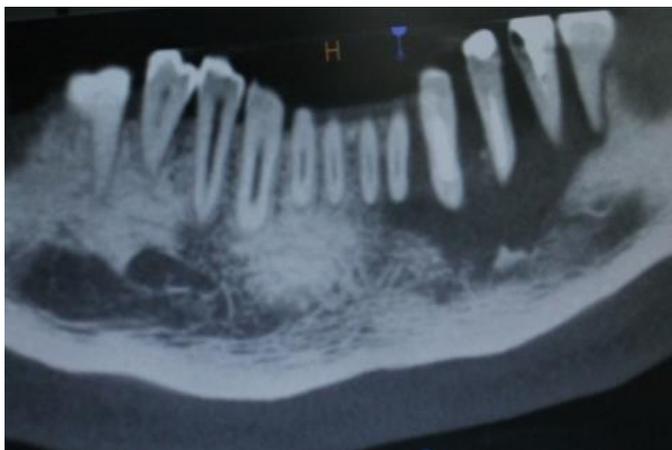


Fig 5: CBCT report showing the extent of the lesion

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