
Interdisciplinary Management of Radicular Cyst in Anterior Maxilla - A Case Report

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Abstract: Periapical diseases are a frequent evolution of pulp necrosis. They appear without any painful episode. The incidence splits between 6% and 55%. Initially we can treat inflammatory periapical injury by conservative approach and studies reported 85% of success rate after endodontic disinfection. Several techniques can be described in the nonsurgical management of periradicular lesions: the root canal treatment, decompression procedure, decompression technique, calcium hydroxide, Apexum procedure. Unfortunately, periapical lesion recuperating is an unpredictable procedure. In some cases surgical approach is preferred to manage large periradicular wound including periapical cysts and abscess. periodic examination is primordial to evaluate efficacy of the therapy.

In this report we describe an inflammatory radicular cyst of the anterior maxilla with which was successfully treated by conventional root canal retreatment and endodontic surgery

Key words: endodontic; periapical lesions; bioceramic;

INTRODUCTION

Periapical lesions of endodontic origin are the most common pathological processes in the periapical region. These lesions, which are radiolucent, were classified according to agreed histomorphologic criteria into granulomas, abscesses and cysts(1) A radicular cyst (RC) is one of the types of inflammatory cyst of odontogenic origin. It is usually associated with nonvital teeth The treatment of choice may be determined by multiple factors such as lesion size, location , the bone integrity of the cystic lesion wall and the proximity to vital structures (2) (3)

Radicular cyst (RC) is routinely treated by nonsurgical endodontic therapy; however, if the cystic lesion does not respond to endodontic therapy, the surgical intervention with or without regeneration is the treatment of choice (4) This case report describes an inflammatory radicular cyst of the anterior maxilla with which was successfully treated by conventional root canal retreatment and endodontic surgery.

CASE REPORT

A 31-year-old man was referred from his general practitioner, regarding a recurred considerable swelling on the buccal area of upper left incisors. His history was suggestive of trauma to the face about 5 years back.

The patient undergone root canal treatment in relation to 21 and 22 since 3 months. The lesion does not respond to endodontic therapy, the swelling remained static, and even on radiographical evaluation, the lesion did not show any changes.

Intraoral examination revealed a fluctuant swelling on the labial mucosa regarding the area of upper left central incisor. Panoramic radiograph revealed a unilocular radiolucency, extending between the roots of left central and lateral incisor. Cone Beam Computed Tomography (CBCT) confirmed the findings of panoramic radiograph and revealed a perforation of the vestibular cortical. Based on clinical and radiographical examination it led to a provisional diagnosis of periapical cyst (figure 1,2).

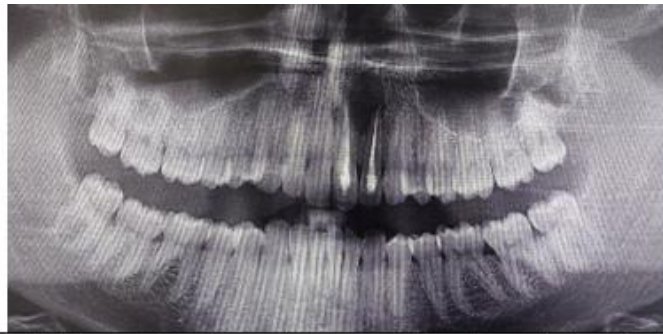


Figure 1 : Preoperative radiography : large radiolucent image in the apical area regarding 21-22

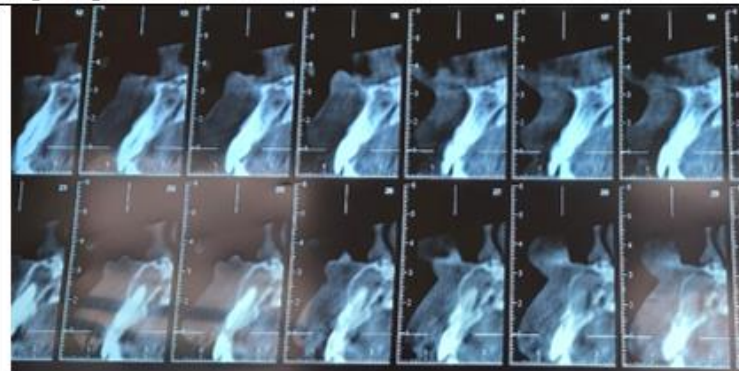


Figure 2 : CBCT investigation : confirmation of initial diagnosis : periapical cyst with bone fenestration

Treatment options were explained to the patient and agree with retreatment of 21,22 followed by endodontic surgery. Periradicular area of 21 and 22 was exposed after administration of local anaesthesia. A full thickness mucoperiosteal flap was raised extending from distal aspect of 23 to distal aspect of 21 (figure 3). Curettage of pathological tissue was done and surgical site was irrigated with normal saline (figure 4,5). Following the raising of flap, to get access to root end. Surgical osteotomy was performed root ends were resected about 3 mm; and the root end was prepared using ultrasonic tips and the cavities were filled with BIODENTINE (figure 6,7). The osseous cavity was thoroughly irrigated and flap was repositioned and then sutured. The excised specimen was sent for histopathological examination.

postoperative medications and instructions were prescribed to the patient. And he was recalled after 10 days for removal of sutures and treatment evaluation. No tenderness and swelling were detected at follow up visit.

Histopathologic examination revealed cystic lining of nonkeratinized stratified squamous epithelium of varying thickness, an “arcading” pattern of proliferation, fibrovascular connective tissue wall which contained hemorrhagic areas and a dense inflammatory infiltrate of lymphocytes, plasma cells, and neutrophils. Oral pathologist diagnosed the specimen as infected periapical cyst. After six months postoperative following treatment outcomes, both clinical and radiographic, were very Satisfying with complete resolution of all clinical symptoms (figure 8).



Figure 3 : Perforation of the vestibular cortical



Figure 4 : remove of the whole cyst without membrane separation



Figure 5 : excised specimen



Figure 6 : root-end preparation with ultrasonic tips



Figure 7 : cavity filled with BIODENTINE



Figure 8 : Radiographic 6 months follow up : reossification of the lesion

DISCUSSION

Radiolucent periradicular lesions can be classified as dental granulomas, abscesses or periradicular cysts(5). the prevalence of cysts ranged from 6% to 44%. It is thought that this lesion is usually the result of non-treated pulp necrosis and is formed by the stimulation and proliferation of the epithelial rests of malassez in the periodontal ligament, following caries , dental trauma or failed dental treatments (6) .According to Shear et al, the majority of apical cysts are asymptomatic, painless and may develop insidiously, being accidentally discovered on a routine X-ray control as a large periapical radiolucency involving the apex of one or more teeth over the years, these cyst may regress, remain static or grow in size.(7) (5)

Two types of periradicular cysts have been identified depending on the relationship of their cavities with the root canal: true cysts, and bay or pocket cysts. The true radicular cyst is completely encircled by an epithelial lining, and with no communication with the apical foramen ;this did not

response to the conventional endodontic therapy.(8) Similar clinical findings were observed in the this case of RC, which was confirmed histologically too. Our patient presented with a periapical lesion that not be resolved by conventional endodontic treatment and persistence of clinical signs in the other hand CBCT showed destruction of the vestibular cortical plate regarding the involved teeth what led us to indicate endodontic surgery.

Several conservative approaches can be employed : Conservative root canal treatment, active nonsurgical decompression manipulation ; decompression technique, aspiration-irrigation tmethode, the use of calcium hydroxide, repair therapy and wound sterilization, and finally the Apexum procedure(9).

For this case, chirurgical approach is the perfect choice it creates favorable conditions for tissue healing by removal of whole pathological tissue followed by apicoectomy and root end sealing (10) (11). A perfect root-end filling material should be non-resorbable dimensionally stable, non-toxic, and biocompatible .In our case we attempted to use Biodentine® this tricalcium silicate-based material also offers advantages of accelerated setting and easy handling(12).

Placing a bone substitution and membrane following endodontic surgery and cyst enucleation is very recommended this is will promote new bone formation at the defective area (12). Many studies have shown that mixing bone grafts with PRF has the ability to promote bone regeneration (14) (2).

CONCLUSION

In the present case non surgical endodontic therapy followed by cyst enucleation proved to be successful for the management of a radicular cyst. Surgical endodontic treatment is an invasive approach which reduces the time required for healing and new tissues regeneration

Conflict of interest: The authors declare that they have no conflict of interest

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