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Management Of Infected Radicular Cyst Present at Different Locations in Jaw: A Case Series

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ABSTRACT

Periapical cysts are inflammatory cysts that developed due to caries and trauma of the involved tooth. Usually, the tooth becomes nonvital with pain, swelling, and sinus formation. On radiographic examination these cyst shows radiolucency around the apex of the involved tooth. On aspiration straw colored inflammatory fluid with or without pus comes out suggestive of a radicular cyst. Surgical removal with curettage of the lesion, apicoectomy, and root canal treatment should be performed to treat the lesion. This case series reported 3 such cases and their treatment with follow-up.

KEYWORDS

Radicular cyst; Apicoectomy; Curettage; Surgery

INTRODUCTION

Odontogenic cysts are pathological cavities, that may or may not be filled with fluid and associated with any tooth [1]. A radicular cyst is the most common inflammatory odontogenic cyst associated with nonvital tooth originating from epithelial remnants of the periodontal ligament [2]. They are the most common of all jaw cysts and comprise about 52.3% to 68% of all cysts affecting the mandible [3]. Males are more commonly affected by it.

Caries and trauma are the most common etiological factor associated with it [2]. Diagnosis can be done by history, clinical examination, and proper radiographs. Patients may complain of pain and swelling with or without sinus formation. On vitality testing, the tooth may show a negative response. The radiograph reveals periapical radiolucency with a well-defined border associated with the affected tooth [4].

Treatments for radicular cysts include total enucleation in case of small lesions, marsupialization for decompression of larger cysts, or a combination of the two techniques followed by root canal treatment of the affected tooth. Inflammatory cysts do not recur after adequate treatment [3]. This case series describes the surgical enucleation of

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a large radicular cyst aimed at preserving the vitality of the associated teeth and the results of long-term follow-up.

CASE PRESENTATION

Case 1

An eighteen-years male came to the department with the chief complaint of a discolored front upper tooth (Figure 1A). On history taking he explained about the football trauma that happened 3 years back. On radiographic examination, periapical radiolucency was seen w.r.t. 21 and 22 (Figure 1B). On aspiration with a 27 G needle straw-colored fluid with some pus was detected (Figure 1C). On CBCT examination the lesion was 2 cm × 2 cm involving 21 and 22 extended palatally (Figure 1D). Based on these findings a diagnosis of the periapical cyst or radicular cyst was made. Surgery was planned after a thorough blood examination. Surgical excision was done with curettage of the lesion (Figure 2A). Silk 3.0 sutures were placed postoperatively (Figure 2B). Endodontic treatment was done w.r.t. 21 and 22 (Figure 2C). On follow up examination the healing was uneventful.

Figure 1: A) Preoperative clinical picture showing discolored crown w.r.t. 21, **B)** Preoperative radiographs showing radiolucency involving 21 and 22, **C)** Straw colored inflammatory cystic fluid collected during aspiration, **D)** CBCT showed tooth 21 and 22 infected with radicular cyst present palatally.

Figure 2: A) Intraoperative picture showing cyst enucleation w.r.t. 21 and 22, **B)** Post-operative picture after silk 3.0 suture placement, **C)** Root Canal Treatment (RCT) done w.r.t. 21 and 22.

Case 2

A 30-years old male reported with the chief complaint of labially moved lower front tooth for a few months. On history taking, he talked about the fall from his bicycle 1 year back. The patient did not take treatment then. On examination, tooth 41 was labially displaced and 42 was discolored (Figure 3A). Intraoral periapical radiographs showed radiolucency involving 31, 41, and mesial aspect of 42 (Figure 3B). On CBCT examination lesion was 2 cm × 2 cm extended from 31 to 42 (Figure 3C and Figure 3D) and 41 was labially displaced (Figure 4A). A radicular cyst was diagnosed after thorough clinical and radiographic examination. Surgical removal of the cyst was done (Figure 4B) and the lesion was curettage well (Figure 3C). Silk 3.0 sutures were placed (Figure 4C). Root canal treatment was done w.r.t. 31, 41 and 42. On follow-up examination there was no fresh complaint associated with the tooth.

Figure 3: A) Preoperative photographs showing labially moved lower 41 and discolored 42, **B)** Intra Oral Periapical radiograph showed periapical/radicular cyst present 41 and 42, **C)** Surgical excision of the cyst w.r.t 41 and 42, **D)** CBCT showed periapical radiolucency w.r.t. 31,41 and 42.

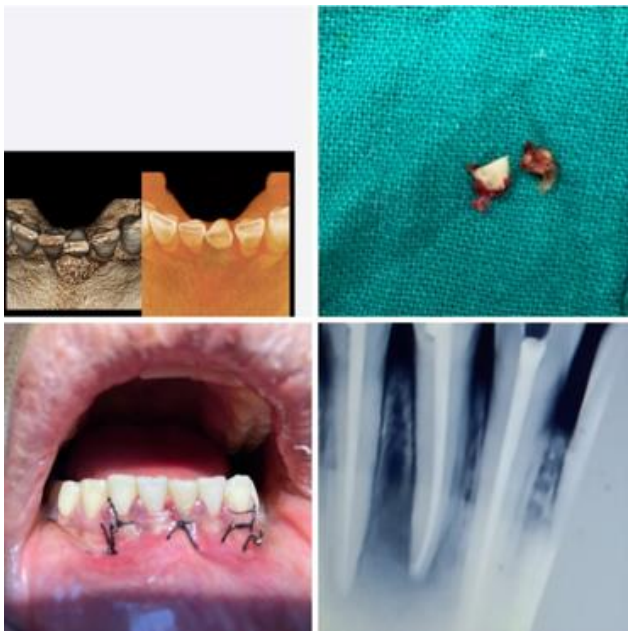

Figure 4: A) CBCT showing labially displaced 41, **B)** Excised granulation tissue after surgery, **C)** Post-operative picture after suture placement, **D)** Root Canal Treatment done w.r.t. 31,41, 42.

Case 3

A 22-years old male complained of discomfort in his upper front teeth. On examination, an intraoral sinus was present w.r.t. 11 (Figure 5A). On the Gutta-percha test, the concerned tooth was 11 with periapical radiolucency of 2 cm × 3 cm (Figure 5B). Based on history and clinical examination, a diagnosis of radicular cyst w.r.t. 11 was made. Root canal treatment was done w.r.t. 11 (Figure 6) along with apicoectomy was performed w.r.t. 11 (Figure 5c). Silk 3.0 sutures were placed (Figure 5D). On follow up examination the lesion was healing with no fresh complaint observed.

Figure 5: A) Preoperative clinical picture showed sinus w.r.t. 11, **B)** Gutta percha test showed non vital tooth 11, **C)** Periapical surgery/apicoectomy was done w.r.t. 21, **D)** Post-operative picture after suture placement.

Figure 6: Root canal treatment with apicoectomy.

DISCUSSION

The radicular cyst is classified under inflammatory cyst as a result of the foremost case involves caries and trauma followed by pulp necrosis. These cysts can occur in the periapical region of any teeth, at any age but are seldom seen associated with the primary dentition [5]. Swelling, tenderness, tooth mobility, and a whitish tinge caused by buccal expansion of the cortical plates are the consequences of untreated radicular cyst. Moreover, displacement of the successor's tooth might occur with the loss of its vitality [6,7].

The pathologic process of radicular cysts has 3 distinct sections: The phase of initiation, the phase of cyst formation, and also the phase of enlargement [8]. Radiographically, most radicular cysts seem as spherical or pear-shaped unilocular radiolucent lesions within the periapical region. The cysts might displace adjacent teeth or cause delicate root resorption. Radiographically, characteristic difference between a neoplasm, granuloma and a cyst are not possible, though some say that if the lesion is larger than 2 cm it's additional doubtless to be a cyst [9].

Microscopically, all radicular cysts are lined fully or partially by nonkeratinized stratified squamous epithelial tissue. These linings could or might not be discontinuous and one to fifty cell layers thick. Microscopic histopathological examination confirms the diagnosis [9].

The treatment of radicular cyst, as a disease of root canal infection, consists of eradicating microbes or substantially reducing the microbial load from the root canal and preventing reinfection by orthograde root filling. The prognosis of the treatment is remarkably sensible or else, a root canal filling could also be performed in association with apicoectomy to allow direct operation of the cystic lesion. Different choices are surgical removal, enucleation and marsupialization of the jaw cysts is treated through nasal antrostomy (Caldwell-Luc procedure) [10].

Before treatment a thorough history, clinical examination, radiographic examination should be performed along with routine blood investigations.

CONCLSUION

These three clinical cases of radicular cyst present at different locations were managed successfully by endodontic therapy followed by surgery. Apicoectomy was performed where the root apex was involved. The treatment of the radicular cysts should be decided according to the clinical and radiographic evaluations according to each case.

REFERENCES

1. Shear M (1962) Radicular and residual cysts. In: Cysts of the oral region. 3rd (Edn.), Bristol: Wright: 136-162.
2. Delbem ACB, Cunha RF, Vieira AEM, et al. (2003) Conservative treatment of a radicular cyst in a 5-year-old child: A case report. International Journal of Paediatric Dentistry 13(6): 447-450.
3. Gandhi S, Franklin DL (2008) Presentation of a radicular cyst associated with a primary molar. European Archives of Paediatric Dentistry 9(1): 56-59.
4. Suhail L, Ajaz SA, Suhail JM (2009) Radicular cyst: Review. Journal of Medical Education & Research 11:187-189.
5. Grewal HK, Batra R (2010) Non syndromic bilateral dentigerous cysts-a case report. International Journal of Dental Clinics 2(4): 49-51.
6. Wood RE, Nortje CJ, Padayachee A, et al. (1988) Radicular cysts of primary teeth mimicking premolar dentigerous cysts: report of three cases. ASDC Journal of Dentistry for Children 55(4): 288-290.

7. Lustig JP, Schwartz-Arad D, Shapira A (1999) Odontogenic cysts related to pulpotomized deciduous molars clinical features and treatment outcome. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology 87(4): 499-503.
8. Jansson L, Ehnevid H, Lindskog S, et al. (1993) Development of periapical lesions. Swedish Dental Journal 17(3): 85-93.
9. Cawson RA, Odell EW, Porter S (2002) Cawson's essentials of oral pathology and oral medicine. 7th (Edn.), Churchill Livingstone: 102-121.
10. Setzer FC, Shah SB, Kohli MR, et al. (2010) Outcome of endodontic surgery: A meta-analysis of the literature-part 1: Comparison of traditional root-end surgery and endodontic microsurgery. Journal of Endodontics 36(11): 1757-1765.