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Management of radicular CYST with extraoral sinus tract involving lower central incisors: A case report

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Abstract

Radicular cyst is the most common odontogenic cyst of inflammatory origin affecting the jaws. It is most commonly found at the apices of involved teeth; however, it may also be found on the lateral aspects of teeth in relation to lateral canals. It may be associated with intraoral or extraoral sinus tract. Extraoral sinus tracts are more common in children and adolescents because the teeth are not yet fully erupted and the alveolar process is not fully developed and so roots are more deeply seated. Management of the radicular or periapical cyst with sinus opening can be either surgical or non-surgical. Present case report discusses about the management of radicular cyst with extraoral sinus tract by endodontic treatment of the involved teeth followed by surgical management with cyst enucleation and apicoectomy.

Keywords: radicular CYST, extraoral sinus, CYST enucleation

Introduction

Radicular cyst is generally defined as a cyst arising from epithelial residues (cell rests of malassez) in the periodontal ligament as a consequence of inflammation usually following the death of the dental pulp [1]. Radicular cysts are most commonly found at the apices of involved teeth; however, they may also be found on the lateral aspects of the roots in relation to lateral canals [2].

A sinus tract is an opening or communication of an enclosed area of inflammation/infection or abscess to an epithelial body surface or body cavity [3]. A sinus tract may open either intraorally or extraorally. Extraoral sinus tracts are more common in children and adolescents because the teeth are not yet fully erupted and the alveolar process is not fully developed and so roots are more deeply seated [4].

Management of the radicular or periapical cyst with sinus opening can be either surgical or non-surgical, depending on the size and localization of the lesion, bone integrity of the cystic wall and its proximity to vital structures [5].

This article shows healing of the cystic lesion involving lower central incisors by combined non-surgical and surgical treatment.

Case Report

A 14-year-old boy along with his parents reported with a chief complaint of swelling and pus discharge from the chin since 8 months. Patient had a history of fall 7 years before. That time patient had small swelling and pain in the chin with small fracture in the lower tooth. They consulted a nearby private clinic and was given antibiotic medication. Fractured tooth was also restored. Symptoms subsided and patient was asymptomatic since then. But the swelling recurred 8 months before. Incision and drainage was done twice from a private hospital. Symptoms did not subside and was referred to the Department of Conservative Dentistry and Endodontics, Calicut.

There was no relevant medical history. Detailed examination was carried out. Extraoral examination revealed small, tender swelling and a draining sinus below the lower border of chin (Fig 1). On intraoral examination, swelling was seen in the lower vestibule region of size 2×1.5cm, tender on palpation, with rubbery consistency. Mandibular central incisors were slightly discoloured, grade I mobility present and were tender on percussion. Vitality tests were done by cold test (Coltene vitality control Endo-Frost, Coltene Whaledent) and electric pulp tester. Both central incisors (31 and 41) showed no response while lower left lateral incisor (32) gave delayed response. Occlusal radiograph showed a unilocular periapical radiolucent lesion associated with the root apex of 31 extending towards the lateral aspect of root of 41 (Fig 2). Histopathological examination showed a sinus tract lined by granulation tissue with dense collection of neutrophils and eosinophils along with few multinucleate giant cells (Fig 3). CBCT report revealed a well-defined osteolytic lesion in the anterior body of the mandible measuring 9.2mm (Mediolateral) X 7.6mm (Superoinferior). Labial & lingual cortical plate were thinned, labial cortical plate is perforated and there is loss of lamina dura in relation to 31 and 41. Roots of the involved teeth does not show any signs of root resorption (Fig 4). On the basis of history, clinical examination and radiographic finding, a provisional diagnosis of radicular cyst was made.

Treatment plan was explained to the patient's parents and informed consent was obtained. After administration of local anesthesia, access opening of 31, 32 and 41 were carried out. During opening, a mucous and transparent exudate drained through the canal. The working length was determined using radiograph (Fig 5). During preparation, the canals were irrigated with 2.5% sodium hypochlorite. Intracanal dressing with calcium hydroxide was given for 1week. The access cavities were sealed with temporary restoration. Obturation was done in next appointment with gutta-percha and zinc oxide eugenol sealer using cold lateral condensation technique (Fig 6). The access cavities were

sealed with composite resin. Radicular cyst was surgically enucleated and root apices of the involved teeth (31 and 41) were resected (Fig 7). During the 1 year follow up, the tooth was asymptomatic, sinus tract healed and radiograph showed healing of the cystic lesion (Fig 8).

Fig 1: Extraoral Sinus Opening

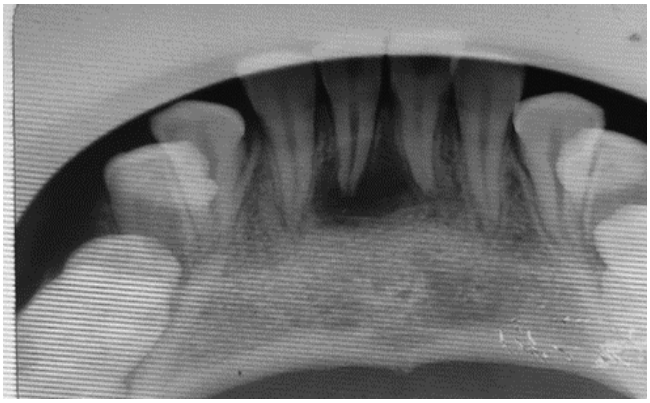

Fig 2: Occlusal Radiograph

Fig 3: Histopathology

Fig 4: CBCT Scan Images

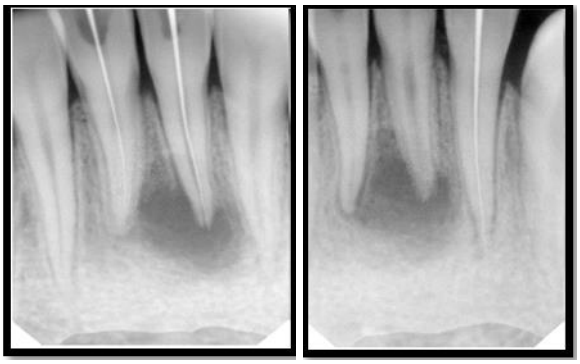

Fig 5: Working Length

Fig 6: Obturation

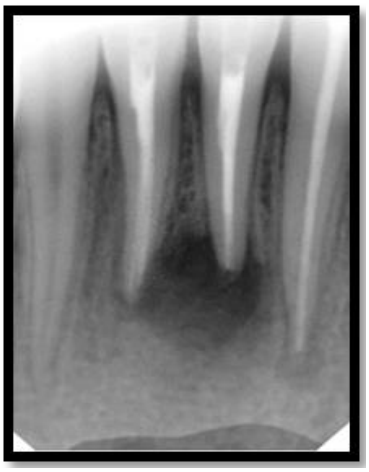

Fig 7: After Apicoectomy

Fig 8: 1 Year Follow Up

Discussion

Treatment of periapical lesions require prompt diagnosis and management. Although the radiographic appearance gave an impression of a radicular cyst, a definitive diagnosis was made only after the cytology since several studies have shown the difficulty to distinguish radiographically these pathological entities [6].

CBCT also has an important value in radiographic examination in endodontics and diagnosis of periapical lesions [7]. In this case, CBCT was taken to evaluate the extent of lesion and its proximity to any vital structures.

The surgical and non-surgical modalities can be used to treat these cases. This depends on the size and localization of the lesion, bone integrity of the cystic wall and its proximity to vital structure. Conventional nonsurgical management includes root canal therapy when the lesion is localized and surgical treatment includes enucleation, marsupialization or decompression when the lesion is large.[8] In view of the clinical and radiographic signs, surgical management of the cystic lesion was adopted.

Appropriate cleaning, shaping, asepsis, sterilization of the root canal, and periradicular region and filling of the root canal determine the success of the treatment and good periapical healing [9]. Intracanal medicaments such as calcium hydroxide is used in between appointments because of its antibacterial properties, tissue dissolving ability, inhibition of tooth resorption, and indication of tissue repair by hard tissue formation [10]. In the current case, the affected teeth were root canal treated and the lesion was then enucleated along with curettage followed by apicoectomy. Post-surgical period was uneventful. Currently, the patient is asymptomatic and radiographic signs of healing can be noticed.

Conclusion

Aetiology of radicular cysts mainly involve endodontic infections. Clinical and radiographic investigations are necessary to establish appropriate diagnosis which enable the clinician to achieve suitable and more conservative treatment option to save the integrity of both soft and hard tissues. The current concept in management of radicular cysts is using nonsurgical means. However, depending on size and extent of lesion, surgical management might be necessary, for achieving success. The surgical approach is mostly adopted for cases refractory to non-surgical treatment, in obstructed or non-negotiable canals and for cases where long term monitoring of periapical lesions is not possible.

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