

Surgical management of a residual cyst located in the upper maxilla: A case report

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ABSTRACT

Residual cysts are inflammatory odontogenic cysts that are usually asymptomatic and usually associated with an extraction socket. They are incidentally detected on routine radiographic examination and dental check-up as these cysts are asymptomatic and sometimes associated with a slowly progressive swelling. These cysts mainly arise from inflammatory fibrous and granulation tissue at the apex/periapical region of a tooth not curetted at the time of dental extraction. In this case report, a 30-year-old female patient presented with a painless swelling of approximately 2x2 cm in size in the maxillary left lateral incisor region and extending laterally up to the periapical region of adjacent central incisor tooth since last 4-5 months. Clinical signs and symptoms suggestive of residual cyst.

Keyword: Adult, Asymptomatic, Edentulous, Jaw Cyst, Residual Cyst, Swelling.

INTRODUCTION

Cyst contains fluid or semisolid material and is lined by an epithelium-lined sac. Cysts form in the periradicular tissues when nests of epithelial cells retained from tooth development proliferate and undergoes degeneration and liquefaction resulting in the formation of a cyst. Cysts are categorised into odontogenic cysts and non-odontogenic cysts. Odontogenic cysts originate from the epithelium of a developing teeth. The epithelial cells can also lead to the development of a residual cyst after extraction¹.

Term residual cyst is most commonly used for retained radicular cyst from teeth that has been extracted or removed. These are among most common types of jaw cysts. Odontogenic cysts are most commonly located in the intraosseous site². Residual cyst mainly occurs due to incomplete surgical removal of a radicular or other inflammatory cyst. Histological and clinical features of the radicular cyst and residual cyst are very similar except for the location which is extracted teeth in case of a residual cyst³. Residual dental cysts usually present with an inoffensive pathosis and are often discovered incidentally on routine radiographs. It is difficult and rare to find symptomatic residual dental cysts unless or until infected, showing clinical signs or symptoms that will concern the patient enough to seek treatment⁴.

There are many treatment options for the management of cystic lesions such as enucleation, curettage, marginal resection, and endoscopic surgery⁵. The aim of this article is to describe the surgical management of a residual cyst located in the upper left maxillary anterior region.

CASE REPORT

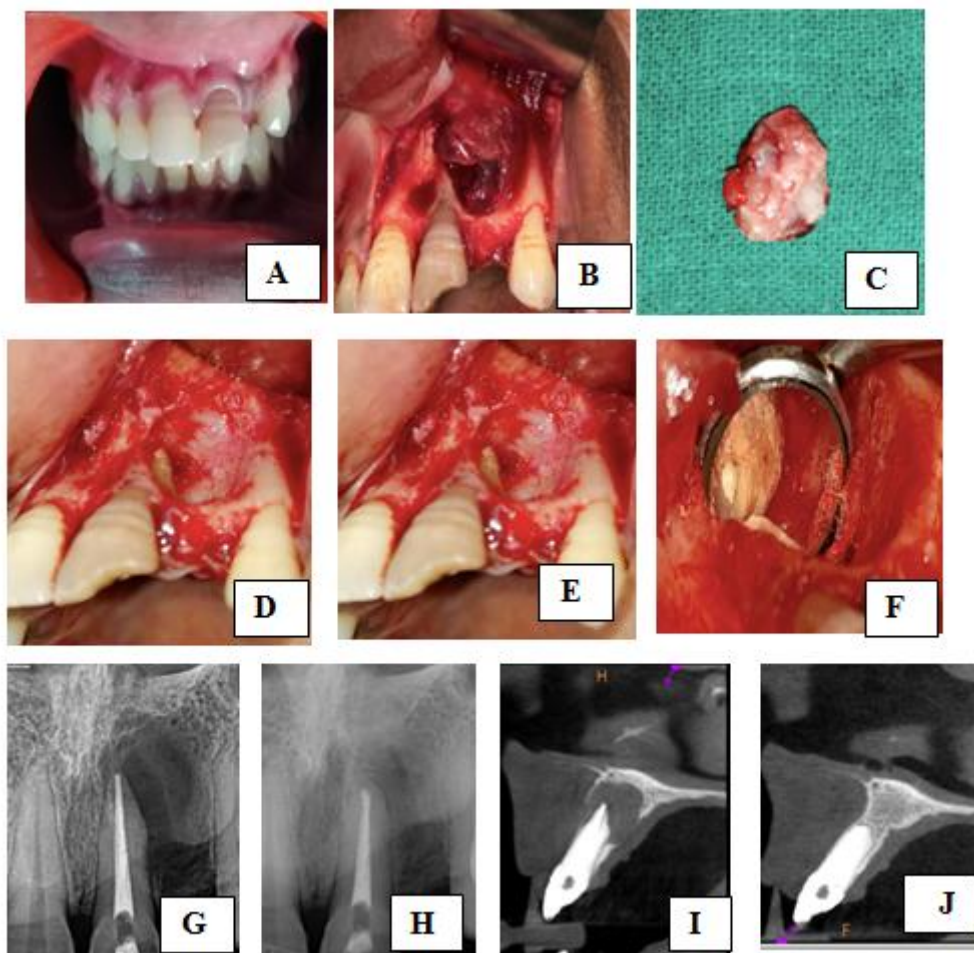
A 30-year-old female patient reported to the Department of Conservative dentistry and endodontics PGIDS, Rohtak with the chief complaint of slowly progressing painless continuous swelling in the upper left maxillary anterior teeth region since last 4-5 months. Patient gave the history of extraction 7-8 years back and there was no pus discharge.

No significant findings depicted on extraoral examination, however, Intraoral examination revealed missing maxillary left lateral incisor teeth with healed extraction socket and normal overlying alveolar mucosa. There was localised swelling present in the alveolar ridge of the missing left lateral incisor and a well-defined radiolucency extending laterally up to the periapical region of left maxillary central incisor was present radiographically. The size of the swelling was approximately 2x2 cm in size, circular in shape and well-defined and it was soft, fluctuant and non-tender on palpation. The overlying mucosa was smooth, elevated with no pus or bleeding. A provisional diagnosis of Residual cyst was made after detailed observation of the case history and clinical findings which was confirmed after histopathological examination. The radiolucency was oval shaped and well defined with mean lesion area and volume

of 96 mm² and 620 mm³ respectively which was reduced to 12 mm² and 56 mm³ after a follow up of 12 months. Lesion area and volume was measured using Corel Draw X7 and ITK -snap softwares respectively⁶. Fine-needle aspiration examination depicted a dark-red coloured, blood-tinged, highly viscous fluid. Cytological examination was suggestive of blood containing cystic fluid. The histopathological examination showed sheets of RBCs with few inflammatory cells in an eosinophilic background confirmed the diagnosis of an established residual cyst.

Surgical procedure

All the steps were carried out under an operating microscope except for incisions, flap elevation, and suturing. By using 15C no. blade, a full thickness mucoperiosteal flap was raised by giving one horizontal and two vertical incisions up to the alveolar crest including one tooth mesial & two teeth distal to the lesion. Flaps were gently reflected with periosteal elevator towards the apical area and frequent irrigation with sterile saline to prevent dehydration of the periosteal surface of flap was done. After complete elevation of the flap, the surgical enucleation of the cyst was carried out under local anesthesia and strict asepsis through an intraoral approach. For additional hemostasis during surgery, cotton pellets soaked in 0.1% epinephrine were applied topically as required. Then the root tip was sectioned up to 2-3mm with 0° to 10° bevel angle with cylindrical surgical carbide burs at high speed under sterile water coolant. Root end preparations extending 3mm into the canal space along the long axis of the root were made by using a piezoelectric ultrasonic unit (P5 Booster, Suprasson Neutron; Acteon Inc, Mt Laurel, NJ) with double angled S12-7D Retro tips (Satelec) coated with diamond abrasives. Root end filling was done with mineral trioxide aggregate (MTA).



DISCUSSION

The incomplete removal of a radicular or other inflammatory cyst led to the development of a residual cyst. Both radicular and residual cysts are having same histopathological and clinical features, however, the residual cyst is associated with the extracted teeth⁷. During the extraction of tooth and enucleation of a radicular cyst if the whole cyst lining is not enucleated completely will result in the development of a residual cyst. Size of the cyst may remain same or increase in size with the passage of time⁸. A well-defined unilocular radiolucent structure of varying size at the edentulous area of a previous extracted tooth site depicted radiographically⁹. Most of the odontogenic cysts are usually asymptomatic. These cysts are usually asymptomatic and commonly diagnosed during a routine clinical and radiographic examination⁹.

In the present study, however, the patient reported with the complaint of a slowly progressing swelling in the upper left maxillary anterior teeth region. Patient had a history of extraction in the maxillary left lateral incisor region with healed extraction socket area. A well-defined radiolucency extending laterally up to the periapical region of left maxillary central incisor was present resulting in the loss of buccal cortical plate in the apical region of left maxillary central incisor which was confirmed after cone-beam computed tomography (CBCT) examination. CBCT examination was performed to define the exact location and extend of the margins of the lesion as the diagnostic yield of 2D radiographs is reduced by adjacent anatomical noise, geometric distortion, and compression of three-dimensional structures onto a two-dimensional shadowgraph. Treatment of a residual cyst is either marsupialisation or enucleation depending on the size of the cyst.

In the present study due to smaller size and well-defined margin, enucleation of the cyst was performed and as the cystic lining involved the periapical region of the adjacent teeth, the root end resection and root end filling with MTA was performed for the adjacent teeth. MTA was chosen as the root-end filling material as it is biocompatible and sealing ability is superior as compared to other filling materials^{10,11,12}. MTA stimulate repair of periradicular tissues, showed no inflammation and deposition of cementum^{10,11,12}. Lesion area and volume was reduced from 96 mm² and 620 mm³ to 12 mm² and 56 mm³ respectively.

CONCLUSION

Residual cyst is a rare pathology which is often missed by the patient unless infected as it is asymptomatic. A thorough case history, oral, radiographic & histopathological examination is required to depict a proper and adequate diagnosis.

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