

Residual Cyst – A Misleading Diagnosis with Clinico Pathological Presentation

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Abstract

Residual cysts are uncommon odontogenic cyst, which occurs as a result of incomplete surgical removal of any odontogenic cyst. It is a type of inflammatory odontogenic cyst, in which the tooth is extracted with a periapical pathological area left behind in the bone that leads to the formation of a residual cyst. They are usually asymptomatic in nature and its clinical, radiographic and histopathological features are similar to that of radicular cyst.

Key words: Anterior maxilla, apicectomy, extraction, radicular cyst, residual cyst, surgical removal, trauma.

Introduction:

A cyst is defined as a pathological cavity, having fluid, semi-fluid or gaseous contents and which is not created by accumulation of pus (Kramer, 1974). Most of the jaw cysts are epithelial lined cysts and usually derived from odontogenic apparatus and remnants.¹ Radicular cyst is the most common inflammatory odontogenic cyst that

develops from the epithelial remnants which are stimulated by an inflammatory process originating most commonly from a non-vital tooth.²

When the periapical inflammatory lesion is not removed or excised completely along with the infected teeth, then the periapical lesion remains within the jaw bone as residual cyst.³ The residual cyst can also arise from the necrotic pulp of an extracted teeth and also from the remnants of the epithelium which proliferates by an inflammatory process which is no longer present. In some cases, these residual cysts are diagnosed as an incidental finding during a routine oral examination.

Here we report a case of residual cyst in a 28-year-old female patient with a recurrent pus discharge from maxillary anterior teeth which was previously treated by apicectomy.

Case Report

A 28-year-old female patient reported to a private clinic with a chief complaint of recurrent pus discharge from

right upper front tooth region for past 3 months. On examination, history of apicectomy and cyst enucleation without extraction of teeth was done 6 months back, and 3 months later (post-operative), the patient reported to the private clinic with a recurrent discharge from the infected teeth, for which antibiotics and analgesics were prescribed. Patient was advised to review after 2 weeks but didn't turn up. Three months later, patient reported with a complaint of discharge from the same tooth for which extraction of tooth was done along with antibiotic course.

After one month of post-extraction, patient again turned up with persistent discharge for which surgical re-exploration was done. Orthopantomogram (OPG) revealed an unilocular radiolucency in the extracted socket of lateral incisor (**Figure 1&2**). Radiographic examination with CBCT revealed pathological lumen from the apex of extracted tooth socket. Sinus tract from the apex of tooth till floor of nasal cavity was observed. Anterior to nasal cavity, a pathological depression of size 3x3 cms was noted (**Figure 3&4**).

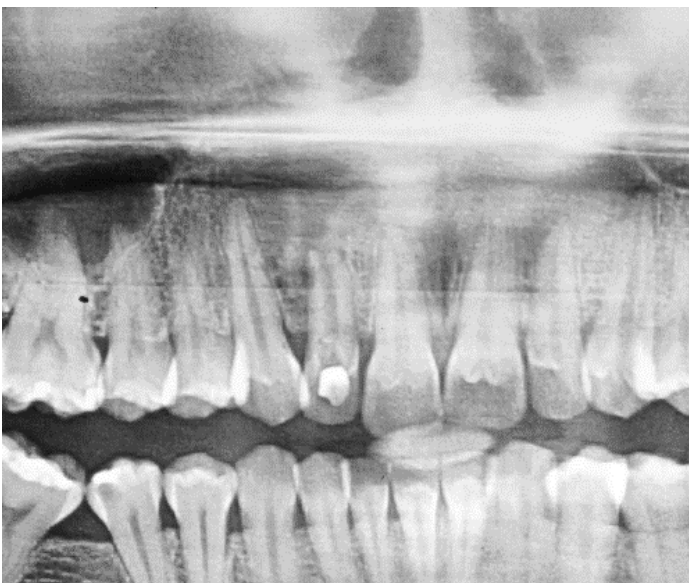


Figure 1: OPG showing Apicectomy procedure done in relation to lateral incisor (12)



Figure 2 : OPG showing radiolucency in the extracted socket of lateral incisor (12)

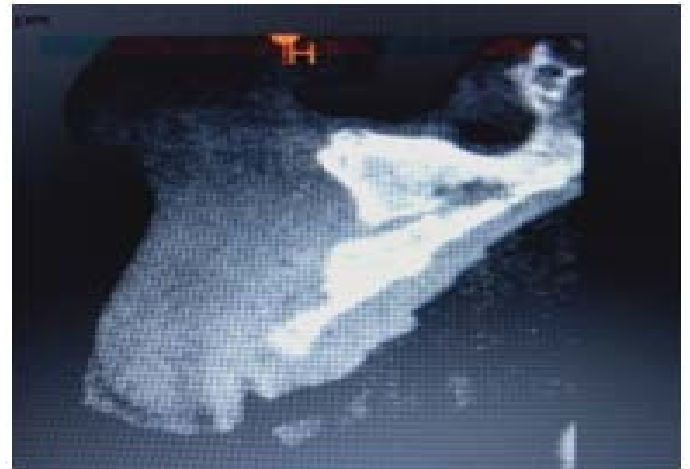


Figure 3: Lateral CBCT section showing sinus tract extending from labial surface of extracted Lateral incisor till the base of nasal bone with a cavity

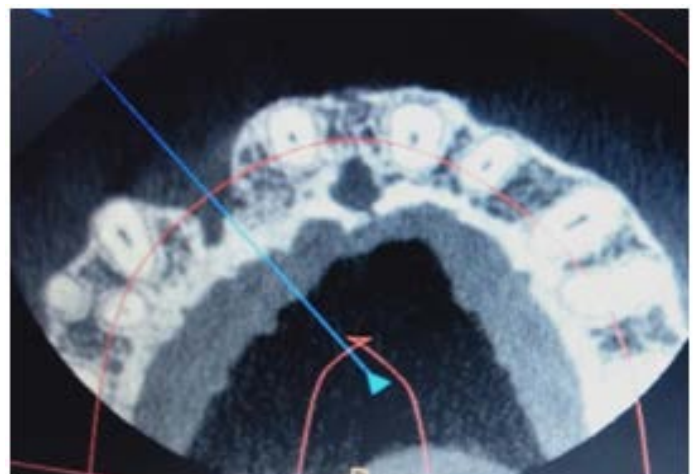


Figure 4: Axial CBCT section showing the cavity

Surgical management

After proper examination, re-exploration at the periapical region was planned. Under lignocaine local anesthesia with adrenaline, direct incision over the sinus lining was placed along the entire length of sinus tract from the mucogingival junction to occlusal level of 12 (**Figure 5**). Separate flaps were raised on the mesial and distal side of the tract. Base of the lesion which was explored previously was identified and the cavity was empty with some muscle fibers around it.

Sinus tract from the base of the cavity to the occlusal level was identified. Soft tissue was removed with curette, tract margins excised primarily. Betadine and saline irrigation done and primary closure was done with 3.0 silk suture material (**Figure 6&7**). Patient was given regular antibiotics and analgesics. During the entire procedure, the patient was comfortable. Hemostasis achieved and patient was given post-operative follow-up instructions.



Figure 5: Direct incision and exposure of lining



Figure 6 : Excised sinus lining



Figure 7: Final closure done with 3.0 silk suture material

Histopathology

The excised bits were sent for histopathological analysis. The hematoxylin and eosin stained tissue section revealed non-keratinized stratified squamous (**Figure 8&9**). Within the connective tissue wall, few eosinophilic structures resembling hyaline bodies (**Figure 10**), few chronic inflammatory cells and also CS (cross section) and LS (longitudinal section) of muscle bundles were seen. On clinicopathological correlation, histopathological diagnosis of residual cyst was given.

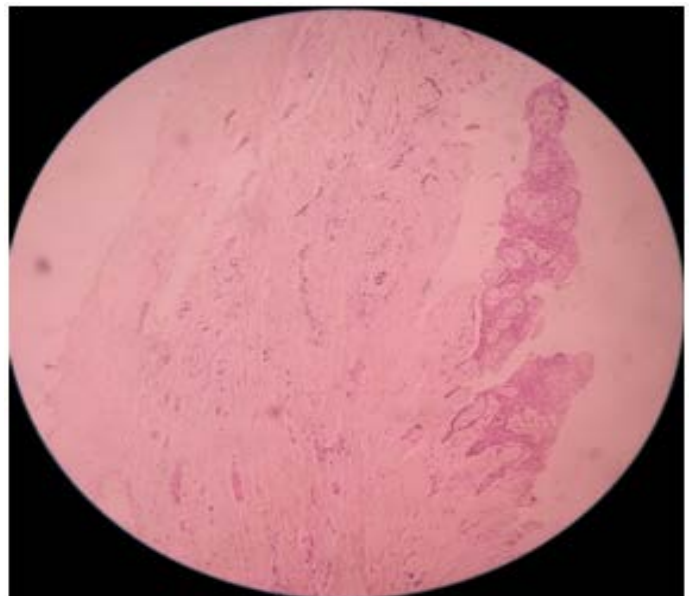


Figure 8: H&E stained section reveals non-keratinized

epithelium with an underlying fibrous connective tissue
(Lower magnification)

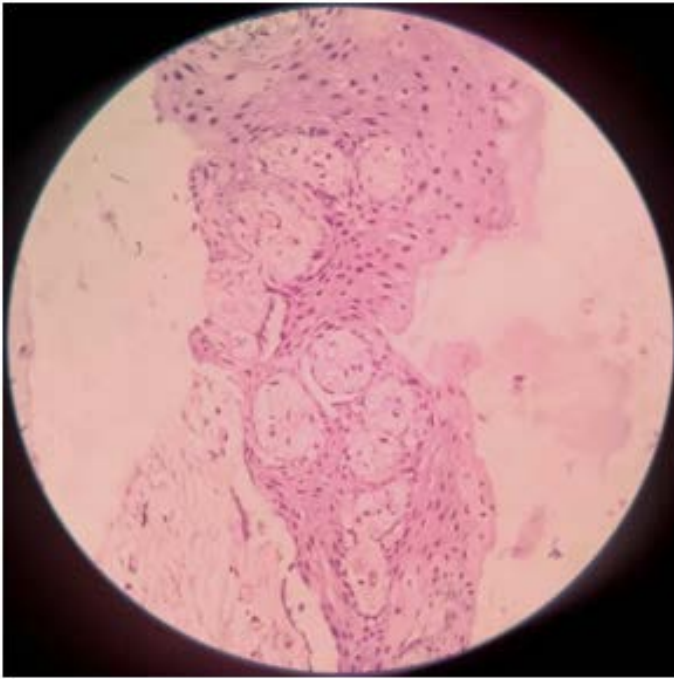


Figure 9: Higher magnification showing arcading pattern of epithelium

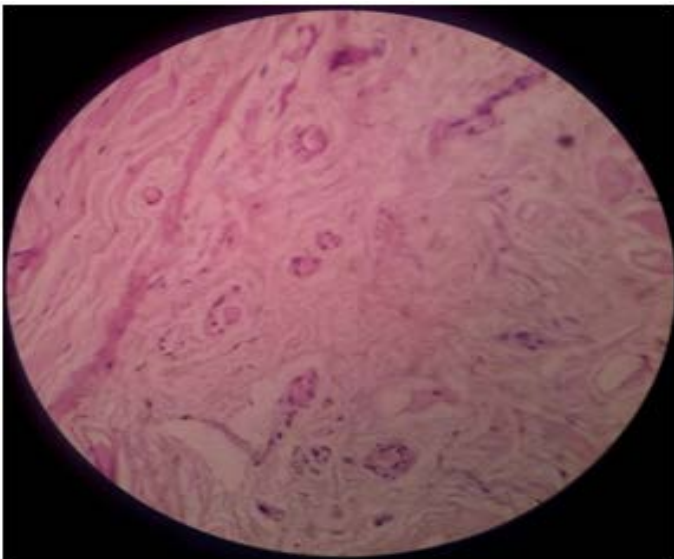


Figure 10 : H&E stained section showing hyaline (Rushton) bodies

Discussion

The odontogenic cysts found within the jaw bones are inflammatory or developmental. Inflammatory cysts are further classified as radicular or periapical cyst, lateral periodontal cyst and residual cysts. Odontogenic cysts are

the most common cystic lesions of jaws, constituting about 50 to 75 % of all oral cysts. They are characterized by slow growth and have a tendency to expand that they can reach a considerable size if they are not diagnosed and treated appropriately.⁴

Radicular cyst, also known as periapical / root end or dental cyst which originates from the epithelial cell rests of malassez in the periodontal ligament as a result of inflammation due to trauma or pulpal necrosis. It occurs more commonly between 3rd-5th decades and more common in males than in females. They are frequently found in anterior maxilla than in any parts of oral cavity and the associated teeth are mostly non-vital and may show discoloration.^{5,6}

The pathogenesis of radicular cyst been described under 3 distinct phases: The phase of initiation, phase of formation and phase of enlargement. The epithelial cells first proliferate, later undergoes degeneration and liquefaction leading to formation of cyst.⁶

The radicular cyst may be retained within the jaw after tooth extraction around its root, it is termed as residual cyst. It possesses the characteristics of radicular cyst, but following extraction, its inflammatory process is decreased and in the cystic wall, non-inflammatory fibrous tissue is observed (Shear, 2007).¹

Residual cyst has an innocuous pathosis and are usually discovered as an incidental finding on routine radiographs.³ They appear as a round unilocular radiolucency with a well-defined border in an edentulous area. The Cone beam CT was done to localize the borders and to determine the relationship between lesion and maxillary sinus to establish a differential diagnosis.⁷ In our present case, unilocular radiolucency was observed in the apex of 12 region extending till the floor of nasal cavity.

The histopathological features of residual cyst are almost similar to that of radicular cyst with stratified squamous

epithelium showing arcading pattern with an intense inflammatory process but as the cyst enlarges the lining becomes fairly regular. The other features include scattered mucous cells, linear or arc shaped calcifications known as Rushton bodies or hyaline bodies,^{4,8} presence of cholesterol clefts which are similar to that of radicular cyst. In the present case, the epithelium appeared to be non-keratinized stratified squamous type showing arcading pattern and within the connective tissue wall presence of rushton bodies were observed.

Treatment of residual cyst includes enucleation and marsupialization with complete removal of cystic content and its lining to prevent the further recurrence.^{9,10} With that intentions previously it was attempted and explored by doing apicectomy but still recurrence was present within 3 months even after apicectomy for which extraction was done 2 months later, but then also patient had recurrent discharge for which re-exploration was done.

Conclusion

Though residual cyst are benign in nature due to its continous growth , they become very aggressive and destructive. In the present case, apicectomy procedure been performed previously, but recurrent pus discharge was noted. Hence apicectomy alone cannot be considered as a primary treatment option , since the patient reported back with recurrent discharge for which only extraction of tooth done . But cystic contents and lining was not excised completely for which patient had to report after a month with a recurrent discharge. So a proper diagnosis with advanced diagnostic imaging techniques and also to understand the true nature and extent of lesion and also for the proper management to prevent further recurrence and complications. And also it has been insisted that always residual cyst to be considered as a true recurrent cyst with

same radicular surgical procedure of cyst removal with lining and tooth extraction.

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