East African Scholars Journal of Medical Sciences
Abbreviated Key Title: East African Scholars J Med Sci
ISSN 2617-4421 (Print) | ISSN 2617-7188 (Online) |
Published By East African Scholars Publisher, Kenya

OPEN ACCESS

DOI: 10.36349/easms.2019.v02i02.008 Volume-2 | Issue-2 | February-2019 |

Case Report

Cystic degenerative changes in periapical pathology- an archetype presentation in radicular cyst (Case report)

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Abstract: Radicular cyst is one of the most common oral pathological entity. The histopathological features are too classical most of the times. In this report we have more focused on the encounter of extensive degeneration in the cystic wall; which shows all signs of chronic inflammation and tissue degeneration.

Keywords: radicular cyst, chronic inflammation, degeneration.

INTRODUCTION

Radicular cyst is the most common among all odontogenic cysts. It occurs at the rate about 52% to 68% of all jaw cysts. They are generally symptomless and diagnosed during routine radiographic examination. Patient often complains of slowly enlarging swelling. The cyst may displace adjacent teeth & it may also cause certain degree of root resorption. This cyst arises from epithelial remnants stimulated to proliferate by an inflammatory process originating from pulpal necrosis of a non-vital tooth. The source of epithelium usually cell rest of Malassez but they can also may be traced to crevicular epithelium, sinus lining or epithelial lining of sinus tracts. They are mostly associated with permanent teeth but in few cases they are seen to be associated with primary teeth also.

CASE REPORT

A 30 year old male patient reported to Awadh Dental College & Hospital, Jamshedpur, Jharkhand with a complain of intraoral swelling on lower right posterior teeth region since last 2 months which continued since the patient reported. Patients family doesn't able to recall such history of illness in past. On general examination the patient was found to be in good physical health condition. On extraoral examination there was mild swelling on lower right side of face & on intraoral examination there was swelling in relation to 46. On the basis of clinical examination , patent history & radiographic examination a provisional diagnosis of Radicular Cyst was given. The offending tooth was extracted with enucleation of the cyst & the tissue was sent for histopathology. After extraction 6 months follow up was done, although the follow-up was uneventful. After histologic examination of the epithelial tissue it is seen that the cyst is lined by stratified squamous epithelium, connective tissue contains chronic inflammatory cells & numerous cholesterol clefts. Extensive foamy cells with cytoplasmic degeneration were seen. Cystic degenerative changes are seen within the epithelial tissue (figure1, 2)

Based on these histopathological features a final diagnosis of Radicular Cyst is given.

Quick Response Code

Journal homepage:
http://www.easpublisher.com/easjms/

Article History
Received: 03.02.2019
Accepted: 18.02.2019
Published: 26.02.2019

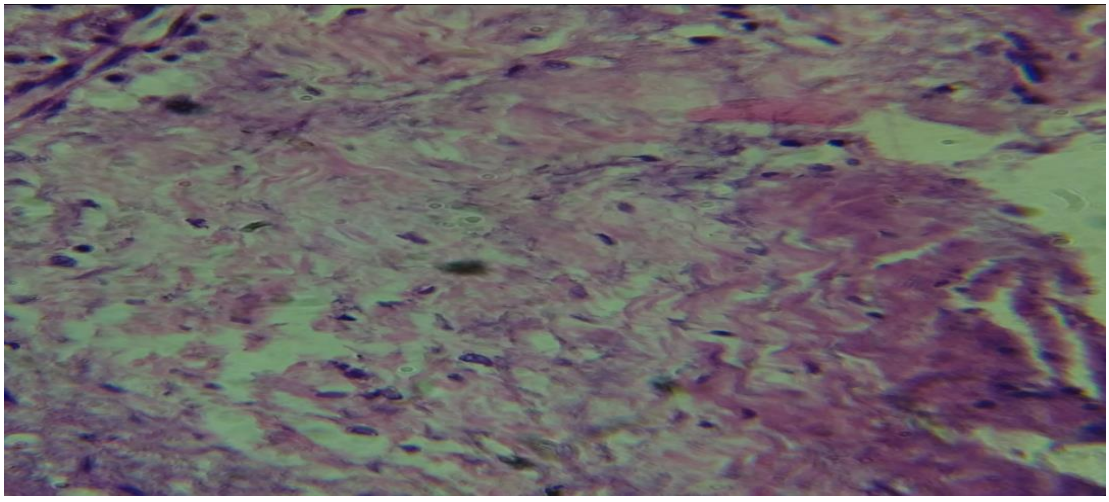

Figure-1- showing radicular cyst with extensive infiltration , secondarily infected with microbial colonies showing degeneration.

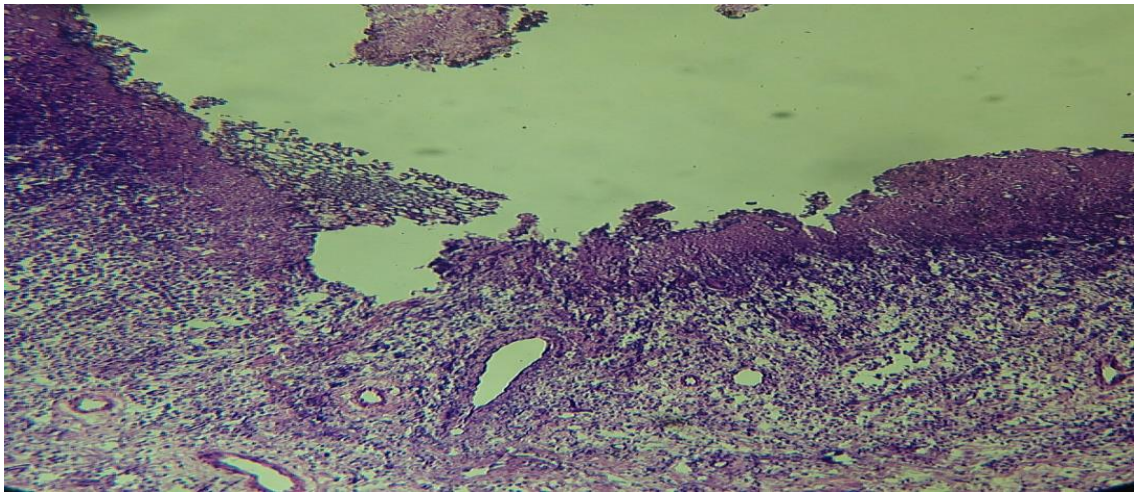

Figure2- showing cystic wall depicting stromal degeneration

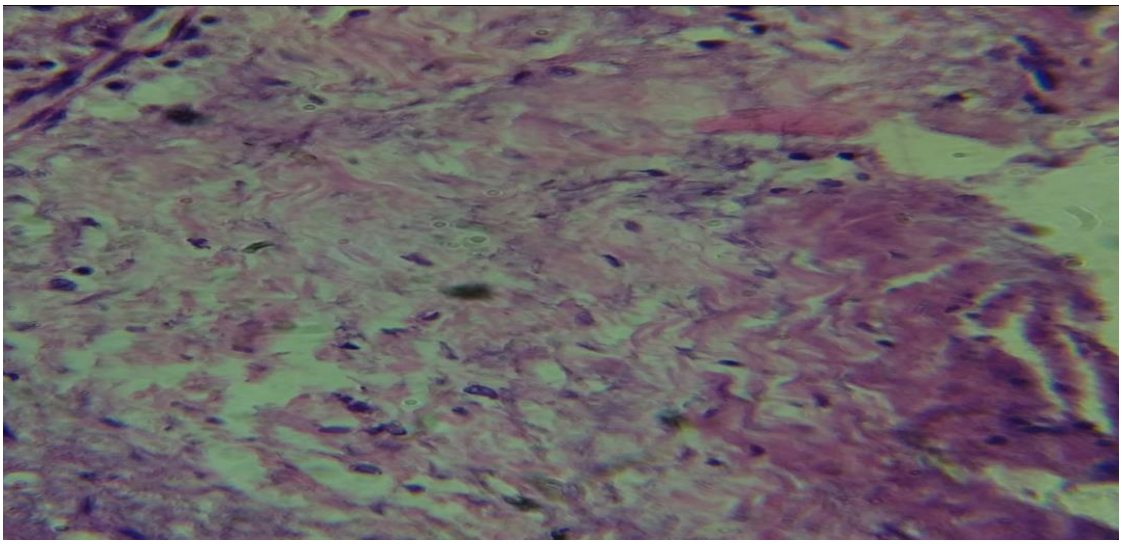

Figure 3: Mast cell degranulation with stromal degeneration. Predominance of chronic inflammatory cells.

DISCUSSION

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. (Shear, M., & Speight, P. 2007) Commonly, odontogenic cysts exhibit slow growth and have a tendency towards expansion. Despite their benign biological behavior, these cysts can reach considerable

size, if not diagnosed on time and treated appropriately. (Suzuki, T. et al 2005) Radicular cysts arising from deciduous teeth are rare. 28 such cases have been recorded in the literature since 1898. (Lustmann, J., & Shear, M. 1985) In this case the cyst was found in mandible & the origin of the cyst was teeth related tissues. As we maintained earlier radicular cyst is the moist common among all jaw cysts although actual prevalence of cysts is only about 15% of all apical periodontitis lesions. Their prevalence is highest among patients in their third decade of life, and men are most likely to effected by this cyst. (Shear, M., & Seward, G. R. 1992) Radicular cysts arising from deciduous teeth are reported to occur in age range of 3 to 19 years with a male preponderance. The most commonly involved deciduous teeth are mandibular molars (67%), maxillary molars (17%) followed by anterior teeth. (Elango, I. et al 2009)

Generally Radicular Cyst originates after dental caries or any kind of trauma to the teeth, which ultimately leads to inflammation of the pulp cavity & finally causing pulp necrosis. Subsequently infection spreads from apex of the infected root causing apical periodontitis which further leads to acute abscess or chronic granuloma & finally forming Periapical or Radicular cyst.

Radicular cyst in deciduous tooth is very rare & usually it is very non-aggressive, Various reasons are suggested in support of rarity of Radicular cyst in deciduous dentition such as, presence of deciduous tooth for a very short time, easy drainage in deciduous teeth due to the presence of numerous accessory canals and a radicular radiolucency in relation to deciduous teeth are usually neglected. Moreover these lesions are tend to resolve on their own after extraction or exfoliation of the affected tooth.

HISTOLOGY

Histologically there are no significant difference of Radicular cysts in primary dentition & permanent dentition except rarity of cholesterol crystal slits in primary teeth cysts. This is due to the fact that the lesion associated with the primary teeth exists for shorter duration before removal in comparison to permanent teeth. (Shear, M. 1992)

When the cyst & root are removed totally, two variations of periapical cyst have been observed. Periapical pocket cysts which is characterized by incomplete epithelial lining because of extension of apical portion of the tooth into the cyst lumen & another one is periapical true cysts which form a complete epithelial line bag like structure that is adjacent to but separated from the tooth apex(Neville, B. W. et al 2015). It is very hard to find a gross specimen with intact mass , mostly the specimens are irregular & collapsed as the thickness of the wall is only about 5mm. Inner surface of the cyst is may be smooth or may be corrugated, The fluid contents are usually brown resulting from the breakdown of blood and when cholesterol crystals are present they impart a shimmering gold or straw color (Ochsenius, G. et al 2007).

Radicular cyst shows a fibrous connective tissue wall lined by an epithelium with a lumen which contains fluid & cellular debris. It is believed that as the epithelium desquamates into the lumen, protein content gets increased & to equalize the osmotic pressure fluid enters into the lumen, & thus slow enlargement of the cyst takes place.

The cyst wall is lined by non-keratinized stratified squamous epithelium of varying thickness from 1 to 50 cell layers. The epithelial lining shows arcading pattern which is due to the inflammatory process. Occasionally the walls of inflammatory cysts will contain scartteres hyaline bodies (pulse granuloma, giant-cell hyaline angiopathy). They appear as a small circumscribed pools of eosinophilic material that exhibits a corrugated periphery of condensed collagen often surrounded by lyumphocytes & multinucleated giant cells. (Neville, B. W. et al 2015)

IMMUNOHISTOCHEMISTRY

Radicular cyst shows slightly higher concentration of Ki-67 & ssDNA. Both Ki-67 and ssDNA reactivity in RCs with intense inflammatory reactions or with thick lining epithelium were significantly stronger than those in RCs with less inflammatory reactions or with thin lining epithelium. Reactivity for p53 was also noted sporadically in epithelium of Radicular cysts. Also in some basal & epithelial cells in Radicular cyst Bax and Bcl-2 were detected (Suzuki, T. et al 2005).

TREATMENT

Radicular cyst is treated as the same manner as a periapical granuloma. When both clinical & radiographic examination confirms a periapical inflammatory lesion, extraction or non-surgical conservative therapy is performed. In this case the affected teeth was extracted followed by complete enucleation of the cyst.

CONCLUSION

Although there are still debate between the surgeons as currently more doctors prefer a conservative treatment by means of endodontic therapy. Whatever may be the treatment approach biopsy is always indicated to rule out the other possible pathologic process, because any odontogenic & non-odontogenic cysts & tumors can mimic the appreance of Periapical or Radicular cyst.

REFERENCE

1. Narula, H., Ahuja, B., Yeluri, R., Baliga, S., & Munshi, A. K. (2011). Conservative non-surgical

management of an infected radicular cyst. *Contemporary clinical dentistry*, *2*(4), 368.
2. Neville, B. W., Damm, D. D., Allen, C. M., & Chi, A. C. (2015). *Oral and maxillofacial pathology*. Elsevier Health Sciences.
3. Lustmann, J., & Shear, M. (1985). Radicular cysts arising from deciduous teeth: Review of the literature and report of 23 cases. *International Journal of Oral Surgery*, *14*(2), 153-161.
4. Shear, M., & Speight, P. (2007). Cysts of the oral and maxillofacial regions. 4th ed. Oxford: Blackwell Munksgaard; Classification and frequency of cysts of the oral and maxillofacial tissues, 1–2.
5. Shear, M., & Seward, G. R. (1992). *Cysts of the oral regions*. John Wright.
6. Elango, I., Baweja, D. K., Noorani, H., & Shivaprakash, P. K. (2009). Radicular cyst associated with deciduous molar following pulp therapy: A case report. *Dental Research Journal*, *5*(2).
7. Shear, M. (1992). Cysts of the oral region, 3rd edition. Bostan wright,136-70.
8. Ochsenius, G., Escobar, E., Godoy, L., & Peñafiel, C. (2007). Odontogenic cysts: analysis of 2.944 cases in Chile. *Medicina Oral, Patología Oral y Cirugía Bucal (Internet)*, *12*(2), 85-91.
9. Suzuki, T., Kumamoto, H., Kunimori, K., & Ooya, K. (2005). Immunohistochemical analysis of apoptosis-related factors in lining epithelium of radicular cysts. *Journal of oral pathology & medicine*, *34*(1), 46-52.