Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v30i5.4325

RADICULAR-THE ROOT END CYST – A CASE REPORT

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ANONYMITY:
Financial support and sponsorship : Nil.
Conflicts of interest : There are no conflicts of interest.
Acknowledgements: Nil.

ABSTRACT
Large maxillary radicular cysts pose a clinical problem since they can lead to severe alveolar bone loss, disturbance of the nasal and maxillary sinus floors, and recurrent infections**.** We are presenting a case of a 19-year-old female patient who reported to Oral and Maxillofacial Pathology Department with a complaint of swelling in upper front tooth region for past two weeks. Radiographically, the classical findings of the lesion is a round or oval, well-defined radiolucent image involving the apex of the tooth. Upon thorough investigations, the diagnosis of radicular cyst was confirmed by histopathological findings. The treatment of choice for this case was enucleation following the extraction of the attached tooth.

Keywords: Odontogenic cyst, Periapical, Histopathology

INTRODUCTION

Cysts are pathological cavities bordered by epithelium that contain fluid or semifluid material but do not exude fluid. Cysts in the mandible and maxilla are categorized as neoplastic, inflammatory, and developmental[1-2]. The most prevalent inflammatory odontogenic cyst is the radicular cyst, which develops from Malassez's epithelial rests mostly as a result of pulp necrosis[3]. If left untreated, persistent trauma like dental caries or any other tooth lesion can result in pulpal necrosis, which can eventually lead to chronic apical periodontitis, resulting in cystic degeneration and cell proliferation[4]. Radicular cysts account for roughly 65-70% of all cysts near the apex of impacted teeth among jaw cysts[3].Enucleation of the cyst and extraction of the affected tooth are advised when the concerned tooth is not important[5].In this case report we present a case of infected radicular cyst in 19years old female.

CASE REPORT

A 19 years old female patient reported to the Department of Oral and Maxillofacial Pathology of our college.

Fig. 1 Front View

The patient came with the chief complaint of swelling over the right upper vestibule region for past two weeks, the swelling which was initially small in size and gradually increased to the present size for past 1 month and patient had no history of pain. Patient previously had history of swelling over the right upper vestibule region before three months, where it drained due to pressure. Past dental history revealed that the patient underwent apicectomy in upper front tooth region before 2 months and also has history of left condylar neck fracture and maxillary dentoalveolar fracture due to trauma, where open reduction and internal fixation along with the extraction of 11,21 was done before 5 years and patient underwent prosthodontic treatment before 4 years.

Medical history revealed that the patient is known schizophrenic for past 8 years and was taking medicines at intervals and for past one year the patient is under continuous medicines and is also allergic to Cephalosporins from childhood.

On intra-oral soft tissue examination, inspectory findings reveals a presence of single well-defined growth of size 2x2 cm is seen in upper right vestibular in 12 region which is roughly oval in shape extending, anteriorly from the mesial aspect of 11 posteriorly to the mesial aspect of 13, superiorly along the alveolar mucosa and inferiorly along the upper right buccal vestibule (fig.2) and no secondary changes were seen. On palpation, all inspectory findings are confirmed with respect to number, site, size, shape and extent, the swelling was non-tender, soft in consistency and no bleeding was evident. On hard tissue examination, partially edentulous space was seen in 11,21 region which was replaced by removable prosthesis.

Fig. 2 Intra oral Photograph

Further the patient was sent for radiographic investigation. On CBCT it revealed a presence of well-defined radiolucency in the periapical region of 11,12,13 extending medio laterally from the mesial aspect of 11 to mesial aspect of 13, antero-posteriorly from the labial cortex to the palatal cortex in relation to 11,12 region, supero-inferiorly from the floor of nasal cavity in relation to 12 region to the apical third of root of 12. (Fig 3)

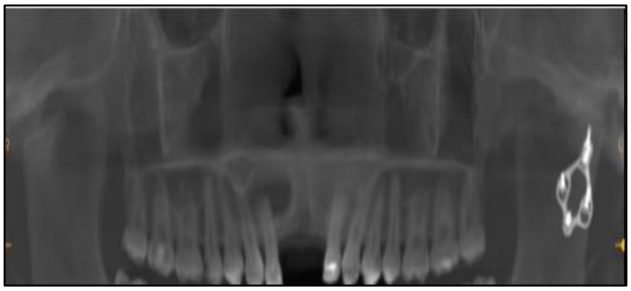

Fig.3a Panoramic view

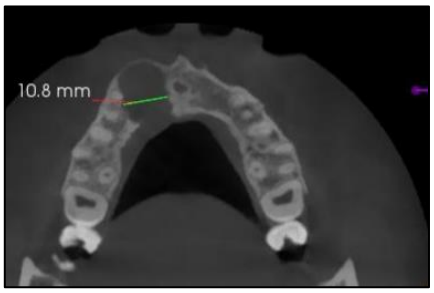

Fig. 3b Axial view

From the clinical findings and CBCT investigation a provisional diagnosis of Radicular cyst in relation to 11,12,13 was given. The patient was then referred to the Department of Oral and Maxillofacial Surgery for further management where extraction of 12, 13 was done. Enucleation of the cyst was done and the excised tissue was sent for histological examination (Fig.4).

Fig.4 Enucleation of the cyst

On histopathological examination, the macroscopic features showed an already cut open cyst wall measuring 1.5x1x0.5cm. External and cut surface appears unremarkable. Microscopic features showed fragments of fibrotic cyst wall with epithelial denudation. The cyst wall shows variable edema, congested blood vessels, few rushton bodies and dense infiltration by lymphocytes, plasma cells and neutrophils along with abundant foamy histiocytic collections and focal cholesterol cleft formation.

From this histopathological features a confirmative diagnosis of RADICULAR CYST in relation to 11,12,13 was given.

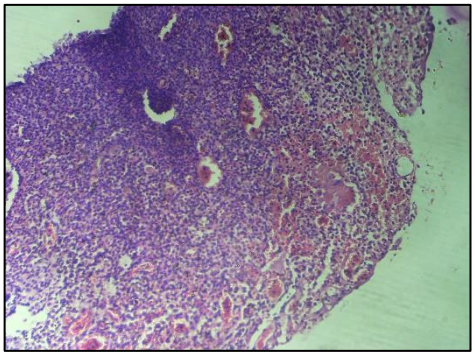
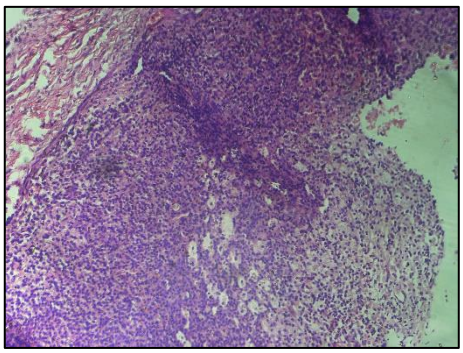

Fig.5 Fibrotic cyst wall with Epithelial denudation Fig.6 Variable edema with congested blood vessels with dense inflammatory cells

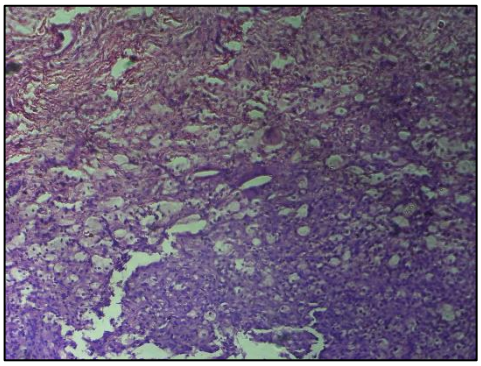
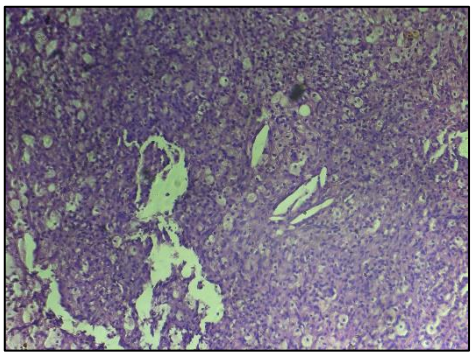

Fig.7 Cholesterol clefts Fig.8 Rushton bodies with foamy histiocytes

DISCUSSION:

Cyst is a pathological cavity having fluid, semi fluid or gaseous contents which is not created by the accumulation of pus. The inflammatory activation of epithelial root sheath residues (Malassez cell rests) results in radicular cysts, which are tooth that has necrotized. They are uncommon in primary teeth and are seen in permanent teeth[6].In this case, it was formed in the mandible and the origin was from tooth-related tissues. odontogenic cysts. They have an inflammatory character and typically develop in a periapical granuloma.

Radicular cyst most commonly occurs in 3rd to 5th decade of life, male predilection is seen, relatively affecting the maxillary anterior regions. They are asymptomatic and slow-growing bony swelling[7].

The majority of maxillary radicular cyst instances involve teeth that have previously undergone endodontic treatment. A tooth with an infected root canal system is associated with the formation of radicular cysts[8]. These root canal infections can be separated into two categories: primary and secondary infections. Primary infections arise from an initial bacterial invasion of the pulp of teeth that have not received endodontic treatment, whereas secondary infections happen in teeth that have received endodontic treatment after a prior root canal procedure. The bacterial flora in teeth that have had endodontic treatment has a completely different phenotype and set of traits which may lead to further periapical infections.[9,10] The classical histopathological findings of radicular cysts are lined wholly or in part by nonkeratinized stratified squamous epithelium. The inflammatory cell infiltration is primarily composed of polymorphonuclear leucocytes. Hyaline bodies (often referred to as Rushton's hyaline bodies) are found in the epithelial linings and cholesterol cleft formations will be present[11].In the present case where the swelling had developed the patient did not have any dental caries or any periapical infections earlier which usually represent as the contributing factor for development of the cyst but the patient had previous extraction at the site 11,21 region and also underwent apicectomy in 12 which may be a contributing factor for the development of infection at the site and the histopathological findings show fragments of fibrotic cyst wall with epithelial denudation, congested blood vessels, few rushton bodies and dense infiltration by lymphocytes,

plasma cells and neutrophils along with abundant foamy histiocytic collections and focal cholesterol cleft formation which corelates with the classical histopathological findings of radicular cyst.
By these findings in the present case a final diagnosis of Radicular cyst in relation to 11,12,13 was confirmed and the patient was under regular follow up for 3 months.

CONCLUSION

An inflammatory odontogenic cyst that develops from trauma or untreated dental caries is known as a radicular cyst. To focus the differential diagnosis, a comprehensive clinical, radiological, and histological assessment is necessary. Different therapeutic strategies have been proposed based on the cyst's location, size, and site. Radicular cysts can be treated with a variety of methods, including traditional, nonsurgical root canal therapy and surgical methods (enucleation, marsupilization). In this case study, though there were many contradictory findings with clinical presentation the confirmatory diagnosis was done through the histopathological investigation which served as a main diagnostic tool.

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