

LARGE RADICULAR CYST OF THE POSTERIOR MAXILLA– A CASE REPORT

¹ Manoj Meena
² Nigel R Figueiredo
³ Ajit D Dinkar
⁴ Ena Mathur
⁵ Arum Khatkar
⁶ Sonam Malik

¹ Senior lecturer
² Former Post graduate student
³ Professor and Head
⁴ Reader
⁵ Post graduate student
⁶ Post graduate student

^{1-4,6} Department of Oral Medicine and Radiology, ^{1,4}Rajasthan Dental College, Jaipur – Rajasthan, India: ^{2,3,6}Goa Dental College and Hospital, Bambolim – Goa, India- 403202

⁵ Department of Pedodontics, SGT Dental College, Budera ,Gurgaon –Haryana, India.

ABSTRACT: Radicular cyst is the most common inflammatory odontogenic cystic lesion of the jaws. It usually originates as sequel to a periapical inflammatory process, following chemical, physical or bacterial injury. Due to its chronic etiology, the cyst usually appears in the later stages of life. It has a male sex predilection, with the maxillary anterior region as the most common site of involvement. This article describes an unusual case of a large radicular cyst in the posterior maxilla along with its management and follow-up.

KEYWORDS: Odontogenic cyst, Maxilla, Radicular cyst

INTRODUCTION

The radicular (periapical) cyst is the most frequent cyst found in the jaw (accounting for between 38% and 68% of all the jaw cysts). The prevalence of periapical cysts varies between 8.7% and 37.7% of chronic inflammatory periapical lesions. These are the most common inflammatory jaw cysts and develop as a sequel of untreated dental caries with pulp necrosis and periapical infection. Around 60% of all jaw cysts are radicular or residual cysts. This cyst represents a chronic inflammatory process and develops only over a prolonged period of time. These cysts have a male preponderance, and a majority of cases occur essentially in the fourth and fifth decades of life. The lower frequency in females may be because they are less likely to neglect their teeth.

These cysts are slow-growing and asymptomatic unless secondarily infected. Extraction or endodontic treatment and apical surgery of the affected tooth is required when clinical and radiographic characteristics indicate a periapical inflammatory lesion. Treatment of large radicular cysts usually involves surgical removal (enucleation) or marsupialization.

Case Report

A 30-year old male patient reported to our out-patient department with a chief complaint of swelling over the left side of the face region since one month. History revealed

that the lesion was initially small and had gradually increased the present size. The swelling was sudden in onset, and not associated with pain and fever. There was no history of trauma and infection. On extra-oral examination, the swelling extended from the left ala of the nose to below the left infra-orbital margin extending inferiorly below the left corner of mouth. It measured 4.5 x 4.2 cm. in size was round to ovoid in shape and symmetrical. (**Fig.1 and Fig.2**) On palpation, the swelling was firm in consistency, with distinct edges and margins, non-tender, non-fluctuant, non-compressible, and no egg-shell cracking was evident.

Intra-oral examination revealed that a swelling was present in the buccal vestibule in the 24,25,26 region which was reddish-pink in colour. (**Fig. 3**) On palpation, the swelling was soft to firm in consistency, with well-defined edges, compressible, non-fluctuant, and non-tender. No palpable lymphadenopathy was noted. Root stumps were noted in relation to 26. (**Fig. 4**) Vitality test was performed for the entire left maxillary quadrant (21 to 27) in which 24, 25, 27 were non-vital while 23 gave a delayed response. Radiological and biochemical investigations were then carried out.

An intra-oral periapical radiograph revealed a single, large, ovoid-shaped radiolucency in relation to 24,25,26, 27 extending from the mesial aspect of 24 upto the mesial



Fig. 1. Extra-oral view (Front)



Fig.2. Extra-oral view (Left Lateral)

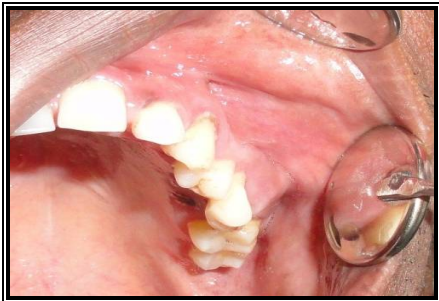


Fig. 3. Pre-operative intra-oral(lateral) view



Fig. 4. Pre-operative intra-oral(occlusal view)

aspect of 27, with a well-defined periphery. Root stumps of 26 were evident. There was loss of the lamina dura and periodontal ligament space with respect to 24, with root resorption in the apical one-third. No displacement of teeth was evident. (Fig. 5). A maxillary lateral occlusal also showed a large unilocular radiolucency in relation to 24, 25, 26, 27, with well-defined corticated borders and a completely radiolucent internal structure. (Fig. 6). Orthopantomograph showed a single, large, ovoid-shape radiolucency in relation to 24,25,26, 27 extending antero-posteriorly from the mesial aspect of 24 upto the mesial aspect of 27 and supero-inferiorly from the apical third of the involved teeth up to the floor of the maxillary sinus, with a well-defined periphery. Loss of lamina dura and periodontal ligament space, and root resorption of 24 was also noted. (Fig. 7). Para nasal sinus view revealed complete opacification of the left maxillary sinus, while the right maxillary sinus appeared normal. (Fig. 8)

On aspiration of the lesion, a blood tinged fluid was seen. (Fig 9). Based on the history, clinical and radiographic findings, a provisional diagnosis of a radicular cyst was made. The lesion was treated conservatively with careful enucleation and curettage. Histopathological examination showed an epithelial lining,4-8 cells in thicknesswith some areas shows arcading pattern of the epithelium. The underlying connective tissues showed a moderate inflammatory cell infiltration, collagen fibres, fibroblasts and muscle fibres(Fig. 10). Thus, based on the histopathology of the enucleated tissue, a final diagnosis of a radicular cyst was made.

Root canal treatment of 24, 25 and 27 was done. Post-operative healing was uneventful (Fig. 11, Fig.12, Fig.13, Fig.14). The patient has been under regular follow-up for the last 2 years, during which time no recurrence has been noted.

Discussion

The radicular cyst has been classified as an inflammatory cyst, because in majority of cases it is a consequence of pulpal necrosis following caries, with an associated periapical inflammatory response. The pathogenesis of radicular cysts has been described as comprising of three distinct phases: the phase of initiation, the phase of cyst formation and the phase of enlargement.¹ The radicular cysts occur more commonly between the third and fifth decades of life, and are more common in males than in females. Initially, these lesions are usually bony hard, but as they increase in size, the covering bone may become very thin despite initial subperiosteal bone deposition. Finally, with progressive bone resorption, the swelling may exhibit 'springiness' or 'egg-shell crackling'.²

In the literature, most cases of radicular cyst have been described in the anterior maxilla. Some possible reasons reported include the following: the spongy nature

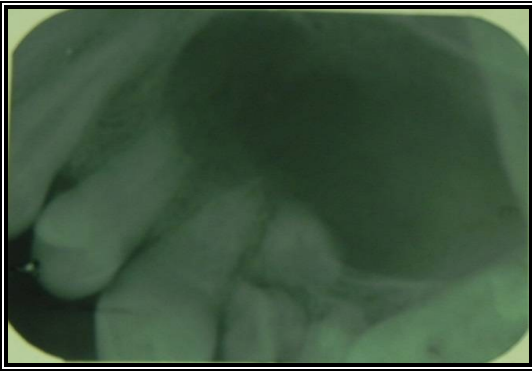


Fig.5. Intra-oral periapical radiograph showing a large, ovoid-shaped radiolucency in relation to 24, 25, 26, 27



Fig.6. Maxillary true occlusal radiograph showing a large unilocular radiolucency in relation to 24, 25, 26, 27

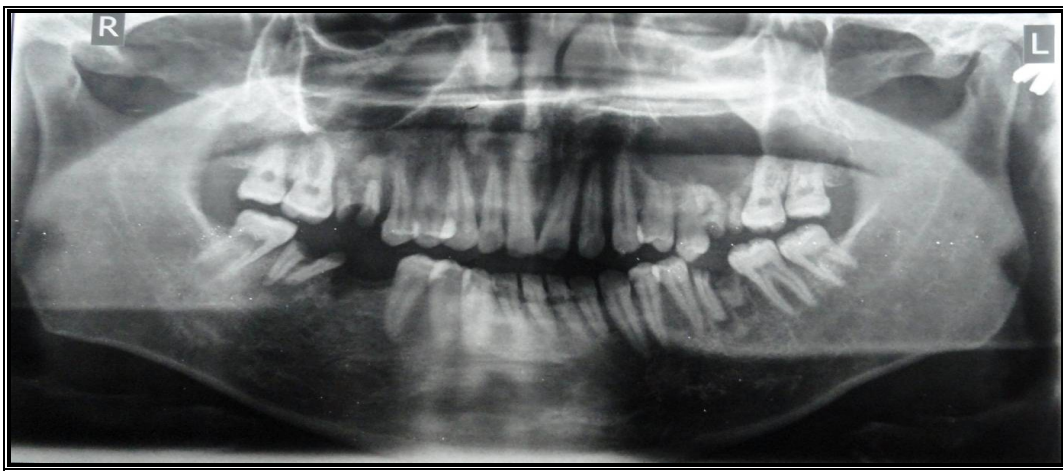


Fig.7. Orthopantomograph showing a single, large, ovoid-shaped radiolucency in relation to 24, 25, 26, 27



Fig. 8. Para nasal sinus view



Fig.9. Aspirated fluid



Fig. 10. Histopathology showing features suggestive of a radicular cyst



Figures 11 and 12: Extra-oral views (Post-operative)



Figure 13: Intra-oral view (Post-operative)

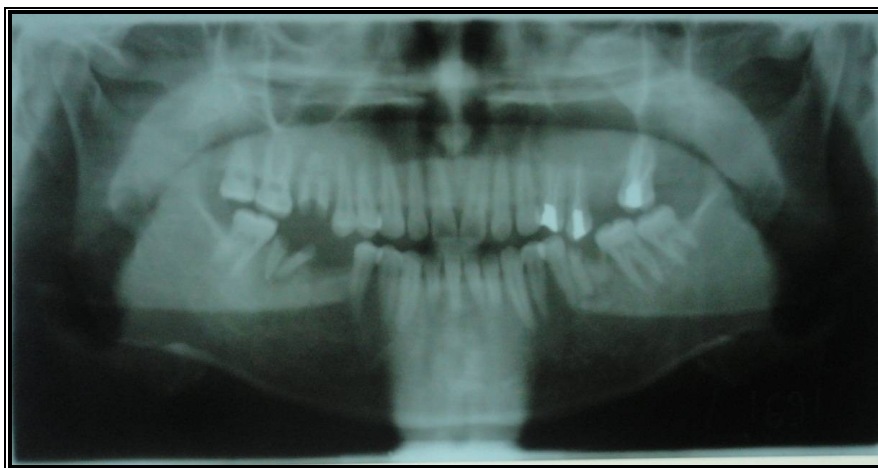


Figure 14: Orthopantomograph (Post-operative)

of the maxillary bone and reluctance to extract anterior teeth, the over retention of which leads to cyst formation. This prevalence has been confirmed by many studies, including those of Ramchandra et al³., Silvia et al⁴. Sharifian⁵. Generally, radicular cysts are small periapical lesions associated with one or more carious teeth, attaining sizes of 0.1 cm to 1 cm.² However, a few long standing large radicular cysts larger than 5 cm have also been reported. The case presented here is a large radicular cyst of the posterior maxilla, making it an unusual case.

Radiographically, the radicular cyst is a unilocular radiolucent lesion with well-circumscribed sclerotic borders that are often radiopaque. The lesion is associated with the apex of the tooth and a diameter of at least 1 cm is postulated to be necessary to differentiate it from that of a normal follicular space. Other odontogenic cysts like dentigerous cysts, odontogenic keratocysts, and odontogenic tumors such as ameloblastoma, Pindborg tumor, odontogenic fibroma, and cementomas may share the same radiologic features as radicular cyst.⁶

With extensive lesions, it is important to carefully plan the surgical approach. The choice of treatment may be determined by some factors such as the extension of the lesion, relation with noble structures, evolution, origin, clinical characteristic of the lesion, cooperation and systemic condition of the patient.^{7,8} In the present case, root canal treatment of the all involved teeth was performed, along with enucleation of the lesion.

CONCLUSION

To conclude, a radicular cyst is a common condition found in the oral cavity. However, it usually goes unnoticed and rarely exceeds the palpable dimension. This case illustrates the successful management of a large radicular cyst with enucleation and endodontic treatment without any recurrence.

References

1. Shear M, editor. Cysts of the Oral Regions (3rd Edition). Wright Publishers; 1992. pp 4-45.
2. Gokul Venkateshwar, Charu Girotra, Geetanjali Mandlik, Mukul Padhye, Vinit Pandhi, Shruti Kakkarextensive radicular cyst of the mandible: a rare case report International Journal of Medical Dentistry volume 3 • issue 1 January / March 2013 • pp. 71-75
3. Ramchandra P., Maligi P., Raghuvver H.P. A Cumulative analysis of odontogenic cysts from major dental institutions of Bangalore city: A study of 252 case. J. Oral Maxillofac Pathol 2011; 15:1-5. <http://dx.doi.org/10.4103/0973-029X.80030>
4. Silvia T., Emanuele A., Maria F.M., Maria L.B., Francesco B., Francesco V. Prevalence and distribution of odontogenic cysts in Sicily: 1968-2005. J. Oral Science 2008; 50(1):15-18.
5. Sharifian M.J., Kalili M. Odontogenic cysts: A retrospective study of 1227 cases in an Iranian Population from 1987 to 2007. J. Oral Sci. 2011; 53(3):361-367. <http://dx.doi.org/10.2334/josnusd.53.361>
6. Dexter Brave, Madhusudan A.S Gayathri Ramesh, V.R Braveradicular cyst of anterior maxilla international journal of dental clinics 2011;3(2):16-17
7. Filiz Namdar Pekiner, Oğuz Borahan, Faysal Uğurlu, Sinan Horasan, B. Cem Şener, Vakur Olgaç Clinical and Radiological Features of a Large Radicular Cyst Involving the Entire Maxillary Sinus Journal of Marmara University Institute of Health Sciences Volume: 2, Number: 1, 2012
8. Extensive periapical cyst in the maxillary sinus 'a case report' international dental journal of student's research: case report

Corresponding Author

Dr. Manoj Meena

Address: Ward no-3, Brij colony, V.P.O. –
Ratan-nagar, Rajasthan, INDIA.
Pin Code: 331021
Phone No.: +91-7597711183
E-mail: meenadrmanoj@gmail.com