

# Management of Radicular Cyst: A Case Report

**Dr Krishna Prasada L<sup>1</sup>, Dr Banashree Bhagawati<sup>2</sup>, Dr Gunjan Chawla<sup>3</sup>**

<sup>1</sup>Department of Conservative and Endodontics, K.V.G Dental College and Hospital, Kurunjibagh, Sullia -574327.

<sup>2,3</sup>Department of Conservative Dentistry and Endodontics, K.V.G Dental College and Hospital, Kurunjibagh, Sullia -574327.

## ABSTRACT

Radicular cysts are common jaw lesions, typically asymptomatic, and often found near the tooth apices. Radiographically, they appear as oval or pear-shaped unilocular radiolucencies in the periapical region. This case report highlights the successful surgical management of a large infected radicular cyst through enucleation and apicoectomy. These procedures were crucial in removing the cyst and promoting healing, with no post-surgical complications. Surgical intervention is vital in managing extensive radicular cysts to prevent further infection and damage to adjacent structures.

**Keywords:** Radicular Cyst, Enucleation, Apicoectomy

## INTRODUCTION

Radicular cyst is a common inflammatory odontogenic cyst, which arises from epithelial rest of Malassez due to pulpal necrosis. World Health Organization, classified cysts in the jawbones as a developmental, neoplastic, and inflammatory origin. Radicular cysts are inflammatory cysts of tooth bearing areas of the jaws originated from an epithelial rest of Malassez in periodontal ligaments due to inflammation and frequently found at the apex.

Bhaskar<sup>1</sup> and Shear<sup>2</sup> reported that the incidence of radicular cysts is found to be highest among patients in their third decade of life and greater among men than women. Shear<sup>2</sup> also reported that they have particularly high incidence in the maxillary anterior region, presumably as a result of trauma. Various mode of treatment available for radicular cyst management including surgical and no-surgical procedures, in this case report we present surgical management of radicular cyst following root canal treatment.

## CASE DISCRPTION

A 22-years old female was referred to the department of conservative dentistry and endodontics, KVG Dental College, Sullia, Karnataka for evaluation of a periapical lesion related to the roots of maxillary left anterior teeth. The lesion was discovered inadvertently during procedural radiographic examination for undergoing orthodontic treatment. The patient had been asymptomatic, and her main complaint was related to crowding & malalignment of front teeth.



**FIG 1 – Pre-operative photographs**

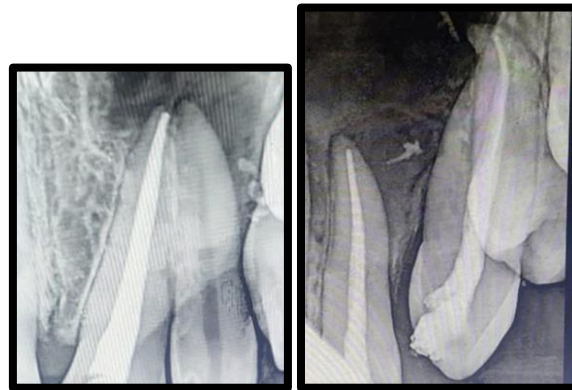
On clinical examination, fracture involving enamel and dentine was seen wrt 21 with slight discoloration. 21, 22 and 23 were also seen to be distally tilted. On further asking Patient gave history of trauma 2 years back resulting in fracture of the 21. (Fig 1). Post trauma, she had pain in relation to maxillary incisors which subsided after 1 week on its own.

Panoramic view radiography (Fig. 2) revealed a large well-defined radiolucent area extending from the distal of 11 to the mesial of 23. On EPT testing negative response wrt 21, 22 and 23 whereas it showed positive response wrt 11.



**FIG 2 – Panoramic radiograph showing radiolucency extending from distal of 11 to the mesial of 23**

Provisional diagnosis was made as periapical cyst and patient was referred for CBCT examination for proper visualisation and adequate detection of margins of the lesion. CBCT report revealed periapical cyst involving distal of 11 to the mesial of 23 along with thinning of the nasal floor & labial cortical plate erosion. Therefore, after critical appraisal of the clinical and radiographic findings and discussion with the patient, surgical enucleation was elected to manage the periapical lesion. The patient was scheduled for root canal treatment of the involved teeth in preparation for the surgical intervention.



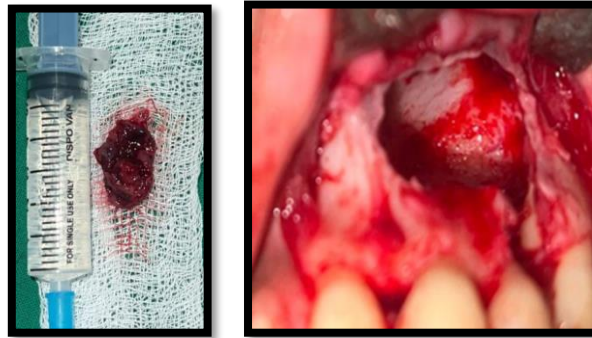
**FIGURE 3– OBTURATION RADIOGRAPH**

After informed consent and without anaesthesia, tooth 21, 22 and 23 was accessed under rubber dam. The root canal was cleaned, and shaped while, being irrigated with a frequently refreshed 5.25% sodium hypochlorite (Fig. 3). The canal did not discharge cystic fluid and a final irritant activation by manual dynamic agitation. Following dryness, the canal was filled with gutta percha cones and biocermaic sealer.

Surgical enucleation of the cyst (Fig. 4- A,B) through a buccal approach was adopted, full thickness flap was raised. Cyst enucleation was carried out in toto done. Following enucleation, the cavity was examined, revealing expansion of the cyst buccally, palatally as well as in the direction of the nasal floor. This was followed by identification & apicoectomy of 3 mm apical part & retrograde filling with MTA wrt 21 & 23. (Fig. 5) The root apex of 22 was embedded into the palatal bone and henceforth left as such. Enucleated cyst was sent for histopathological examination which confirmed the diagnosis of an Infected Radicular cyst. Primary mucoperiosteal closure on solid margins was accomplished the flap was sutured. (Fig. 6) Postoperative instructions included a twice daily rinse with 0.12% chlorhexidine gluconate for 1 week. The patient returned to remove the sutures after 1 week with uneventful soft tissue healing and no reported complications. (Fig. 7)



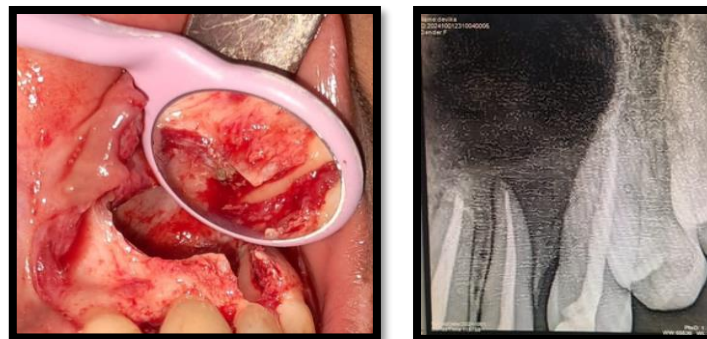
**FIGURE 4(A) - Reflection of full thickness mucoperiosteal buccal flap**



**FIGURE 4(B)- Degranulation and cystic enucleation done flap**

## DISCUSSION

Inflammatory cysts of jaw originated from residues of epithelial cells of malassez in the periodontal ligament due to apical periodontitis followed by necrosis of the dental pulp. The prevalence of the radicular cysts in the maxillary jaw is 60%. Radicular cysts not noticed commonly until diagnosed by regular radiographic examination although in some cases chronic/ long-standing lesions result in acute exacerbation of the cyst.<sup>3,4</sup> Various treatment modalities are available for radicular cysts including conventional, nonsurgical RCT in cases when the lesion is small and confined or surgical treatment like enucleation, marsupialization or decompression in case of larger lesions.<sup>5</sup> This case report presents surgical enucleation of a long-standing radicular cyst along with root canal treatment in relation with 21,22 & 23.



**FIGURE 5 - Root end resection done and MTA filling placed**



**FIGURE 6 - The flap was sutured**



**FIGURE 7 - Suture removed after 1 week**

## CONCLUSION

According to this case report conclusion can be made that multiple treatment options available depending on the size and location of the cyst. In case of long-standing chronic lesion endodontic treatment followed by surgical enucleation gives better results however, some authors propose nonsurgical management of small lesions.

## REFERENCES

1. Bhaskar SN: Periapical lesion-types, incidence and clinical features. *Oral Surgery, Oral Medicine and Oral Pathology*, 1966; 21(5):657-671.
2. Shear M, Seward GR: *Cysts of the Oral Regions*. 3rd Edn. (Indian); Varghese Publication House, Mumbai, 1996; pp:136-170.
3. Rajendran R, Sivapathasundharam B. *Shafer's Textbook of Oral Pathology*. 6th ed. New Delhi: Elsevier; 2009. p. 487-90. 2.
4. Shear M. *Cysts of the Oral Regions*. 3rd ed. Boston: Wright; 1992. p. 136-70
5. Elhakim, A., Kim, S., Kim, E. et al. Preserving the vitality of teeth adjacent to a large radicular cyst in periapical microsurgery: a case report with 4-year follow-up. *BMC Oral Health* 21, 382 (2021).
6. Shivhare P, Singh A, Haidry N, Yadav M, Shankarnarayan L. Multilocular radicular cyst - a common pathology with uncommon radiological appearance. *J Clin Diagn Res* 2016;10(3):ZD13–ZD15. DOI: 10.7860/JCDR/2016/16031.7486.
7. Kim S, Kratchman S. Modern endodontic surgery concepts and practice: a review. *J Endod*. 2006;2:601.