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# BEHIND THE ROOT: TWO CASES OF RADICULAR CYST

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## ABSTRACT

**Background:** Radicular cysts are the most common inflammatory odontogenic cysts, often arising in response to pulpal necrosis secondary to dental trauma or infection. They commonly affect the anterior maxilla and may present asymptomatically or with pain and swelling. **Case Report:** Case I: A 33-year-old female with pain and swelling in the anterior maxilla. Radiographic findings revealed a well-defined radiolucency associated with 21 and 22, root resorption, and cortical plate loss. CBCT findings and clinical signs indicated secondary infection. The patient underwent enucleation and completion of root canal therapy. Histopathology confirmed an inflammatory odontogenic cyst. Case II: An 18-year-old female with a gradually enlarging swelling involving 11–14, accompanied by pain. Imaging showed a large unilocular radiolucency with root resorption and cortical destruction. FNAC yielded straw-coloured fluid with blood. Histopathology confirmed an infected radicular cyst. Treatment involved root canal therapy and surgical enucleation. **Conclusion:** These cases emphasize the importance of timely diagnosis and intervention in managing radicular cysts. Advanced imaging and

histopathology play a key role in diagnosis, while a multidisciplinary approach ensures successful outcomes.

## INTRODUCTION

Radicular cysts are the most common odontogenic cysts of inflammatory origin, accounting for approximately 52–68% of all jaw cysts.[1] These cysts are typically associated with non-vital teeth and arise due to the proliferation of epithelial rests of Malassez in response to pulpal necrosis following dental caries or trauma.[2] Although often asymptomatic and discovered incidentally during radiographic evaluations, larger lesions may present with swelling, pain, root resorption, and cortical expansion.[3] They are more frequently found in the maxilla, particularly in the anterior region.[4] Cone-beam computed tomography (CBCT) has become an essential imaging modality in assessing radicular cysts, offering superior visualization of cortical plate integrity, lesion dimensions, and proximity to anatomical landmarks compared to conventional radiographs.[5] Histopathological examination remains the gold standard for confirming diagnosis, with findings typically revealing an epithelial lining with inflammatory infiltrates, cholesterol clefts, and sometimes keratinous debris.[6]

This article presents two clinically relevant cases of anterior maxillary radicular cysts in young female patients with histories of trauma and incomplete endodontic therapy. The cases emphasize the importance of clinical correlation, advanced imaging, and histopathological assessment in diagnosis and management.

## CASE REPORT I

A 33-year-old female patient reported with the chief complaint of pain in the upper front region of jaw since 15 days and wanted to get root canal treatment done. She was apparently alright 3 months back when she noticed extraoral and intraoral swelling in the maxillary anterior region, which gradually progressed. Pain was dull, continuous, aggravated on mastication, and relieved on medication. She had consulted a local dentist and was diagnosed with a radicular cyst with respect to 21 and 22. Root canal treatment was started but not completed due to personal issues. She also gave a history of trauma due to a fall 10 years ago. Extra-orally, a solitary diffuse swelling (2×1 cm) was present at the philtrum with a tender left submandibular lymph node. Intraorally, (Figure 1 & 2) a dome-shaped swelling (1.5×2 cm) was present in the maxillary labial vestibule from the mid-aspect of 11 to distal aspect of 21. Tooth 21 was discoloured and fractured with incomplete RCT in 21 and 22. Swelling was soft, fluctuant, and tender. Pulp testing was negative for both 21 and 22. Radiographs [IOPA

(Figure 3), occlusal, OPG, CBCT] revealed a well-defined oval radiolucency (1×1.5 cm) at the apical region of 21 and 22 extending to the nasal floor, with partially corticated borders, root resorption in 21, and displacement of 22. CBCT showed loss of labial cortical plate, thinning of nasal floor, proximity to nasopalatine canal, and presence of intracanal medicament. These findings, along with tenderness and loss of cortication, suggested secondary infection. Radicular cyst enucleation was done followed by RCT with 21 and 22. Histopathology showed cystic capsule with inflammatory cells and few cholesterol clefts, suggestive of an inflammatory odontogenic cyst. Final diagnosis: radicular cyst in labial vestibule with respect to 21 and 22.

## CASE REPORT II

An 18-year-old female reported with swelling in the upper front region of the jaw since 6 months and pain in the same area for 3 months. The swelling in the maxillary anterior and palatal region was initially smaller and gradually increased in size. The pain was dull aching, continuous, aggravated on mastication, and relieved on medication. There was a history of trauma due to a fall 2 years back. No history of fluid discharge, cough, or weight loss was noted. Intra-oral examination revealed a dome-shaped, reddish-pink swelling in the maxillary labial vestibule (Figure 4) and anterior hard palate (Figure 5) with tenderness and fluctuation. Tooth 12 was discoloured and non-vital. Provisional diagnosis was radicular cyst with respect to 11–14 and Ellis Class IV fracture with 12. Radiographs [IOPA (Figure 6), OPG and Occlusal radiographs] showed a well-defined, corticated radiolucency at the apices of 11–14 with root resorption of 11 and 12, distal displacement of 13 and 14, and thinning of the floor of the nasal cavity. CBCT (Figure 7) confirmed a unilocular radiolucency measuring 24.4 × 15.9 × 17.4 mm with destruction of cortical plates. Fine needle aspiration yielded straw-coloured fluid with blood. Histopathology revealed keratin split and dense inflammatory infiltrate. The final diagnosis was infected radicular cyst with respect to 11–14. Treatment included root canal therapy with 12 and surgical enucleation of the cyst(Figure 8). Appropriate postoperative medication was prescribed.

## DISCUSSION

Both cases presented involved radicular cysts in the anterior maxilla, associated with non-vital teeth and a history of trauma. The first case featured a relatively smaller lesion affecting 21 and 22 with recent-onset pain, while the second case involved a larger, more extensive lesion from 11 to 14, associated with a longer duration and signs of secondary infection.

Radiographic features in both cases included well-defined radiolucency at the apex of involved teeth, consistent with classic descriptions of radicular cysts.[7] In the first case, the lesion showed partial cortication and root resorption, whereas the second case displayed aggressive characteristics such as thinning of the nasal floor, cortical bone destruction, and tooth displacement, reflecting progression in untreated lesions.[3] CBCT proved to be a valuable diagnostic aid in both cases, offering detailed visualization of the lesion's size, extent, and its effect on adjacent anatomical structures. Its utility is particularly emphasized in lesions with suspected cortical expansion, root resorption, or proximity to vital structures.[5] Aspiration in the second case yielded straw-coloured fluid with blood, a common finding in infected radicular cysts due to the presence of inflammatory exudate and cholesterol crystals.[8] Histopathological examination in both cases revealed epithelial cystic lining with dense inflammatory infiltrates and cholesterol clefts, confirming the diagnosis of inflammatory odontogenic cysts.[6] Management of both lesions involved a combination of root canal therapy and surgical enucleation, which remains the standard approach for symptomatic, large, or secondarily infected radicular cysts.[9] The favourable outcomes observed are in line with existing literature indicating a low recurrence rate and excellent prognosis following complete enucleation and appropriate endodontic management.[10]

## FIGURES

### CASE I

**Figure 1 & 2.**

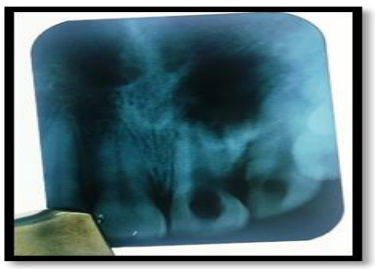

**Figure 3**

**CASE II**

**Figure 4 & 5**

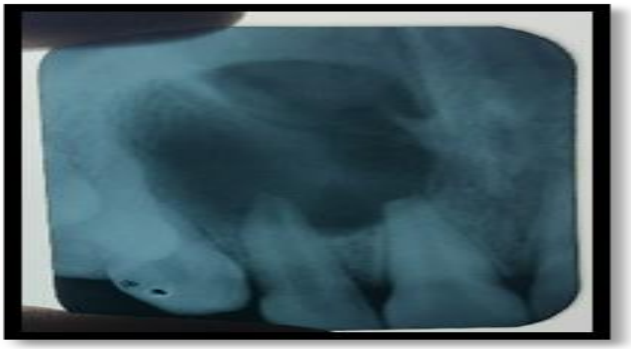

**Figure 6.**

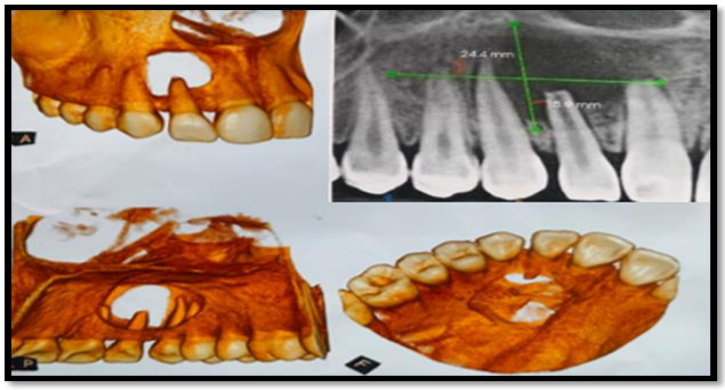


**Figure 7.**

**Figure 8.**

## CONCLUSION

Radicular cysts, though common, can present with varying degrees of severity depending on factors such as trauma history, duration of progression, and infection. The two cases discussed illustrate the importance of early diagnosis and intervention in preventing extensive tissue destruction and complications. Clinical examination, radiographic evaluation—especially with CBCT—and histopathology are vital in establishing a definitive diagnosis. A multidisciplinary approach combining endodontic therapy and surgical enucleation offers effective and predictable outcomes. Prompt management of periapical pathologies not only preserves surrounding anatomical structures but also improves long-term prognosis and patient comfort.

## REFERENCES

1. Shear M, Speight PM. Cysts of the Oral and Maxillofacial Regions. 4th ed. Wiley-Blackwell., 2007.
2. Ramachandra S, Maligi PM, Raghuveer HP. A retrospective study of 148 cystic lesions of the oral and maxillofacial region. J Oral Maxillofac Pathol., 2010; 14(2): e91–e95.
3. Koseoglu BG, Atalay B, Erdem MA. Odontogenic cysts: a clinical study of 90 cases. J Oral Sci., 2004; 46(4): 253–257.
4. Koivisto T, Bowles WR, Rohrer M. Frequency and distribution of radiolucent jaw lesions: a retrospective analysis of 9,723 cases. J Endod., 2012; 38(6): 729–732.
5. Patel S, Horner K. The use of cone beam computed tomography in endodontics. Int Endod J, 2009; 42(9): 755–756.
6. Nair PN. Non-microbial etiology: periapical cysts sustain post-treatment apical periodontitis. Endod Topics, 2003; 6(1): 96–113.
7. DelBalso AM, Werning JT, Dodson TB. Periapical cyst with secondary infection. J Endod., 1989; 15(8): 369–372.
8. Bodner L. Cystic lesions of the jaws in children. Int J Pediatr Otorhinolaryngol, 2002; 62(1): 25–29.
9. Ongole R, Praveen BN. Textbook of Oral Medicine, Oral Diagnosis and Oral Radiology. 2nd ed. Elsevier, 2013.
10. Anil S, Hallikeri K, Kale A. Inflammatory odontogenic cysts: a study of 285 cases. J Maxillofac Oral Surg, 2010; 9(1): 10–14.