



## Management of Anterior Maxillary Radicular Cyst

Subba Raju T<sup>1\*</sup>, Sita Rama Kumar M<sup>2</sup>

- 1.Senior Lecturer, Department of Oral and Maxillofacial Surgery, Sree Sai Dental College & Research institute, Srikakulam, Andhra Pradesh, 532001, India.
- 2.Senior Lecturer, Department of Conservative Dentistry and Endodontics, Vishnu dental college, Bhimavaram, Andhra Pradesh, 534202, India

**\*Corresponding author:**

Dr. Subba Raju T, Oral and Maxillofacial Surgeon, Manasa super speciality dental hospital, # F2, 1<sup>st</sup> floor, Sri Ram Towers, Padmapriya theater road, Srinagar, Kakinada, 533003, India. E-Mail: drsubbumaxfac@gmail.com

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### ABSTRACT

The radicular cyst is the most common inflammatory odontogenic cystic lesion of the jaws. It usually originates as a sequel to a periapical inflammatory process, following chemical, physical or bacterial injury. Due to its chronic etiology, the cyst usually appears towards the later stage of life. It has a male sex predilection, with the maxillary anterior region as the most common site of involvement. In this article, a case report of radicular cyst with treatment is discussed in regard to current literature.

**Keywords,** Radicular cyst, Odontogenic Cyst, enucleation, epithelial cell rests of Malassez.

### 1. INTRODUCTION

Cyst is a pathologic cavity filled with fluid, lined by epithelium, and surrounded by a definite connective tissue wall. The cystic fluid either is secreted by the cells lining the cavity or derives from the surrounding tissue fluid. Jaw cyst is a pathological intra-osseous

cavity lined by a membrane and may contain liquid or semisolid material (Reyes velazquez *et al*, 2006). Cysts in maxillary, mandibular and perioral regions widely change in distribution, characteristics, histogenesis, incidence, behavior and treatment (Manor *et al*, 2012). Authors have classified cysts in odontogenic, non-odontogenic cysts, and pseudocysts. Odontogenic cysts originate from odontogenic epithelium and arise in the tooth-bearing regions of the jaws. Non-odontogenic cysts probably derive from the proliferation of non-odontogenic epithelial remnants that are trapped along fusion lines during embryogenesis of the cephalic district. Pseudo-cysts differ from a real cyst because of the absence of the epithelial membrane (Summers, 1979). A residual dental (or radicular) cyst arises from epithelial remnants stimulated to proliferate by an inflammatory process originating from pulpal necrosis of a non-vital tooth. Over the years, the cyst may regress, remain static or grow in size (George dimitroulis *et al*, 1998).



**Figure 1**  
Pre-op intraoral view



**Figure 2**  
Ellis Class III fracture



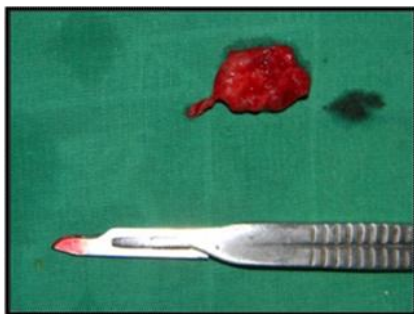
**Figure 3**  
Occusal view showing RCT done with 21,22,23.



**Figure 4**  
Palatal full thickness flap exposed



**Figure 5**  
Enucleation of Cyst



**Figure 6**  
Cystic lining



**Figure 7**  
Bony defect



**Figure 8**  
Wound closure

## 2. CASE REPORT

A 37-year-old male patient had presented with the complaint of a palatal swelling and broken upper right front tooth. He gave a history of trauma 2.5 years back for which no treatment was done. Post trauma he had pain in relation to the upper left anteriors which subsided with medication. He gave a history of swelling from 1.5 years along with pus discharge from gums. Clinically, there

was diffuse palatal swelling extending from the left central incisor to the distal aspect of 1st premolar, the swelling was fluctuant on palpation which indicated a loss of integrity of palatal bone (Figure 1). Hard tissue examination revealed an Ellis Class III fracture in relation to 21 and the tooth was discolored.

Vitality tests were carried out (Heat/ Cold & EPT) which elicited a negative response in relation to 21,22,23 (Figure 2). The treatment was planned as root canal therapy with respect to 21, 22. Surgical management of the cyst was planned which included cyst enucleation and apicectomy in relation to 21,22,23. Root canal preparation and obturation was carried out uneventfully in relation to 21,22 and 23 (Figure 3). For surgical enucleation of the cyst, a palatal approach was adopted and a full thickness flap was raised (Figure 4). Cyst enucleation was done (Figures 5, 6, 7, 8). The histopathology report confirmed the diagnosis of an infected radicular cyst.

### 3. DISCUSSION

Odontogenic cysts constitute frequent benign lesions of the jaw bones, due to the ubiquitous presence of epithelial rests after odontogenesis (Ramchandra *et al*, 2011). Radicular cysts appear as the most common of all odontogenic cysts, with an incidence between 50 and 60%, as described by Tay (50.7%) (Tay, 2004), Ochsenius *et al*. (50.7%) (Ochsenius *et al*, 2007), Shear *et al*. (52.3%) (Shear *et al*, 1961) etc., while Silvia *et al*. found an incidence of 84.5% (Silvia *et al*, 2008), and Sharifian *et al*. reported an incidence of 37.9% (Sharifian *et al*, 2011). Radicular cysts are always associated with non-vital teeth and develop from a proliferation of the cell rests of Malassez. They form within a chronic apical granuloma secondary to chronic inflammatory stimuli, commonly associated with necrotic pulp (Soames *et al*, 1998). Most of the cases of radicular cyst show a clear male predilection, which explains their increased tendency to trauma, the poor oral hygiene, caries and retention of carious teeth. Sharifian *et al*., (2011) found that the radicular cyst is 1.3 times more frequent in men, while Silvia *et al*., (2008), found about 2/3rd of the cysts in males. Generally, radicular cysts are small periapical lesions associated with one or more carious teeth, attaining 0.1 cm to 1 cm, even if a few long standing large radicular cysts larger than 5 cm have been reported (Marx *et al*, 2003). Several treatment options are available for a radicular cyst such as surgical endodontic treatment, extraction of the offending tooth, enucleation with primary closure, and marsupialization followed by enucleation. In this case, surgical enucleation was preferred and was performed uneventfully (Joshi *et al*, 2011).

### 4. 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 radicular cyst with enucleation and endodontic treatment.

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