

Maxillary and mandibular unusually large radicular cyst: A rare case report

ABSTRACT

Radicular cysts are the most common odontogenic cyst. It is an inflammatory cyst associated with the root apex of a nonvital tooth. Most radicular cysts are small but can reach a large size causing displacement of surrounding structures. Here, we present a rare case of huge radicular cyst in both maxilla and mandible in a 36-year-old patient.

Keywords: Mandible, massive lesion, maxillary sinus, radicular cyst

INTRODUCTION

The term “cyst” is derived from the Greek word, “kystis,” meaning, “sac or bladder.”^[1] A cyst is defined as a pathological cavity having fluid, semi-fluid, or gaseous contents, which is not created by accumulation of pus (Kramer, 1974).^[2] The bones with the highest prevalence of cysts in the human body are mandible and maxilla due to the abundant amount of epithelial remnants in the jaws. Cysts are classified into odontogenic and nonodontogenic based on the tissue they arise from.

Odontogenic cysts are derived from (1) tooth germ, (2) epithelial rests of Malassez, (3) reduced enamel epithelium of a tooth crown, (4) remnants of the dental lamina, or (5) possibly the basal layer of oral epithelium. Among the various types of odontogenic cysts observed,^[3] radicular cyst is one of the most common, which is, in turn, a subtype of inflammatory cyst. The progression of the cyst is initiated by pulpal necrosis followed by periapical inflammatory reaction. In most of the cases, the lesion is discovered as an incidental finding during radiographic examination.

CASE REPORT

A 36-year-old female patient [Figure 1] was reported to the Department of Oral and Maxillofacial Surgery, Yenepoya Dental College, Mangalore, with a chief complaint of swelling

in the upper right front and lower right back region of the mouth. She was confronted with a slow progression of the lesion for the past 1 year. On clinical examination of the extraoral features, there was a mild swelling on the right side of her face, with the skin appearing to be normal. While palpation, the swelling was hard, and mild tenderness was felt with the expansion of buccal cortical plate and egg shell crackling with respect to the right mandibular region. Intraorally, a well-defined swelling was present on the buccal vestibule of the right mandible and maxilla measuring about 4 cm × 3 cm extending in the region of root stump of 46 and 13, respectively, with vestibular obliteration.

Radiographically [Figure 2], a well-defined homogeneous radiolucency of size 5 cm × 4 cm with sclerotic border was observed in the right side of the maxilla extending from the

VINAYAKRISHNA KOLARI, H. T. ARVIND RAO, TANIYA THOMAS

Department of Oral and Maxillofacial Surgery, Yenepoya Dental College, Yenepoya University, Mangalore, Karnataka, India


Address for correspondence: Dr. Vinayakrishna Kolari, Department of Oral and Maxillofacial Surgery, Yenepoya Dental College, Yenepoya University, University Road, Deralakatte, Mangalore - 575 018, Karnataka, India.
E-mail: drvinnykolari@gmail.com

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distal aspect of the middle one-third of the root of the canine to the mesial aspect of the middle one-third of the root of the second premolar tooth. The upper margin of lesion was smooth and pushing the anterior wall of the maxillary sinus. Tooth 13 was tender on percussion. In the mandible, a well-defined radiolucency of size 3 cm × 2 cm with sclerotic border was noted extending from distal aspect of apical one-third of root of 45 to medial aspect of one-third of root of 48. The inferior alveolar canal was not involved, and the inferior margin of lesion appeared smooth. Tooth 46 was tender on percussion with well-defined radiolucency, and sclerotic border of size < 1 cm was noted in relation to 23, 24, 25, and 26.

On the basis of clinical and radiographical findings, the provisional diagnosis of radicular cysts was remarkably made of both maxillary and mandibular lesions.

Under local anesthesia, the mandibular lesion was exposed by raising the mucoperiosteal flap as planned enucleation of the cyst in the mandibular body with extraction of offending root stump, i.e., 46 along with 42, 43, 44, 45, and 48, was performed during the first sitting. Flap closure was done with 3-0 silk suture and recalled after 7 days for suture removal. After 3 weeks, the cyst in relation to the right maxillary sinus was exposed and enucleated along with extraction of 12, 13, and 14. The cyst was enucleated in toto [Figure 3]. Thorough curettage was done. Flap closure was done with 3-0 silk suture and recalled after 7 days for suture removal. Postoperative healing was uneventful.

The histopathological report of both the surgical specimens was proved to be a radicular cyst. The report of mandibular lesion came as radicular cysts with fibrocellular cystic capsule with mild-to-moderate chronic inflammatory cells chiefly lymphocytes, plasma cells, and foamy macrophages. In case of maxillary lesion, the reports said inflammatory infiltrate, predominantly lymphocytes and plasma cells. Odontogenic rests were also evident in this section.

DISCUSSION

Radicular cyst is one of the most common and significant types of cystic lesion affecting the jaw accounting about 52%–68% of all the incidences which affect the jaw.^[4,5] Radicular cyst occurs more commonly between the third and fifth decades, with male predilection, and is more frequently found in the anterior maxilla relative to other parts of the oral cavity.^[6] In general, radicular cysts originate from a carious tooth. Sequel continues as pulpal necrosis,^[7] periapical abscess, or even a granuloma and finally leads to a persistent chronic infection, thus forming a periapical cyst.^[8]



Figure 1: Preoperative extraoral photograph

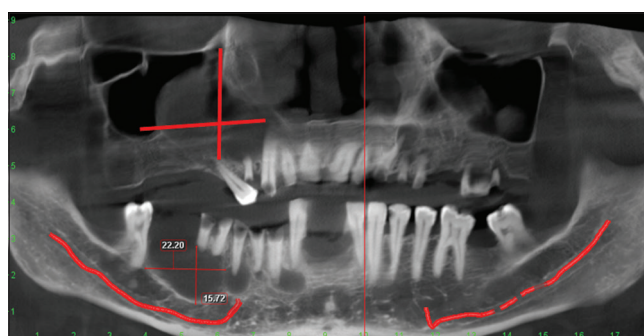


Figure 2: Preoperative orthopantomogram of patient



Figure 3: Gross specimen of cyst lining along with the teeth in relation to the right maxilla

The pathogenesis of radicular cysts comprises three distinct phases: the phase of initiation, the phase of cyst formation, and the phase of enlargement.^[9] The teeth associated with the cyst are always nonvital and may be discolored too.^[9] It is clinically exhibited as buccal or palatal swelling in the maxilla and buccal in the mandible. Initially, it tends to be a bony hard enlargement, but as the cyst develops in size, the bone gets resorbed and becomes thin, and a characteristic

springiness or egg shell crackling is perceived on the swelling and becomes fluctuant.^[10]

Most radicular cysts are small, ranging in size from 0.5 to 1.5 cm. In the maxilla, sometimes, a cyst associated with molars or premolars may enlarge to such a point that it encroaches on almost the entire sinus, and the residual sinus space may appear very thin.^[11]

The maxillary cyst in our case was of size around 4 cm × 3 cm. The cyst cortex and the sinus were distinguishable from one another unlike in many other cases reported in literature. Thin and cancellous nature of the maxillary bone as compared to dense mandible explains the formation of giant radicular cyst in relation to the maxillary sinus.

Joshi *et al.*^[6] and Bava *et al.*^[12] have reported cases of bilateral mandibular cyst, but as in our case, the presence of cyst in both maxilla and mandible is rare.

Histologically radicular cysts appear to be partially or completely lined by nonkeratinized stratified squamous epithelium. Keratinization is reported in few cases as minimal as 2%, and when present orthokeratinization layer is profound than parakeratinized walls with dense, mixed inflammatory infiltrate, rich in plasma cells and lymphocytes. The wall is fibrous and will often contain numerous capillaries, particularly in those areas adjacent to the epithelial lining^[11] [Figure 4].

Kay and Kramer have reported the transformation of radicular cyst into squamous carcinoma.^[13,14] This is usually associated with long-standing cases, but in our case, there was not any histopathological evidence of epithelial dysplasia.

CONCLUSION

The choice of treatment depends on factors such as extension of the lesion, its relation to the surrounding structures, clinical characteristics of the lesion, and systemic condition of the patient. The surgical treatments for radicular cyst include total enucleation, marsupialization or decompression,^[15,16] or combination of these techniques. The above-mentioned rare case report of large radicular cyst has been successfully treated by surgical enucleation and curettage.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients

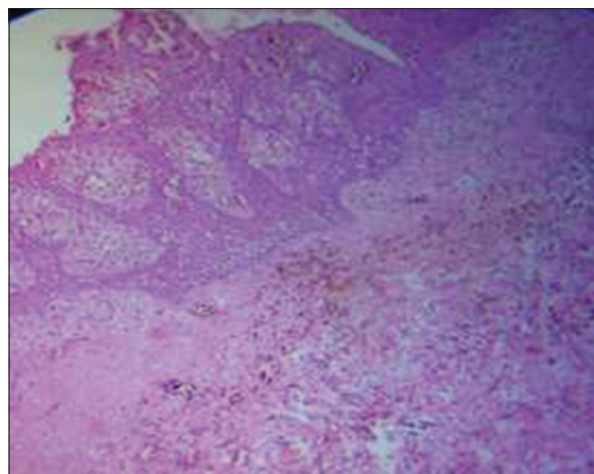


Figure 4: Photomicrograph showing nonkeratinized stratified squamous epithelium with underlying connective tissue stroma showing severe chronic inflammatory cell infiltrate

understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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