

An unusual case report of bilateral mandibular radicular cysts

NIYANTA S. JOSHI, S. G. SUJAN, M. M. RACHAPPA

Abstract

A radicular cyst is one of the most common odontogenic cysts of anterior maxilla, not commonly seen in adolescence. Here, we present a rare, atypical case, of bilateral radicular cysts of the mandibular posterior region in a 13-year-old girl. The patient management comprised surgical enucleation of cystic sac under general anesthesia followed by rehabilitation of the same area. The purpose of this article is to lay emphasis on the pedodontist's role in early diagnosis and treatment of such lesions.

Keywords: Bilateral mandibular radicular cysts, rehabilitation, surgical enucleation

Introduction

Radicular cysts are the most common inflammatory cysts arising from the epithelial residues in the periodontal ligament as a result of periapical periodontitis following necrosis of the pulp, remains asymptomatic and left unnoticed until detected during routine periapical radiography.

These cysts comprise about 52% to 68% of all the cysts affecting the human jaw.^[1] Their incidence is highest in third and fourth decade of life with male predominance.^[2] Anatomically the periapical cysts occur in all tooth-bearing sites of the jaw but are more frequent in the maxillary than the mandibular region.^[1,3]

Radicular cysts can heal spontaneously after endodontic treatment or extraction. However, some authors propose that suspected radicular cysts must be totally enucleated surgically to remove all epithelial remnants.^[4]

Case Report

A 13-year-old girl reported to the Dept. of Pedodontics and Preventive Dentistry with a complaint of dull pain and swelling in the right posterior mandibular region since past

15 days. The patient had pain in the same region 1 year before and had taken medication for that. She had undergone extraction of the carious mandibular right first molar 3 days before.

Extraoral examination revealed a smooth superficial swelling of about 3 × 2.5 cm extending from the corner of mouth to the angle of mandible and from the infraorbital margin to the lower border of mandible [Figure 1]. The swelling was tender and firm with egg shell crackling on palpation. The inferior border of mandible was intact. The right submandibular lymph nodes were palpable and tender. Intraorally, the extraction socket of the mandibular right first molar [Figure 2] was present and remaining first molars were grossly carious. Vestibular obliteration and buccal and lingual plate expansion was observed in the area of right body of mandible [Figure 2].

A definite radiolucency was seen in intraoral periapical views of the mandibular right and left first molar regions. The orthopantomograph (OPG) showed a large, well-defined unilocular radiolucency with a sclerotic border periapically on the right side extending from the distal of the mandibular second premolar to mesial of the third molar leaving about 1 mm of sound bone at the inferior border of mandible. A root piece of the mandibular right first molar was seen inside the cystic cavity as radio-opaque foreign body. The mandibular canal was obliterated inferiorly [Figure 3]. A unilocular, well-defined radiolucency with a sclerotic border was accidentally found on the left side of mandible involving the roots of first and second molars [Figure 3].

Fine needle aspiration cytology (FNAC) revealed straw coloured fluid. Therefore, based on patient's clinical findings, radiographic investigations, and FNAC report, the provisional diagnosis of bilateral mandibular radicular cysts was made.

The patient was subjected to enucleation of the bilateral cysts under general anaesthesia. On the right side, a crevicular incision was made from the distal surface of the mandibular first premolar until distal surface of the second molar, the mucoperiosteal flap was raised, the mandibular second premolar and the second molar were

Department of Pedodontics and Preventive Dentistry, K. M. Shah Dental College and Hospital, Piparia, Waghodia, Vadodara, Gujarat, India

Correspondence: Dr. Niyanta S. Joshi, M-10, Aakanksha Flata, Near Sola Railway Crossing, Ghatlodia, Ahmedabad, Gujarat, India. E-mail: drmitu_17@yahoo.com

Access this article online	
Quick Response Code: 	Website: www.contempclindent.org
	DOI: 10.4103/0976-237X.79295



Figure 1: Pre-operative extra-oral photograph showing right mandibular swelling and facial asymmetry



Figure 2: Pre-operative intraoral view showing vestibular obliteration and extraction socket related to the mandibular right first molar



Figure 3: Preoperative orthopantomograph showing periapical unilocular radiolucencies in mandibular right and left first molar regions



Figure 4: Intraoperative view of enucleation of a cyst and intact neurovascular bundle on the right side



Figure 5: Intraoperative view of enucleation of a cyst on the left side



Figure 6: Photograph showing the tissue specimen of the right side

extracted and the cyst was removed *in toto* along with the root piece of the first molar. There was an intact inferior alveolar neurovascular bundle [Figure 4]. On the left side, a crevicular incision was made from the distal of the mandibular second premolar to the distal of the second molar, the mucoperiosteal flap was raised, mandibular

first and second molars were extracted, and the cyst was removed *in toto* [Figure 5]. Flaps were repositioned and sutures were taken. The tissue specimens were sent for histopathological examination.

The surgically excised lesion of right side was about 4.5×3 cm in size [Figure 6] and left side was about 2×1 cm in size



Figure 7: Photograph showing the tissue specimen of the left side

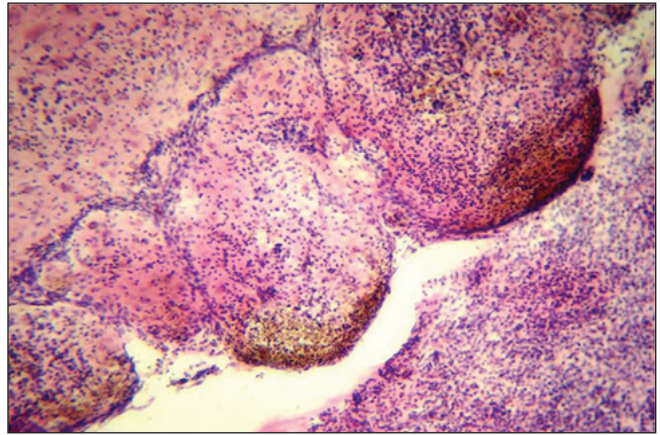


Figure 8: Microscopic image of the right side lesion (H and E stain x40)

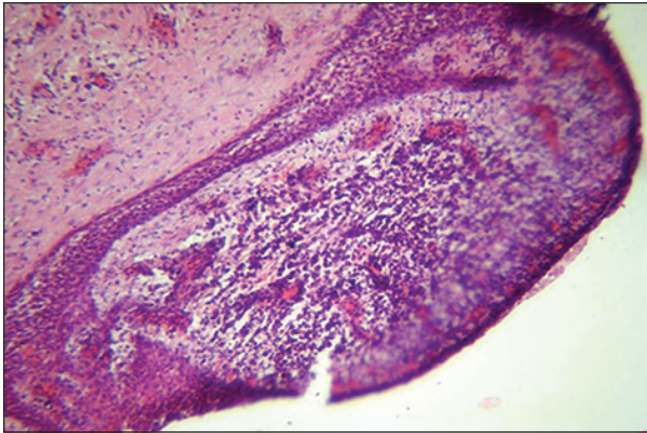


Figure 9: Microscopic image of the left side lesion (H and E stain x40)



Figure 10: Postoperative photograph showing the facial asymmetry corrected

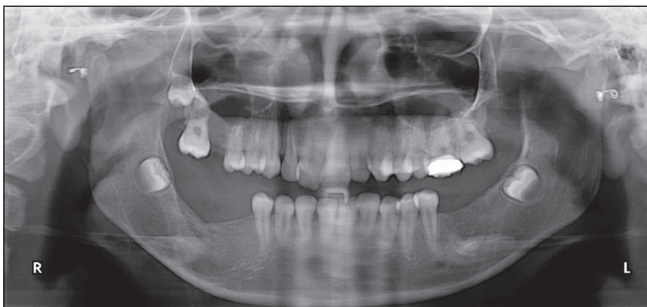


Figure 11: Postoperative orthopantomograph taken 7 months after surgery



Figure 12: Intraoral view showing removable partial prosthesis

[Figure 7]. Both specimens were creamish brown in colour and soft in consistency.

Histopathological examination of the surgical specimens showed nonkeratinized stratified squamous epithelial lining with chronic inflammatory cells infiltration, discontinuous arcading pattern of epithelial lining, hemosiderin

pigmentation, and hyaline bodies [Figures 8 and 9]. In connective tissue, there were moderate amount of collagen bundles and blood vessels with infiltration of chronic inflammatory cells [Figures 8 and 9]. All these findings were confirmatory for the radicular cyst.

The patient was recalled after 7 days for removal of sutures; the extraoral swelling was resolved [Figure 10]. The healing on left side was uneventful. On the right side, after enucleation of the cyst the cavity was quite large so to enhance the healing, an acrylic stent was given to the patient and patient was recalled after every 15 days for check up of healing and necessary adjustments.

Seven months after surgery, OPG exhibited good amount of bone formation [Figure 11]. Clinically, the healing was complete. So, the stent was replaced by removable partial prosthesis for oral rehabilitation [Figure 12]. Right now the patient is on a regular follow up.

Discussion

A radicular cyst, also known as a peri-apical cyst, is usually associated with carious, nonvital, discolored, or fractured tooth.^[5,6] The cyst is believed to form by proliferation of the epithelial cell rests of Malassez in inflamed periradicular tissues.^[7] Its size rarely exceeds 1 cm and is often seen in patients between 30 and 50 years old with higher incidence in the maxillary anterior region.^[6,8] In this case, patient's age, sex, size of the cyst, and its bilateral presentation in the mandibular posterior region is considered rare.

The radicular cyst is usually symptomless and detected incidentally on plain OPG while investigating for other diseases. However, as some of them grow, they can cause mobility and displacement of teeth and once infected, lead to pain and swelling, after which the patient usually becomes aware of the problem.^[2,6,9,10] The swelling is slowly enlarging and initially bony hard to palpate which later becomes rubbery and fluctuant.^[2,6]

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.^[6] In this case,

surgical enucleation was preferred and was performed uneventfully.

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 a common condition that occurs in an uncommon age group and location.

Acknowledgement

Dr. Kiran Desai, Head of the Department of Oral and Maxillofacial Surgery, K. M. Shah Dental College and Hospital, Piparia.

References

1. Nair PN. Review New perspectives on radicular cysts: Do they heal? *Int Endod J* 1998;31:155-60.
2. Mervyn Shear, *Cysts of oral regions*. 3rd ed. 1992: Varghese Publication House; Singapore. p. 136-70.
3. Rees JS. Conservative management of a large maxillary cyst. *Int Endod J* 1997;30:64-7.
4. Walton RE. The residual radicular cyst: Does it exist? *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 1996;82:471.
5. Scholl RJ, Kellett HM, Neumann DP, Lurie AG. Cysts and Cystic Lesions of the Mandible: Clinical and Radiologic-Histopathologic Review. *Radiographics* 1999;19:1107-24.
6. Shafer HL. *Textbook of Oral Pathology*. 6th ed. Amsterdam: Elsevier; 2006.
7. Lin LM, Huang GT, Rosenberg PA. Proliferation of epithelial cell rests, formation of apical cysts, and regression of apical cysts after periapical wound healing. *J Endod* 2007;33:908-16.
8. Weber AL. Imaging of cysts and odontogenic tumors of the jaw. *Radiol Clin North Am* 1993;31:101-20.
9. Gallego Romero D, Torres Lagares D, García Calderón M, Romero Ruiz MM, Infante Cossio P, Gutiérrez Pérez JL. Differential diagnosis and therapeutic approach to periapical cysts in daily dental practice. *Medicina Oral* 2002;7:54-62.
10. Irfan M, Alauudin M, Roselinda A, Saifulizan A. Big Radicular Cyst In A 12 Year-Old Girl: A Case Report. *Int Med J* 2007;6:C5.

Source of Support: Nil, **Conflict of Interest:** None declared.