



CASE STUDY

BILATERAL RADIOLUCENCY OF MANDIBLE: A SYSTEMATIC APPROACH TO THE DIAGNOSIS

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ABSTRACT

Radiolucency of the mandible is commonly occurring pathology. It should be differentiated from other pathological conditions as treatment of these conditions differs. As a clinician we should be able to narrow our differential diagnosis so as to arrive at correct diagnosis. This case report highlighted an unusual case of bilateral radiolucent lesion of mandible & its differential diagnosis and emphasized the importance of radiographic examination prior to the removal of teeth.

Key words:

Radiolucency, Mandible, Cyst.

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INTRODUCTION

Most common radiolucent lesion of mandible is odontogenic cyst. If the cyst is associated with carious tooth then diagnosis is radicular cyst. (Shear, 1992) Multiple radicular cysts are unusual findings. Here we reported, bilateral radiolucent lesion in the body of mandible & its differential diagnosis & management.

Case Report

A 58 year old male patient reported to the dept of Oral Surgery for extraction of multiple root pieces in the lower jaw. OPG was taken which revealed a well circumscribed radiolucency with sclerotic border associated with 43, 44 & 45. 46, 47 & 48 was missing. Similar radiolucency was present in relation to 33, 34. 38 was impacted (Figure 1). CBCT of the lesion was carried out which revealed osteolytic lesion in the right & left body of mandible (Figure 2a & 2b). On intraoral examination, swelling was palpated in the right premolar-molar region, it was firm, nontender. On palpation similar swelling was present in the left body of mandible.

Differential Diagnosis

Based on clinical & radiologic examination a differential diagnosis of radicular cyst (RC), multiple odontogenic keratocyst (OKC) associated with nevoid basal cell carcinoma syndrome & unicystic ameloblastomas (UAs) & central giant cell granuloma (CGCG) were considered. (Killey and Kay, 1977; Verma Penumatsa et al., 2013; Joshi et al., 2011)

Treatment

Enucleation of the cystic lesion in the right & left mandible along with endodontic therapy of 42, 43 & extraction of root pieces 45, 32 & 38 were planned. Routine blood investigation was carried out. Patient was taken under general anesthesia. Standard scrubbing, painting & draping was done. 2% lignocaine with adrenaline (1:200000) was infiltrated into the right buccal vestibule. A full thickness mucoperiosteal flap was reflected, thinned out buccal bone was evident in 44, 45 region (Figure 3). With round bur, buccal bone was removed to visualise underlying cyst. Plane of cleavage was obtained; cystic lining was removed in toto (Figure 4). Residual cystic cystic lining attached to the roots of canine was curetted out. Haemostasis achieved & gel foam was packed in the wound. Wound closed using 30 mersilk. Similar procedure was done on left side. Apicectomy of, 33 & 34 was done; extraction of root pieces of 32 was done. Left lower 3rd molar was surgically removed by drilling the adjacent bone & sectioning

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the crown from the roots. Specimen was send for histopathologic examination which revealed a cystic wall lined by stratified squamous epithelium arranged in interconnecting rings, chronic inflammatory infiltrates in the connective tissue (Figure 5).

This finding was suggestive of RC. Patient was follow up regularly, there was no recurrence till date (Figure 6).



Figure 1. Preoperative OPG showing well defined Radiolucency in the right & left premolar & molar region.

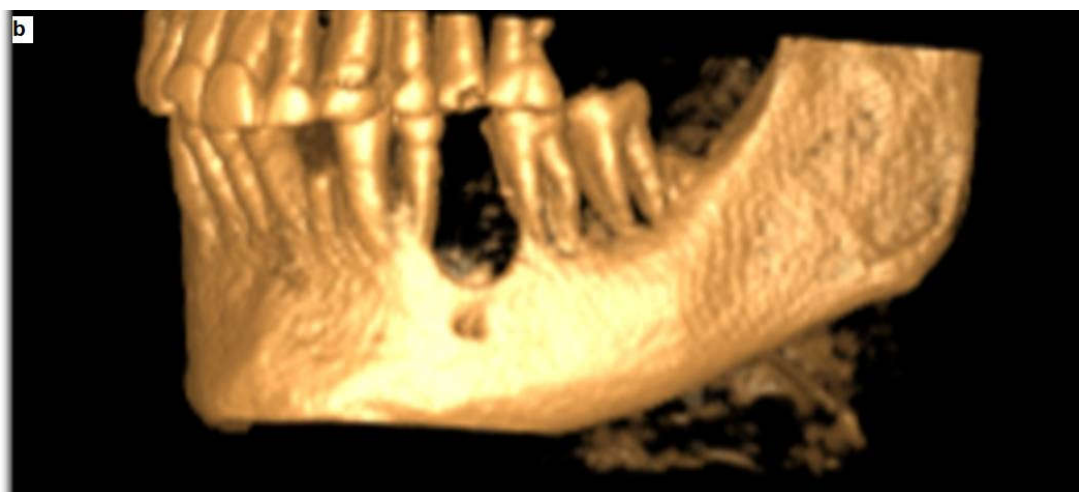
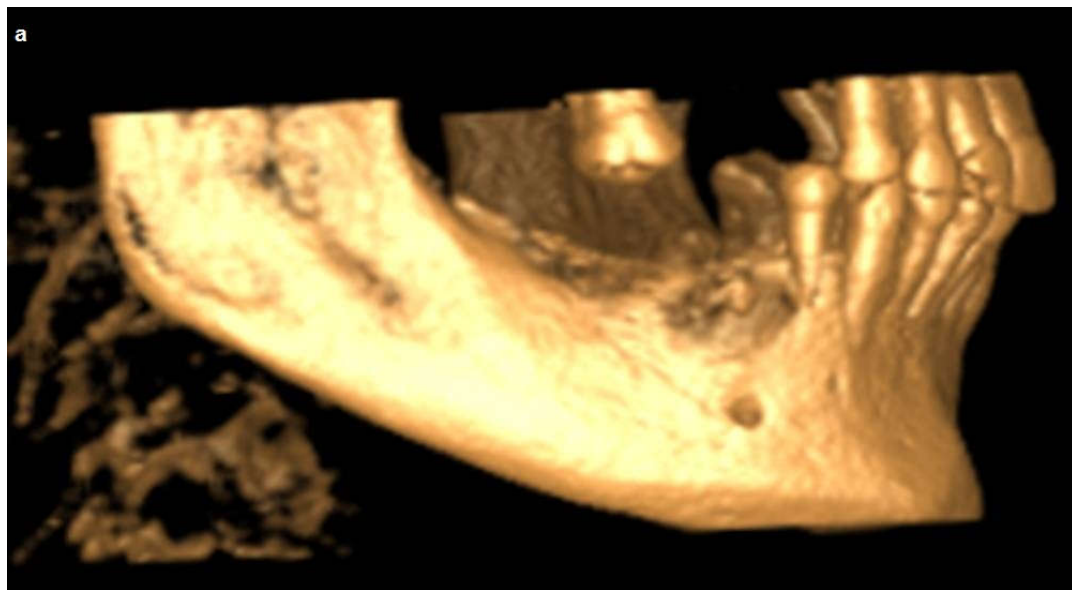


Figure 2a& 2b. CBCT of the swelling shows Osteolytic lesion in the right & left body of mandible



Figure 3. Removal of cyst lining from right side premolar region



Figure 4. Surgical specimen of cystic lining

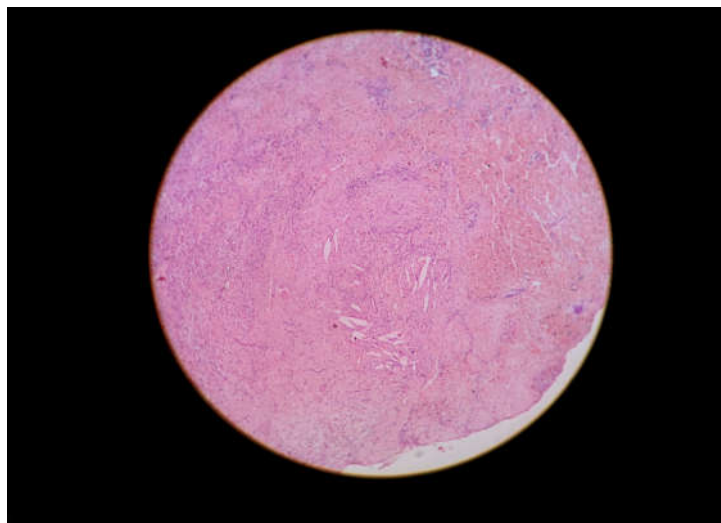


Figure 5. Histopathologic examination shows a cystic wall covered by stratified Squamous epithelium arranged in interconnecting rings, chronic inflammatory cells infiltrates present in the connective tissue

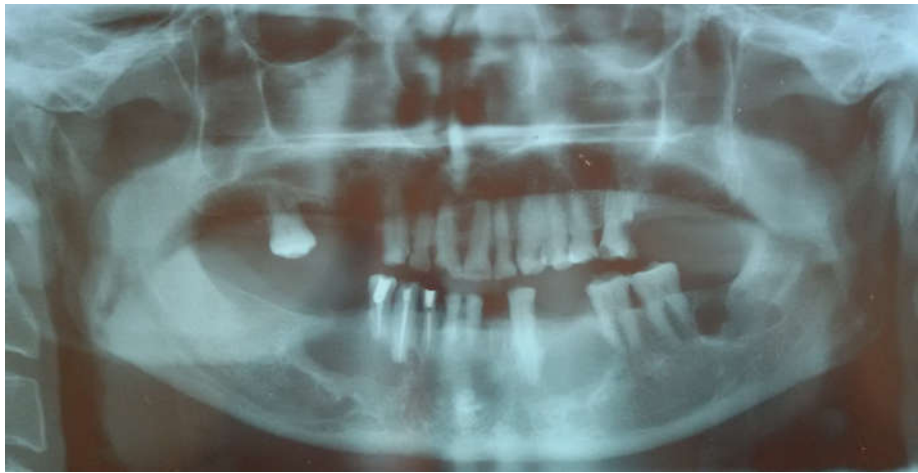


Figure 6. Postoperative OPG showing bone formation around the periphery of lesion

DISCUSSION

Bilateral radiolucency of mandible is uncommon finding. Most common radiolucent lesion in the body of mandible is benign odontogenic cyst. (Shear, 1992; Killey and Kay, 1977; Shafer's textbook of oral pathology, 6th ed) In this patient bilateral radiolucency is associated with carious root pieces, hence most common diagnosis was radicular cyst. When cyst occurred after removal of carious tooth or root pieces then it is called as residual cyst. (VermaPenumatsa *et al.*, 2013; Joshi *et al.*, 2011) These cysts most commonly occur in the maxillary anterior region in the 3rd & 5th decades of life & frequently affects male than female. (Fareed Ahmed Bava *et al.*, 2015; Shafer's textbook of oral pathology, 6th ed, Harshitha *et al.*, 2015) Most of time they are asymptomatic, occurs as incidental finding on OPG as in our case. (Figure 1) It believed to form by proliferation of the epithelial cells rests of malassez in inflamed periradicular tissue. (Shafer's textbook of oral pathology, 6th ed) Aspiration of the cyst shows brown or straw coloured fluid while the cyst fluid may have shimmering gold appearance when light pass through it (Shafer's textbook of oral pathology, 6th ed). The main feature in the diagnosis of RC is the presence of carious tooth or root piece or sometimes a sinus tract may lead from the cyst (Shear, 1992). In this patient bilateral radiolucent lesion was seen in relation to roots of 43 44 45 34 35 region. OKC are most commonly occurs in the mandibular ramus & body region. These lesions are typically found in young adults in the second to fourth decades of life. (Shear, 1992) Radiographically, OKC may be unilocular or multilocular, shows a more aggressive growth pattern & it tends to extend into the medullary cavity & clinically observable expansion of the bone occurs late. (Shear, 1992) The presence of multiple OKC, however, should suggest the possibility of basal cell nevus syndrome (i.e., Gorlin-Goltz syndrome) (Vidya A. Holla *et al.*, 2012). The other features of this syndrome includes midface hypoplasia, frontal bossing, mental retardation, calcification of the falx cerebri and dura, bifid ribs, and multiple basal cell carcinomas of the skin. (Vidya A. Holla) Diagnosis of OKC is ruled out as there was no expansion of buccal cortical plate & none of the findings described above were found in this case. UA refers to those lesions that show clinical & radiographic or gross features of a

mandibular cyst, but on histologic examination show a typical ameloblastous epithelium lining part of cystic cavity, with or without luminal and or mural tumor growth. (Lakshmi KavithaNandendla, 2012) It occurs frequently in a younger age (3rd decade). (Rosenstein *et al.*, 2001) UAs are commonly found in posterior mandible. (Rosenstein *et al.*, 2001) Most of UAs are associated with an impacted mandibular 3rd molar. (Joshi *et al.*, 2011) In this patient the lesion was present in the premolar molar region & not associated with impacted tooth, hence diagnosis of UAs was ruled out. CGCG occurs primarily in the anterior part of the jaws in 2nd & 3rd decades of life. It may be an inflammatory lesion, a reactive lesion, a true tumor or an endocrine lesion. It may behave most like a reactive lesion. This lesion was also ruled out depending on clinical & radiologic features. Several treatments are available for radicular cyst such as surgical endodontic treatment, extraction of involved teeth, enucleation, marsupialisation followed by enucleation. In this case enucleation of the cyst was done on both sides (Figure 3). The patient followed up for 6 months. There was no recurrence (Figure 6).

Conclusion

Radiolucency of mandible is often difficult to differentiate from one another on radiography. Most of the lesions are benign but some can be locally aggressive with high rate of recurrence. Through clinical examination, consideration on extent & location of lesion, its radiographic features & effect on adjacent structures generally help the clinician to arrive at the correct diagnosis.

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