

Massive ossifying fibroma of mandible

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ABSTRACT

Ossifying fibroma is a benign bone neoplasm often considered to be a type of fibro-osseous lesion. Its origin is believed to be from periodontal membrane, and it shows more predilection toward females. Mandible is more commonly affected than maxilla. This bone tumor consists of highly cellular, fibrous tissue that contains varying amounts of calcified tissue-resembling bone, cementum, or both. Radiographically, the lesions are either completely radiolucent or mixed, depending on the amount of calcification, or are completely radiopaque and surrounded by a radiolucent rim. Ossifying fibroma requires radical surgery, because of the tendency for recurrence and possibility of malignant transformation. Here, we have presented a case of massive ossifying fibroma of mandible in an 80-year-old female.

Keywords: Benign, fibro-osseous lesion, mandible, ossifying fibroma

INTRODUCTION

Ossifying fibroma (OF) is classified as a benign bone neoplasm. It is often considered to be a type of fibro-osseous lesion (FOL). It can affect both the mandible and maxilla, with more predilection toward the mandible. This bone tumor consists of highly cellular, fibrous tissue that contains varying amounts of calcified tissue-resembling bone, cementum, or both.^[1]

In 1968, Hamner *et al.*, analyzed 249 cases of jaw FOL of periodontal membrane origin and classified them. In 1973, Waldron and Giansanti reported 65 cases (of which, 43 cases had adequate clinical histories and radiographs), and concluded that this group of lesions was best considered as a spectrum of processes arising from cells in the periodontal ligament. In 1985, Eversole *et al.*, described the radiographic characteristics of central OF, and two major patterns were noted: Expansile unilocular radiolucencies and multilocular configuration.^[1]

These tumors occur in the third and fourth decades of life, showing predilection for women. The majority of lesions are found in the posterior region of the mandible.^[2]

A differential diagnosis should be performed, preferably with other FOLs such as fibrous dysplasia and cemento-osseous dysplasia.^[2]

In 1971, WHO classified four types of cementum-containing lesions: Fibrous dysplasia, OF, cementifying fibroma, and cemento-OF. According to the second WHO classification, benign FOLs in the oral and maxillofacial regions were divided into two categories: Osteogenic neoplasm and non-neoplastic bone lesions; cementifying OF belonged to the former category. However, the term "cementifying OF" was reduced to OF in the new WHO classification in 2005.^[3]

CASE REPORT

An 80-year-old female patient reported to our department with a chief complaint of pain and swelling in the lower right back tooth region since past 15 days. Clinical examination revealed a huge swelling on the left side of the jaw [Figure 1a]. The patient was aware of the swelling since 15 years. The swelling was gradual on onset, slowly increased over years to present size and was not preceded by any trauma or tooth ache in that region of jaw. History of associated pain since 3-4 years was noted. No history of any loss of sensation or pus discharge was noted. The

patient was a known hypertensive since 15 years and was on regular medication. The swelling was solitary, well-defined, firm in consistency, tender, and 12 × 12 cm in size extending from the right canine region to the left angle region. No evidence of lingual cortical plate expansion or perforation was noted. Based on the history and clinical findings, a differential diagnosis of osteoblastoma, cementoblastoma, calcifying epithelial odontogenic tumor, and OF was given.

Radiographic evaluation with OPG and lateral view of mandible showed a mixed radiolucent and radioopaque lesion with diffuse foci of calcifications throughout [Figures 1b and c]. Patient underwent extraction of the complaint tooth and an incisional biopsy of the lesion was done and sent for histological evaluation.

Histopathological analysis revealed connective tissue stroma that was highly cellular and was made up of numerous fibroblasts and collagen fibers. Trabeculae of bone with osteocytes and globules of calcification amidst plump fibroblasts were noted [Figures 1d and e]. Few endothelial lined blood vessels were also seen giving an impression of OF.

Correlating the clinical, radiological, and histopathological findings, a final diagnosis of OF was given. Treatment done was resection and reconstruction of mandible with reconstruction plate under general anesthesia [Figures 1f and g]. Postoperative

period was uneventful and no recurrence noted with follow-ups [Figures 1h and i].

DISCUSSION

Most benign FOLs of jaws are asymptomatic and slowly progressing.^[4] The origin of OF is thought to be the periodontal membrane.^[1] Most cases of active OFs are asymptomatic, and the first clinical manifestation is a swelling of the mandibular cortical layer, which produces a marked extraoral facial asymmetry.^[5] In a study by Eversole, females were five times more affected than males. Usually, the condition is painless, but, if a nerve is involved, there can be pain. The mandible is more affected than the maxilla.^[3]

Radiographic features are non-specific and typically consist of a unilocular or multilocular radiolucency having ill-defined borders and occasional central opacification. Aggressive lesions may show cortical thinning and perforation.^[5] Lu *et al.*, reported four radiographic patterns for OF, namely, cystic radiolucency, ground glass appearance, sclerotic change, and mixed type, while Barberi *et al.*, reported three radiographic patterns for OF, namely, radiolucent (53%), sclerotic (7%), and mixed



Figure 1a: Preoperative photograph

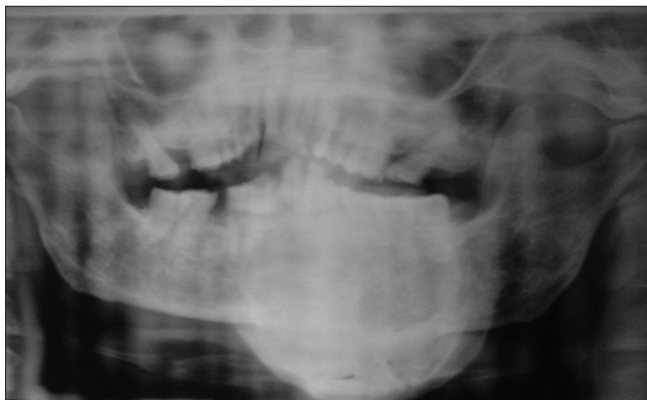


Figure 1c: Preoperative OPG radiograph

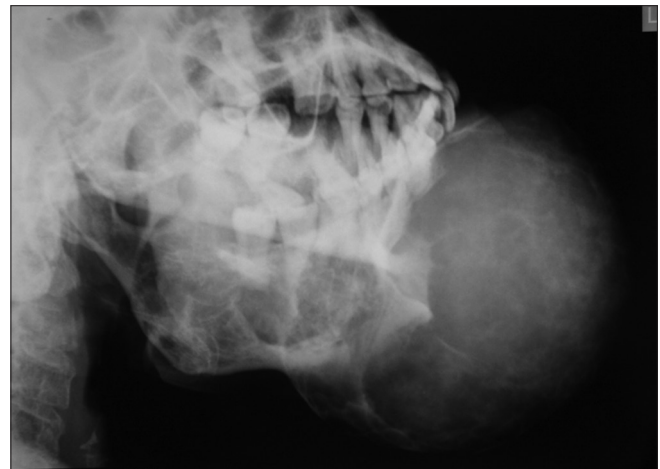


Figure 1b: Preoperative lateral view radiograph of mandible

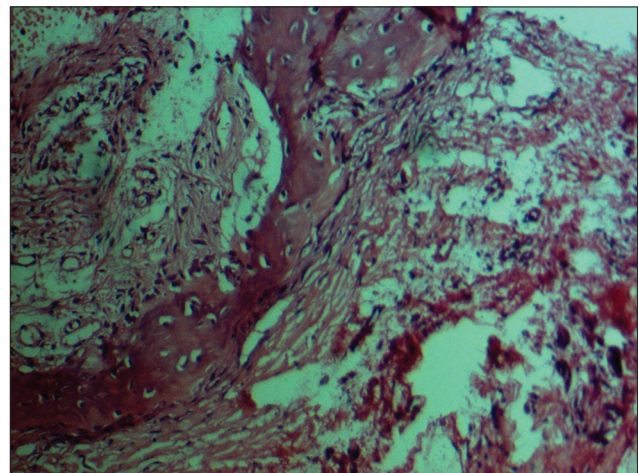


Figure 1d: Histological section showing connective tissue stroma with numerous fibroblasts and osteocytes

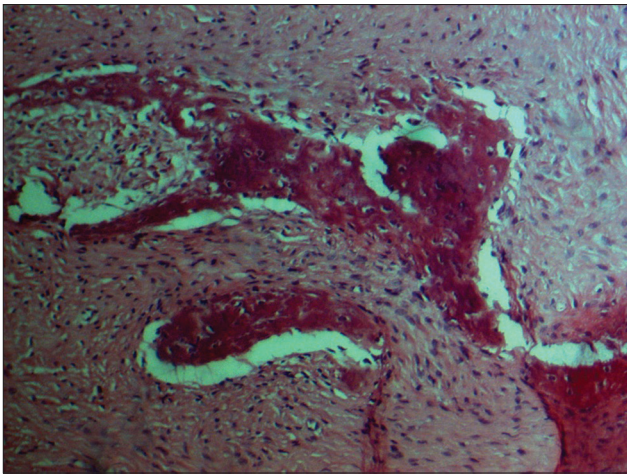


Figure 1e: Magnified histological microphotograph



Figure 1f: Intraoperative view of the tumor

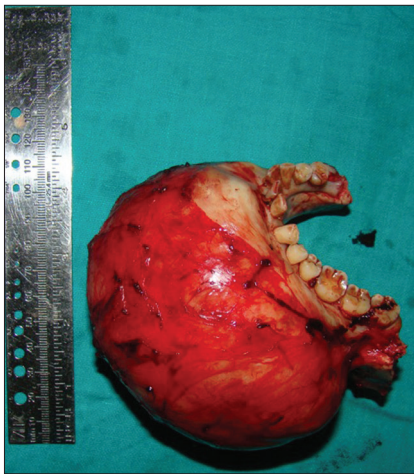


Figure 1g: Total size of the tumor after removal



Figure 1h: Postoperative OPG radiograph showing reconstruction plate



Figure 1i: Postoperative photograph

type (40%).^[6] Radiographically, the lesions are either completely radiolucent or mixed, depending on the amount of calcification, or are completely radiopaque and surrounded by a radiolucent rim. In each type, there is a sclerotic border around the lesion.

Multilocularity is rare. Root divergence and resorption are not uncommon.^[5] The growth of the lesion may result in displacement of teeth or the inferior alveolar canal. A significant point is that the outer cortical plate, although displaced and thinned, remains intact. The lamina dura of involved teeth usually is missing.^[2]

Histologically, OF is a well-demarcated lesion consisting of a fibroblastic stroma containing of plexiform and lamellar bone in addition to acellular mineralized material.^[6] Presence of hypercellular fibrous tissue with the occasional presence of islands of bone tissue or cementiform calcifications. Within the fibrous stroma, mineralized tissue masses corresponding to osteoid material or cement were seen accompanied by dystrophic calcifications.^[7]

Differential diagnosis includes osteoblastoma, an intraosseous form of fibromatosis known as desmoplastic fibroma, cementoblastoma, and osteoid osteoma.^[5]

OF requires radical surgery because of the tendency for recurrence and possibility of malignant transformation.^[1] MacDonald-Jankowski indicated enucleation or curettage as the first treatment option if relapse is identified in the course of follow-up and conservative resection is obligate.^[2] To avoid or minimize the chance of recurrence, *en bloc* resection or partial resection of the jaw is generally preferred. If indicated, reconstruction should be performed primarily. In case of

segmental resection of the mandible, a defect below 5 cm in length with an intact soft tissue envelope could be filled with a free bone graft (e.g., iliac bone graft). A larger defect (>5 cm) and especially in combination with alteration of the covering soft tissue would emphasize the need of a microvascular graft.^[5]

CONCLUSION

OF of such a massive size as presented in our case is rarely encountered. It is important to make an early diagnosis, apply the appropriate treatment and follow-up the patient over a long term.

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Calendar of Events

June 17-19, 2014

36th Asia Pacific Dental Congress (APDC)

Venue: Dubai, United Arab Emirates

Email: info@apdentalcongress.org

Web: www.apdentalcongress.org

June 25-28, 2014

92nd General Session & Exhibition of the IADR

Venue: Cape Town, South Africa

Web: www.iadr.com

July 2-4, 2014

BAOMS Scientific Meeting and Exhibition

Venue: Edinburgh International Conference Center

Email: office@baoms.org.uk

Web: www.baoms.org.uk

August 22-25, 2014

11th Asian Congress on Oral and Maxillofacial Surgery (ACOMS)

Venue: Xi'an QuJiang International Convention Centre, China

Email: kqcszx@fmmu.edu.cn

Web: www.11acoms.org

September 9-12, 2014

ICPF 2014 Workshop

Venue: Ulaanbaatar, Mongolia

Web: www.icpf2014mongolia.mn/

September 11-14, 2014

FDI Annual World Dental Congress 2014

Venue: New Delhi, India

Web: www.fdi2014.org.in

September 23-26, 2014

XXII Congress of the European Association for Cranio-Maxillo-Facial Surgery

Venue: Prague Congress Centre, Prague, Czech Republic

Email: eacmfs2014@guarant.cz

Web: www.eacmfs2014.com

March 17-20, 2015

Seychelles International Dental Conference

Venue: Victoria Hospital, Mahe, Republic of Seychelles

Email: info@sezdentcon2015.com

Web: www.sezdentcon2015.com