ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,S Iss 3 Dec 2022

Osteoid Osteoma Of Mandible: A Rare Case Report

Neeraj Grover[a] Kanika Bhalla[b] Shreya Singh[c] Richa Singh[d]

Author Address: Dr. Neeraj Grover, Department of Oral and Maxillofacial Pathology, Santosh Deemed to be University, NCR-Delhi, Ghaziabad

ABSTRACT

The Osteoid Osteoma (OO) is a benign tumor of bones. According to the literature there is predominance of mandible over maxilla in most of the cases so far reported. The radiographic features present a pathognomic feature i.e., central nidus surrounded by a peripheral zone of sclerotic bone. In the cases of large Osteoid Osteomas surgical resection is generally a preferred mode of the treatment. However, recommended a regular clinical and radiographic follow up for small lesions to be diagnosed earlier. Here we report a rare case of Osteoid Osteoma that represented in the mandible of 17yr old boy.

Key Words- Bone; Mandible; Central nidus; Osteoid; Pain

INTRODUCTION

Osteoma is a benign neoplasm composed of both cortical and cancellous bones that slowly increase in size with continuous formation of bone (Valente L, Tieghi R, Mandrioli S, Galiè M 2019). An Osteoid Osteoma (OO) is a benign bone neoplasm with limited growth potential, characterized by significant nocturnal pain that usually responds to non-steroidal anti-inflammatory drugs (NSAIDs). It was first characterized in 1935 by Jaffe (Chaurasia and Balan 2008). Most Commonly located in the long bones of the femur and tibia as well as the vertebra, but various locations have been described. OO accounts for approximately 10% of all benign bone tumors and is more commonly found in male (Matthies et al. 2019; Chaurasia and Balan 2008). Most commonly involved sites are long bones where occurrence rate is about 80% of OO, while less than 1% occurs in jaws (Ida M 2002). Second and third decades of life is the age of prevalence (Chaurasia and Balan 2008; Karandikar S et al. 2011). Although the clinical, radiographical and histological findings of OO and osteoblastoma overlap, the WHO classification defines OO as a distinct entity with neoplastic properties and limited expansion, resulting in lesions with a diameter less than 2 cm (Matthies et al. 2019).

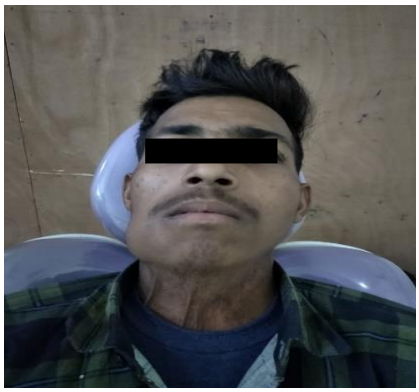
CASE PRESENTATION

A 17-year-old boy reported to the department of Oral and Maxillofacial Surgery with a chief complaint of facial and extra oral swelling on the inferior border of the right angle of mandible. He had been aware of the slow but steady increase in the size of the lesion over the past 7-8

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,S Iss 3 Dec 2022

years. There was no pain/ discharge and also no difficulty in opening of mouth or chewing. His medical history was not contributory. In Clinical examination extra-oral swelling on the right side of the mandible (figure 1,2,3) was found . The regional lymph nodes were non-palpable. Extra-oral examination revealed a well-defined, round, immobile mass. The lesion was bony-hard on palpation. The overlying skin appeared normal. In panoramic radiography of mandible a solitary, round, well-defined radio-opaque as well radiolucent lesion of about the size of 4×4 cm at inferior border of mandible was noticed (figure4) and in MRI a well defined T1T2/STIR hypointense lesion of size ~ 3.7×5.0×4.4cms seen arising from the body of the mandible on right side with no perilesional edema causing external soft tissue bulge. No extension seen across the midline. No obvious invasion seen into adjacent myofascial planes. No similar lesions were diagnosed in other parts of maxillofacial region, ribs and long bones.



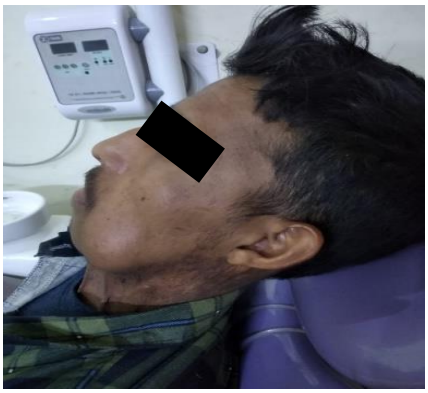


Figure1: Extra-oral-front view, Figure2: Lateral view

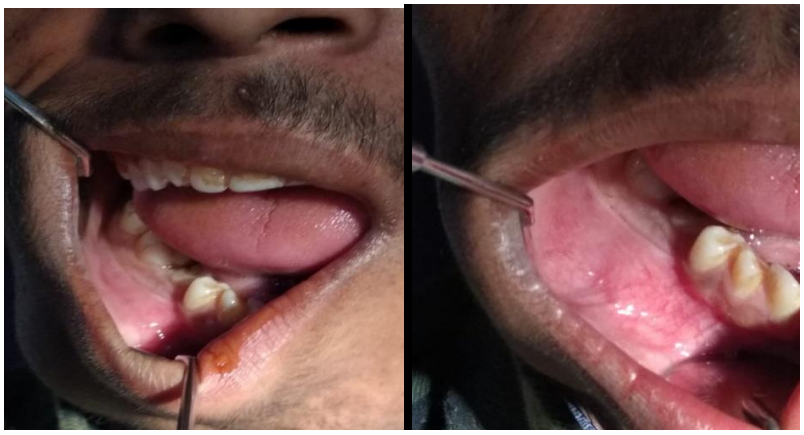


Figure3: Intraoral view

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,S Iss 3 Dec 2022

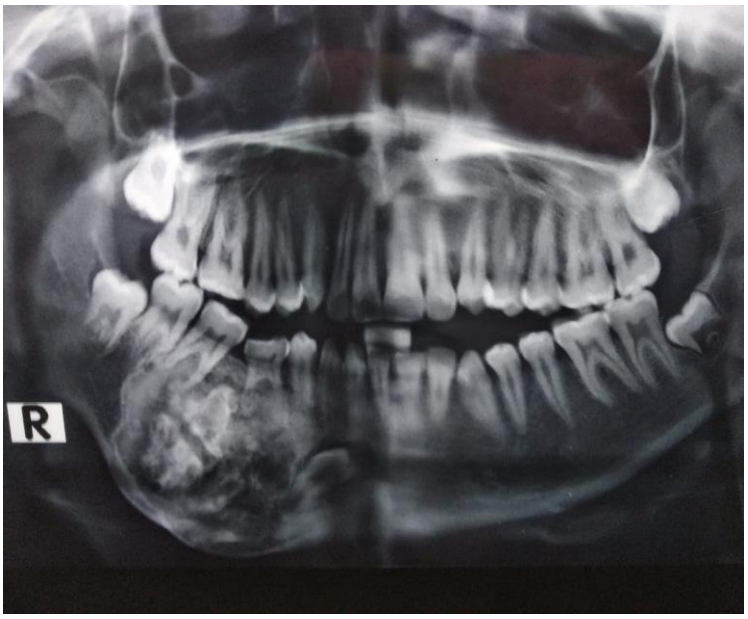


Figure4: OPG

INVESTIGATIONS

- Complete haemogram
- Serum calcium
- Serum alkanine phosphatase
- Orthopantomograph
- MRI

DIFFERENTIAL DIAGNOSIS

- Garre's osteomyelitis
- Eosinophillic granuloma
- Osteoid Osteoma
- Osteosarcoma (early detection)
- Fibrous Dysplasia
- Ameloblastoma
- Osteoblastoma
- Complex odontoma.

HISTOPATHOLOGICAL FINDING

Histopathological analysis confirmed the diagnosis of Osteoid Osteoma. Lesional tissue revealed numerous irregular bony trabeculae outlined by osteoblastic rimming and lacunae with

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,S Iss 3 Dec 2022

osteocytes within them. Interspersed by a vascular connective tissue stroma. Peripheral reactive bone with resting lines also evident.

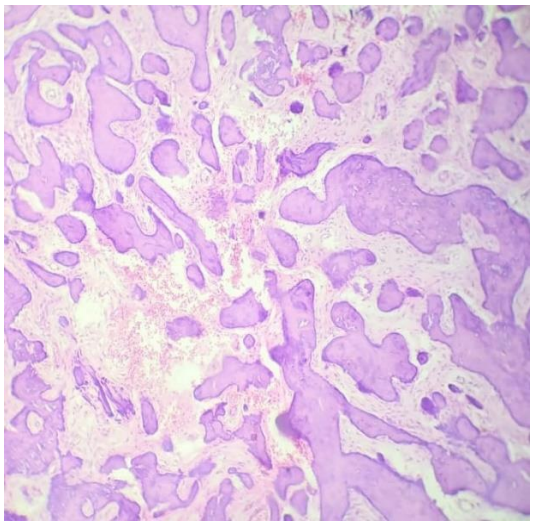


Figure5:10X view

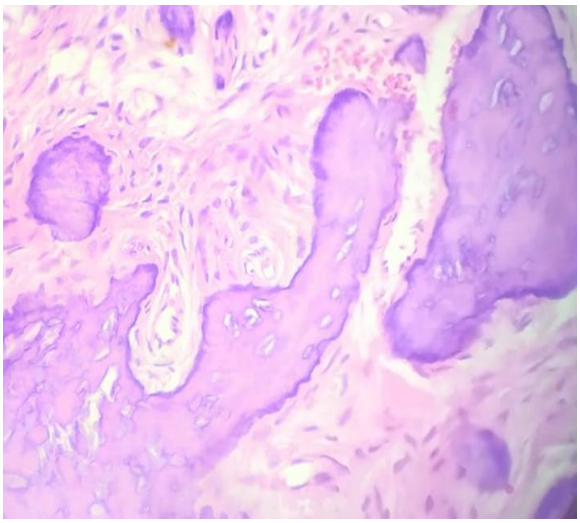


Figure6: 40X view

TREATMENT

The lesion was completely excised under local anesthesia with controlled intravenous sedation. Standard protocol of perioperative antibiotics and anti-inflammatory regimen was followed. The biopsied specimen was kept under fixative and was submitted for histopathological examination.

DISCUSSION

OO is classically localized in the long bones and may exhibit a stronger sclerotic reaction compared to osteoblastoma, which is rather located in the axial bones. Further analysis of compounds such as osteocalcin, released by OO, may be additionally used to differentiate the tumor.[8]

The pathogenesis of osteoid osteoma remains controversial. Jaffe originally identified osteoid osteoma as a benign neoplasm (Karandikar S et al. 2011). According to some authors the lesion is inflammatory in origin and demonstrated high levels of inflammatory mediators in the nidus of these lesions, specifically prostaglandin E2 and prostacyclin, elucidating the characteristic nociception and rationale for the use of NSAIDs (Ciabattoni G., Tamburrelli F., Greco F 1991; Goto T et al. 2011) and arises as a result of unusual reparative and healing processes (Karandikar S et al. 2011).

In the last 15 years, only nine cases of mandibular condyle osteoma have been documented in the literature. PubMed and Cochrane Library were used as a source of research (Valente L et al.

ISSN PRINT 2319 1775 Online 2320 7876

Research paper **© 2012 IJFANS. All Rights Reserved, UGC CARE Listed (Group -I) Journal Volume 11,S Iss 3 Dec 2022**

2019). In addition, to this all the cases documented in the scientific literature regarding osteoid osteomas were may be even lower than 20 cases presenting in the jaws (Matthies et al. 2019).

The histological characteristics of osteoid osteoma is the presence of central nidus consisting of varying combination of newly formed bone, osteoid, and highly vascular supporting fibrous connective tissue. Osteoid can be appreciated in the form of broad sheet in some areas or it may present bony trabeculae in process of calcification or ossification. The trabeculae are thin and show prominent osteoblastic rimming. The thickened cortical bone is seen around the nidus (Matthies et al. 2019).

Histopathologically, Huvos has explained three different stages of ossification (Sunil Richardson and others 2017). The initial stage is identified by the presence of proliferating, densely packed prominent osteoblasts in a highly vascularized stroma. In the intermediate stage, the osteoid is deposited between the osteoblasts. The mature stage comprised of the lesion, in which the osteoid is transformed into a well-calcified, compact trabeculae of an atypical bone, are histologically peculiar because they are neither typically woven nor typically lamellar. In our case, the pathology corresponds to the mature stage of the lesion (Ida M 2002; Sunil Richardson and others 2017).

It is very rare to find cases of malignant transformation of peripheral osteomas as it has not been reported in the literature (Karandikar S et al. 2011; Goto T et al. 2011). One case has been reported in literature, which transformed into an aggressive osteoblastoma of low grade variety (A.S. Pieterse et al. 2007).

Patients diagnosed with osteomas should be assessed for an autosomal dominant disease known as Gardner's syndrome (Goto T et al. 2011). This syndrome is characterized by multiple osteomas, gastrointestinal polyps, soft tissue as well as skin tumors and multiple supernumerary or impacted teeth. Generally Intestinal polyps are considered as adenomas and may progress to malignancy in almost 100% of patients (Ida M 2002).

CONCLUSION

Due to the very low number of cases with OO those affecting the jaw bones, it will provide a better understanding of such rare bony lesions, that will be important for dentists, oral and maxillofacial surgeons to report additional cases to increase the awareness and potentially diagnose and appropriately treat this condition at the earliest possible stage.

REFERENCES

1. A.S. Pieterse, B. Vernon-Roberts, D.C. Paterson, B.L. Cornish, P.R. Lewis, et al. Osteoid osteoma transforming to aggressive (low grade malignant) osteoblastoma: a case report and literature review. Histopathology, 7 (2007), pp. 789-800.

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11,S Iss 3 Dec 2022

2. Chaurasia and Balan: Osteoid osteoma of jaws. Journal of Indian Academy of Oral Medicine and Radiology. 2008;20(1):6-8.
3. Ciabattoni G., Tamburrelli F., Greco F. Increased prostacyclin biosynthesis in patients with osteoid osteoma. Eicosanoids. 1991; 4:165–167.
4. Goto T., Shinoda Y., Okuma T., Ogura K., Tsuda Y., Yamakawa K., Hozumi T. Administration of nonsteroidal anti-inflammatory drugs accelerates spontaneous healing of osteoid osteoma. Arch. Orthop. Trauma Surg. 2011; 131:619–625.
5. Ida M. Osteoid osteoma in the mandible. Dento maxillofacial Radiology 2002;31(3):85e387.
6. Issa SA, Abdulnabi HA, Alshewered ASH. Intra-articular osteoid osteoma of tempromandibular joint: A case report. Int. J. Surg. Case Rep. 2019; 62:9-13.
7. Karandikar S, Thakur G, Tijare M, Shreenivas K, Agrawal K. Osteoid osteoma of mandible. BMJ Case Rep. 2011; Dec 5;2011: bcr1020114886.
8. Matthies et al: Osteoid Osteoma of the Mandible ANTICANCER RESEARCH. 2019; 39:291-296.
9. Sunil Richardson, Rakshit Vijay Khandeparker, Kapil Sharma. Large osteoid osteoma of the mandibular condyle causing hearing loss. J Korean Assoc Oral Maxillofac Surg 2017; 43:106-114.
10. Valente L, Tieghi R, Mandrioli S, Galiè M. Mandibular condyle osteoma. Ann Maxillofac Surg. 2019; 9:434-8.