

CASE REPORT

OSTEOSARCOMA OF MANDIBLE – A RARE CASE REPORT

Ajish George Oommen, Sumir Gandhi, ManishaSolanki³, Navpreet Bedi⁴

¹PG Resident, ²Professor & Head, ³Associate Professor, ⁴Assistant Professor
Department of Oral & Maxillofacial Surgery, Christian Dental College, Ludhiana.

ABSTRACT:

Background & Objectives –Osteosarcomas are malignant neoplasms of the bone which commonly affect the long bones. The involvement of the jaws are rarely noticed. Mandibular and maxillary osteosarcomas account for 6% to 9% of all the osteosarcomas. Mandibular Osteosarcoma is often considered as a distinct entity because of its predilection to older patients (mean age: 34 to 36 years). **Case Report** - 25 Year old gentleman presented to department of Oral and maxillofacial surgery with pain in right lower back region of the lower jaw and swelling in lower jaw since 6 months . Incisional biopsy suggested mandibular osteosarcoma and he was started on neoadjuvant chemotherapy followed by surgical excision and adjuvant chemotherapy. Patient is on regular followup for the past two years and investigations done to rule out recurrence. Postoperatively patient is maintaining a good quality of life. **Conclusion-** Neoadjuvant and adjuvant chemotherapy with surgical excision can be a good treatment modality for the management of mandibular osteosarcoma

Keywords: Osteosarcoma, Surgery, Chemotherapy, Treatment

Corresponding Author : Dr Ajish George Oommen, Department of Oral & Maxillofacial Surgery, Christian Dental College, Ludhiana.

This article may be cited as: Oommen AG, Gandhi S, Solanki M, Bedi N. Osteosarcoma Of Mandible – A Rare Case Report. J Adv Med Dent Scie Res 2017;5(5):41-43.

Access this article online	
<p>Quick Response Code</p> 	Website: www.jamdsr.com
	DOI: 10.21276/jamdsr.2017.5.5.11

INTRODUCTION

The term osteosarcoma refers to a heterogenous group of primary malignant neoplasms affecting bone forming or mesenchymal tissues that have histopathologic evidence of osteogenic differentiation^[1]. Osteosarcoma is a highly malignant bone tumor^[2] and it is relatively a rare disease in the head and neck region^[3]. It occurs infrequently in the jaws, as some series have revealed that approximately only 8% of all osteosarcomas develop in this location³. Mandibular osteosarcoma is often considered as a distinct entity because of its predilection to older patients (mean age: 34 to 36 years)^[4]. It is found rarely in young age group. Metastasis is less likely and prognosis is correspondingly more favorable, approximately 40% five year survival rate versus 20% for non jaw lesions^[3].

CASE REPORT

A 25 Year old male presented to the outpatient department of oral and maxillofacial surgery with chief complaint of pain in right lower back region of the lower jaw since 6 months and swelling for which he got treatment at a local

hospital. Patient was apparently well 6 months back when he developed progressive swelling associated with pain .Pain was intermittent and aggravated at night and relieved on medication . Patient was on treatment at a local hospital and was referred to us for further management.

On examination he had an impacted 48 with swelling with respect to lingual and buccal region of 47 ,48. Swelling was a diffuse swelling (approx. 7cm x 5 cm) on right side of face extending from chin to angle of mandible. Swelling was bony hard on palpation with smooth margins. Temperature was not raised with respect to the swelling on palpation. Expansion of buccal and lingual cortical plate wrt right mandibular region was noted. Differential diagnosis of ameloblastoma, central giant cell granuloma and osteosarcoma was made. Intraoral periapical radiograph, occlusal view radiograph showed sunburst appearance.

Further Investigations done to confirm the diagnosis which included complete blood count ,incisional biopsy, CT scan, chest x-ray, orthopantomogram, ultrasound abdomen, alkaline phosphatase levels. CT scan was done which reported findings suggestive of primary bone malignancy.

Incisional biopsy was suggestive of osteosarcoma. Diagnosis of osteosarcoma of mandible was made based on these findings. Chest x-ray and ultrasound abdomen ruled out any signs of metastasis of the lesion. Alkaline phosphatase levels were in normal limits.



FIGURE I: Intraoral view of swelling



FIGURE II: Occlusal view showing sunburst appearance



FIGURE III: Resected Lesion

Treatment plan of neoadjuvant chemotherapy with surgical excision of lesion with wide margin and adjuvant chemotherapy post operatively was made. Three cycles of neoadjuvant chemotherapy was given. Post chemotherapy there was reduction in tumor mass indicating good prognosis for surgical excision with wide margin. Segmental resection of mandible with excision of osteosarcoma with wide margin sparing the condyle with reconstruction using reconstruction plate was done Margins of the resected lesion was free of pathology. Resected lesion was sent for histopathological analysis. Excisional biopsy revealed decalcified sections from the body of mandible reveal malignant mesenchymal cells ,tumor osteoid & new bone formation. The features were suggestive of osteosarcoma and good margins were obtained after resection. Patient was on regular follow up and investigations were done on a regular basis to rule out recurrence . Adjuvant chemotherapy was given postoperatively. Patient showed no signs of recurrence since two years and is able to maintain a good quality of life post operatively.

DISCUSSION

Osteosarcoma is a highly malignant tumor with extensively destructive potential. It is also the most common primary malignant lesion of bone [5]. It occurs infrequently in the jaws, as some series have revealed that approximately only 8% of all osteosarcomas develop in this location[2]. Mandibular osteosarcoma is often considered as a distinct entity because of its predilection to older patients (mean age: 34 to 36 years)[4] and is found rarely in young age group. Contrary to this finding the patient in the present case report was in the second decade who presented to us with swelling and ulceration but with complain of pain. The majority of mandibular osteosarcomas arise in the body of the mandible; the remaining sites of the predilection include the symphysis, angle of the mandible, ascending ramus and temporomandibular joint. In the maxilla, there is a nearly equal incidence of tumors involving the alveolar ridge and maxillary antrum, with a few affecting the palate. Maxillary tumors may extend to the infratemporal fossa and to maxillary sinus and attain a greater volume before diagnosis[3].

The most common presenting symptom of Osteosarcoma in the head and neck region is swelling. Pain has been reported in approximately 50% of patients in some large series, although in other reports the occurrence of pain has been ranged from 3% to over 80% of patients. Mucosal ulceration and loosening of teeth can also occur. Pathological fractures may occur in cases of large sarcomas. Sensory neural abnormalities may occur in cases in which the lesion involves the course of peripheral nerves, involvement of temporomandibular joint or para mandibular musculature is often accompanied by trismus. Radiography is the initial imaging modality in the evaluation of bone tumors[6]. The diagnosis of

osteosarcoma is typically suspected by the radiographic appearance of the affected bone. Ossification in the soft tissue component of the bone, manifesting as “sunburst” pattern is classic for osteosarcoma but is not a specific feature. Periosteal new formation with lifting of the cortex leads to the appearance of a Codman’s triangle. Garrington et al. mentioned that roentgenographic evidence of a symmetrically widened periodontal membrane space is a significant early finding in Osteosarcoma of jaw^[7]. Panicek et al. in his study showed that CT scanning and MRI are equally accurate in staging of local disease in bone tumors^[8]. The diagnosis of osteosarcoma must be verified histologically with a biopsy before initiation of treatment. Malignant mesenchymal cells, tumor osteoid & new bone formation are diagnostic histopathological findings in osteosarcoma. Surgical resection along with a margin of normal surrounding tissue is the treatment of choice for osteosarcoma^[9]. Bielack et al. in their analysis of prognostic factors in high grade osteosarcoma of the extremities of trunk, concluded that incomplete surgery was the most important negative prognostic indicator, followed by poor response, primary metastases and axial location, as well as tumor size in those patients where it could be evaluated^[10]. Anatomical limitations in face can sometimes cause difficulties in achievement of uninvolved margins and for this reason local recurrence of these lesions is high^[9]. Mandibular osteosarcomas have a better prognosis than maxillary osteosarcomas^[7]. A retrospective analysis of patients with osteosarcoma of the jaws by August et al. also showed that 71% of surviving patients were given chemotherapy with 4 or more agents^[11]. The study by Oc theile concluded that combined interdisciplinary treatment of radical resection of the tumour with high-dose chemotherapy according to standard protocols is the most effective treatment for craniofacial osteosarcomas^[12].

CONCLUSION

Through this case report, we can conclude that regular postoperative follow up is mandatory and routine investigations should be done to rule out recurrence. Neoadjuvant and adjuvant chemotherapy with surgical excision can be a good treatment modality for the management of mandibular osteosarcoma

REFERENCES

- Schajowicz F, Sissons HA, Sobin LH. The world health organization’s histologic classification of bone tumors. A commentary on the second edition. *Cancer*. 1995 Mar 1;75(5):1208–14.
- Clark JL, Unni KK, Dahlin DC, Devine KD. Osteosarcoma of the jaw. *Cancer*. 1983 Jun 15;51(12):2311–6.
- Yeşilova E, Akgünlü F, Dolanmaz D, Yaşar F, Şener S. Osteosarcoma: A case report. 2007 Jan 1.
- Murphey M, Robbin, McRae G, Flemming D, Temple H, Kransdorf M. The many faces of osteosarcoma. *Radiographics : a review publication of the Radiological Society of North America, Inc.* 1997 Oct 6.
- M Khorate M, Goel S, Singh MP, Ahmed J. Osteosarcoma of Mandible: A case report and review of literature. *Journal of Cancer Science & Therapy*. 2010;02(04):122–5.
- Massengill A, Seeger L, Eckardt J. The role of plain radiography, computed tomography, and magnetic resonance imaging in sarcoma evaluation. *Hematology/oncology clinics of North America*. 1995 Jun 1;9(3):571–604.
- Garrington GE, Scofield HH, Cornyn J, Hooker SP. Osteosarcoma of the jaws. Analysis of 56 cases. *Cancer*. 1967;20(3):377–91.
- Panicek DM, Gatsonis C, Rosenthal DI, Seeger LL, Huvos AG, Moore SG, Caudry DJ, Palmer WE, McNeil BJ. CT and MR imaging in the local staging of primary malignant musculoskeletal neoplasms: Report of the Radiology diagnostic oncology group. *Radiology*. 1997 Jan;202(1):237–46.
- Forteza G, Colmenero B, López-Barea F. Osteogenic sarcoma of the maxilla and mandible. *Oral surgery, oral medicine, and oral pathology*. 1986 Aug 1 ;62(2):179–84.
- Bielack SS, Kempf-Bielack B, Delling G, Exner GU, Flege S, Helmke K, Kotz R, Salzer-Kuntschik M, Werner M, Winkelmann W, Zoubek A, Jürgens H, Winkler K. Prognostic factors in high-grade Osteosarcoma of the extremities or trunk: An analysis of 1,702 patients treated on Neoadjuvant cooperative Osteosarcoma study group protocols. *Journal of Clinical Oncology*. 2002 Feb;20(3):776–90.
- August M, Magennis P, Dewitt D. Osteogenic sarcoma of the jaws: Factors influencing prognosis. *International journal of oral and maxillofacial surgery*. 1997 Jun 1 ;26(3):198–204.
- Thiele OC, Freier K, Bacon C, Egerer G, Hofele CM. Interdisciplinary combined treatment of craniofacial osteosarcoma with neoadjuvant and adjuvant chemotherapy and excision of the tumour: A retrospective study. *British Journal of Oral and Maxillofacial Surgery*. 2008 Oct;46(7):533–6.

Source of support: Nil

Conflict of interest: None declared

This work is licensed under CC BY: *Creative Commons Attribution 3.0 License*.