

Metastasis of breast carcinoma in the mandible presenting histologically as an Invasive Ductal Carcinoma : A Case Report

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ABSTRACT

INTRODUCTION: Malignant tumors of the jaws and oral tissues which are metastatic are not common, comprises 1% of malignancies of the oral cavity. Metastatic malignancies in maxillofacial region occur in the mandible more frequently than in the maxilla, and rarely in soft tissues. The most frequent primary sites of malignancy with the potential to metastasize in the mandible are, in decreasing order, the breast, lung, kidney, thyroid, prostate, colon, stomach, skin, testicle, bladder, liver, uterus, and ovary. The purpose of this study is to present diagnosis and treatment planning of a rare case of metastatic invasive ductal carcinoma involving angle and ramus of the mandible, in a 50 years old female.

CASE PRESENTATION: The patient was a 50 year old female who came with the chief complaint of pain and swelling over the right side of the face, and paresthesia and numbness of her lower lip. Intraoral examination revealed an ulceroproliferative growth in mandibular right buccal vestibule. Radiographic finding showed irregular bony destruction. Histopathologic features were suggestive of ductal carcinoma. Clinicopathologic correlation was suggestive of metastatic breast carcinoma of mandible.

CONCLUSION: This case shows importance of taking complete case history with special attention on past medical history in spite of limitation of clinical and radiological evidence. One must notice the typical symptoms like paresthesia of the lip and chin. Histological examination and past medical history is necessary for confirming the diagnosis of such metastasis.

Keywords: Metastatic breast carcinoma, Numb-chin syndrome, Mandible

How to cite this Article:-Siddiqui FI, Adwani DG, Naphade MV, Arora RS. Metastasis of breast carcinoma in the mandible presenting histologically as an Invasive Ductal Carcinoma : A Case Report. Arch CranOroFac Sc 2016;4(2):10-13.

Source of Support: Nil.

Conflict of Interest: Nil.

INTRODUCTION

Metastatic tumors to the oral region are uncommon and comprise approximately 1% of all oral malignancies. They usually involve the jaws but may also be found in the soft tissues and salivary glands[1,2,3,4]. The most common metastatic malignancies in women are from primary cancers in the breasts, kid-

neys, colorectal region, genital organs and thyroid glands. In men they arise from the lungs, prostate, kidneys and colorectal region[1]. Breast cancers are potentially life-threatening malignancies that develop in one or both breasts[5]. There are therapeutic management options for invasive breast cancer, like surgery, radiotherapy, and systemic therapy. Breast carcinomas have a high tendency to extend towards other parts of body which usually (in 80% of cases) have osteolytic appearance without a definite border and in 10% of cases they have

Figure 1 : Patient's profile



Figure 2 : Intra-oral view showing ulceroproliferative growth in mandibular right buccal vestibule



osteoblastic appearance and the remaining 10% consist of combination of these two appearances [1,2].

Worth & Lichtenstein have stated that metastatic or secondary carcinoma is the most common malignant tumour of bone. Despite this, metastasis to mandible is extremely rare. Bhaskar stated that less than 1% of all malignant tumours of the body metastasize to the jaws[3]. Metastatic lesions may occur in the

Figure 3 : Orthopantomogram (OPG) showing irregular bony destruction



Figure 4 : 4X view showing epithelium & connective tissue with lobules of breast carcinoma cells

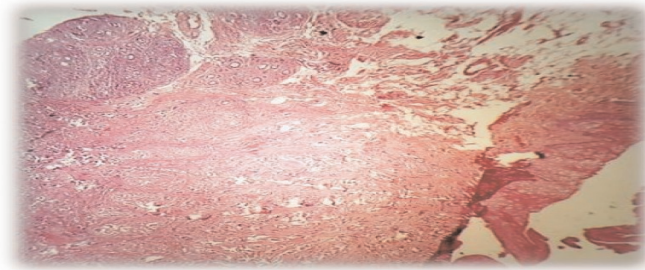


Figure 5 : 10 X view showing breast carcinoma cells arranged in lobules. Many glandular structures are evident.

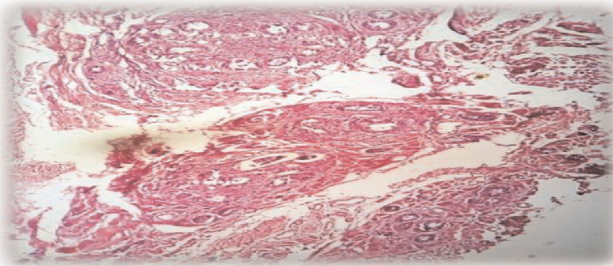
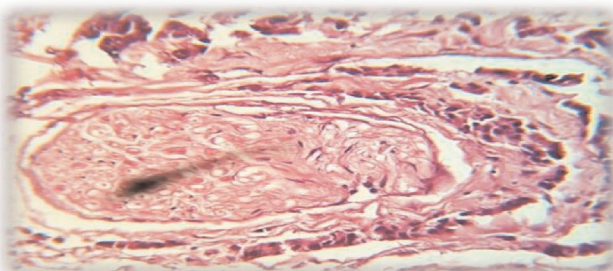


Figure 6 : 40 X view showing perineural invasion by malignant cells

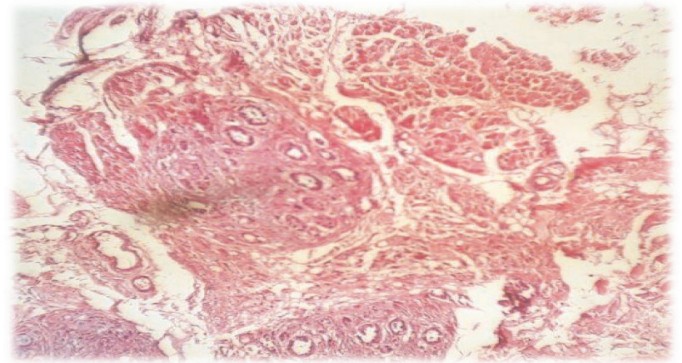


oral soft tissues, in the jaw bones or in both osseous and soft tissue. The lung is the most common source of metastases to the oral soft tissues, whereas the breast is the most common source for metastatic tumors to the jaw bone[6]. A wide range of clinical signs and symptoms may be seen in association with metastatic tumors of the oral cavity, with the most common being pain, swelling, altered sensation, halitosis, gum irritation, tooth loosening, mobility, exophytic masses of the soft tissues, trismus and rarely pathologic fractures. Numbness or paresthesia of the lower lip and chin is considered an important sign of metastatic disease[1].

Metastatic tumors of the oral cavity do not exhibit a pathog-

nomonic radiographic appearance. Osteolytic radiolucent lesions with ill defined and irregular margins may be seen, while osteoblastic lesions with a pure radiopaque or a mixed radiopaque-radiolucent appearance are typically associated with prostate cancer[1,2]. Many of the bone lesions are at the center of the bone and cannot be detected by physical examination. They are sometimes asymptomatic and are only detected in routine radiographic tests[2]. The diagnosis of a metastatic lesion in the oral region is challenging, both to the clinician and to the

Figure 7 : Muscle invasion by Breast carcinoma cells



pathologist. The clinician must recognize the possibility that a lesion may represent a metastasis and the pathologist must determine the site of tumor origin.

CASE REPORT

The patient was a 50 year old female who came with the chief complaint of pain over the right side of the face, which was dull and continuously radiating to frontal and temporal region. There was swelling which was hard on palpation on the right body and ramus of the mandible with associated paresthesia and numbness of her lower lip [Figure 1]. Intraoral examination showed an ulceroproliferative growth in mandibular right buccal vestibule extending antero-posteriorly from distal surface of lower right second premolar to retromolar area and supero-inferiorly from marginal gingiva of mandibular right posterior teeth to depth of buccal vestibule [Figure 2]. Right submandibular group of lymph nodes were fixed to underlying structure, tender and hard on palpation. Oral hygiene was neglected.

Panoramic radiograph [Figure 3] revealed irregular bony destruction of ramus involving the neck of condyle, coronoid process, body upto the periapical area of mandibular third molar, right zygomatic arch and posterior tuberosity. Resorption of apical third of root of right mandibular second and third molar was also evident.

CT- Scan of the patient showed heterogeneous post contrast enhancement erosion and destruction of ramus, condyle and coronoid process of mandible on the right side.

Right submandibular lymphadenopathy was multiple and fixed.

Under local anesthesia, incisional biopsy was performed. Sections from the biopsied material, stained with haematoxylin and eosin, showed tissue comprising of epithelium and underlying connective tissue stroma in 4X magnification [Figure 4]. Lower power magnification in 10X [Figure 5 and 6] showed overlying parakeratinized stratified squamous epithelium with short and thin rete pegs. The underlying connective tissue stroma showed glandular and fibrocellular connective tissue. The neoplastic cells were arranged in thin strands, cords and duct like pattern. At places lobules were seen showing neoplastic cells arranged in ductular pattern. Muscle invasion and perineural invasion was seen [Figure 7]. Under high power view of 40X, the neoplastic cells were round to oval in shape showing nuclear and cellular pleomorphism and nuclear hyperchromatism. The cells were non cohesive. Few cells showed nuclei which were shifted to periphery showing signet ring appearance. These findings were suggestive of ductal carcinoma.

Past medical history showed modified radical mastectomy of right breast seven years ago and a modified radical mastectomy because of infiltrating ductal carcinoma Grade II of left breast two years before which was followed by chemotherapy and radiotherapy.

DISCUSSION

Metastasis is a consequence of complex biological cascade that begins with detachment of tumor cells from the primary tumor, spreading into the tissues, invading the lympho-vascular structures followed by their survival in the circulation. The microvasculature of the target organ provides room for the lodgment of metastatic tumor cells, from where they can extravasate, invade and proliferate within this target tissue. Angiogenesis is mandatory for the tumor cell load beyond 2-3 mm for adequate supply of oxygen and nutrients [7]. Metastasis to the jaw bone occurs due to hematogenous route of the spread of malignant tumor and this requires the presence of hematopoietically active bone marrow well connected with sinusoidal vascular spaces at the site of deposition of malignant cells [4].

The posterior mandible and focal osteoporotic bone marrow defects in the edentulous mandible have been shown to be the hematopoietically active sites that may attract metastatic tumor cells. A hypothesis by Fidler says that metastatic tumor cells select a favorable environment to anchor and proliferate creating an individual tissue/organ specificity of cancer metastasis [4]. The diagnosis of metastasis to the oral cavity is a significant challenge to the clinician because of the lack of pathognomonic signs and symptoms [1]. Metastases to the soft tissues account for 0.1% of all oral lesions. Of all metastatic malignancies in the mouth and jaw bones, approximately 61% occur in the mandible, 24% in the maxilla, and 15% in soft tissues. The most frequent primary sites of malignancy with the potential to metastasize in the mandible are, in decreasing order, the breast (31%), lung (18%), kidney (15%), thyroid, prostate and colon (6%),

stomach, skin (5%), testicle (3%), bladder, liver, uterus, and ovary (1%).5

As reported by some author, metastasis to the jaws more often occur in the mandible than in the maxilla, and most often in posterior mandible [6]. Paresthesia of the lower lip and the chin was found in most of the patients with metastasis. This should be considered an ominous sign for metastatic lesions to the mandible, as this signifies deep invasion of the tumor into the bone and involvement of the inferior dental or mental nerves. When seen in a patient with a known malignancy, mental nerve neuropathy or the "numb chin syndrome", in the absence of other causes, should be considered to be due to mandibular metastases. The point is that paresthesia of the lip and chin which indicates metastasis and it has been named numb-chin syndrome (NCS) or neuropathy of mental nerve, is a great symptom. So the existence of NCS must be considered as an alarm for dentists and physicians. Patients having NCS must be evaluated for primary neoplasm or recurrent malignant neoplasm [1,4,5,8].

The case presented here had complaint of dull pain and continuously radiating to frontal and temporal region with swelling which was hard on palpation on the right body and ramus of the mandible. There was paresthesia and numbness of the lip. On Intraoral examination, an ulceroproliferative growth in mandibular right buccal vestibule was seen. Right submandibular lymph nodes were fixed to underlying structure, tender and hard on palpation. The past medical history revealed invasive ductal carcinoma of breast. These all clinical symptoms focused the attention towards metastasis to the mandible and histological examination confirmed the diagnosis.

Prognosis of patients with metastasis to the oral cavity is generally poor. The main reason is the delay in detecting the lesion. Because oral cavity is not a common site for metastasis, the presence of metastasis here indicates that the tumor is spreading widely in the body [2].

CONCLUSION

This case shows importance of taking complete case history with special attention on past medical history in spite of limitation of clinical and radiological evidence. The Clinician must notice the typical symptoms like paresthesia of the lip and chin. Histological examination and past medical history is necessary for confirming the diagnosis of such metastasis.

REFERENCES

1. Poulias E, Melakopoulos L, Tosios K. Metastatic breast carcinoma in the mandible presenting as a periodontal abscess: a case report. *Journal of Medical Case Reports* 2011;5:265.
2. Ashab Yamin MH, Kalantarhormozi A, Hamdamjo F, Razi Z. Breast ductal carcinoma metastasis to jaw bones: a case report. *Novel Biomed* 2014;2(1):31-35.
3. Akhtar MS, Bhargava R, Khan N, Ahmad Z, Afroz N.

Metastatic Mandibular Adenocarcinoma. Indian Academy of Clinical Medicine 2007;8(2):196-8.

4. Kumar GS, Manjunatha BS. Metastatic tumors to the jaws and oral cavity. J Oral Maxillofac Pathol 2013 Jan-Apr; 17(1): 71-5.
5. Ertas U, Yalcin E, Erdogan F. Invasive Ductal Carcinoma with Multiple Metastases to Facial and Cranial Bones: A Case Report. European Journal of Dentistry 2010 ;4:334-7.
6. Bodner L, Sion-Vardy N, Geffen DB, Nash M. Metastatic tumors to the jaws: A report of eight new cases. Med Oral Patol Oral Cir Bucal 2006;11:32-5.
7. Muttagi SS, Chaturvedi P, Cruz SQ, Kane S, Chaukar D, Pai P, Singh B, Pawar P. Metastatic tumors to the jaw bones: Retrospective analysis from an Indian tertiary referral center. Indian Journal of Cancer 2011;48(2):234-9.
8. Schwartz ML1, Baredes S, Mignogna FV. Metastatic disease to the mandible 1988 Mar;98(3):270-3.

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