CASE REPORT

Carcinoma of breast metastasising to mandible

Hari Ram,¹ Atin Singhai,² Surender Kumar,³ Ragini Singh⁴¹Department of Oral and Maxillofacial Surgery, CSMMU (Erstwhile KGMC), Lucknow, Uttar Pradesh, India²Department of Pathology, CSMMU (Erstwhile KGMC), Lucknow, Uttar Pradesh, India³Department of General Surgery, CSMMU (Erstwhile KGMC), Lucknow, Uttar Pradesh, India⁴Department of Radiodiagnosis & Imaging, Chhatrapati Shahuji Maharaj Medical University, Lucknow, Uttar Pradesh, India

Correspondence to

Dr Hari Ram,
haram81@yahoo.com

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SUMMARY

Metastatic tumours to oral cavity from distant sites are rarely seen. Bones are frequently involved as compared to soft tissues. Clinical presentation may vary according to site and size of metastatic tumour. We present a case of carcinoma of breast in a 50-year-old woman, metastasising to mandibular ramus, condyle and surrounding soft tissue structure presenting as osteomyelitis of condyle.

BACKGROUND

Metastasis is a common phenomenon in malignant neoplasms. Metastasis to oral cavity from distant neoplasms or neoplasms below the clavicle is very rare, accounting for less than 1% of all malignant neoplasms of oral cavity.¹ Metastasis of breast cancer to oral cavity is relatively less common as compared to other sites like lung and liver.²⁻³ Eighty-five per cent metastatic tumour in oral cavity are most commonly seen in the jaw bones, especially in the mandible in 80–90% cases—mostly in molar or retromolar area.⁴ Metastasis to soft tissues of oral cavity is extremely rare accounting approximately for 0.1% of all oral malignancies.⁵ Most commonly involved metastatic sites are tongue, gingiva, lips and less commonly involved sites are palatal and buccal mucosa, respectively.⁶

CASE PRESENTATION

A 50-year-old postmenopausal female patient presented to the Department of Oral and Maxillofacial Surgery with painful swelling over right preauricular region for the past 2 months. History revealed appearance of a painful lump over the left breast 4 years ago. Patient presented to a private hospital where the lump was excised but specimen was not sent for histopathological examination. After 1 year, the lump reappeared again at

the same site. The patient presented to the same private hospital where the lump was again excised and specimen was sent for histopathological examination. She was diagnosed as a case of carcinoma of breast and advised to undergo mastectomy, but the patient was not willing to do it. After 1 year, an ulcerative lesion with induration reappeared again over the same region of the breast along with pus discharge. Then patient started having some ayurvedic medication following which there was some reduction in pus discharge but no other change in the ulcerative lesion. Since 2 months, the patient is having a painful swelling over the right preauricular region along with paraesthesia and paresis in the right side of the face.

Extraoral examination revealed slight swelling in the right side of the face. A swelling was also seen arising from the right auditory meatus ([figure 1](#)). No cervical lymph nodes were palpable. Intraoral examination showed no growth and swelling; oral mucosa and gingiva were normal in colour and texture, except for tenderness in the upper gingivobuccal sulcus. Examination of left breast revealed a non-tender, hard ulceroproliferative lesion above the nipple, measuring 8×7 cm in diameter and not fixed to the anterior chest wall. Induration was noted around the lesion and one mobile axillary lymph node was palpable (N1; [figure 2](#)). Right breast was normal. No family history of any type of malignancy was reported.

INVESTIGATIONS

OPG (orthopantomogram) showed destruction of bone involving ramus, coronoid and condyle of mandible ([figure 3](#)).

Figure 1 Extra-oral view of patient showing swelling over face and growth in auditory canal.

Figure 2 Photograph of left breast showing ulceration.

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Figure 3 OPG (Orthopantomogram) showing bone destruction involving ramus and condyle of right mandible.

CT scan of face revealed an ill-defined heterogeneously enhancing soft tissue attenuation lesion involving retromolar trigone, masseter, medial and lateral pterygoid muscles. Lesion also involved mandibular body—ramus, condyle and coronoid process leading to their erosion. Lesion was also infiltrating the ipsilateral parotid gland and had a few enhancing nodules within it. Multiple lymph nodes were seen in bilateral Ib, Ia and II with short axis diameter of up to 1 cm on the right side (figures 4 and 5). Ultrasonography of abdomen was normal. No evidence of ascitis, plural effusion and lymphadenopathy were seen.

Fine-needle aspiration cytology of left breast revealed moderate cellularity, cells arranged in clusters and sheets, cytoplasm was moderate and eosinophilic; nuclei were irregular to round with coarse chromatin prominent nucleoli. Incisional biopsy of left breast revealed mammary parenchyma replaced by desmoplastic stroma infiltrated by tumour cells in form of oval, round or cuboidal epithelial cells clustered in small groups and trabeculae and showing anisocytosis, anisonucleosis, pleomorphism and attempt to form lobules. Atypical mitosis was also noted. Lymphovascular, muscular and perineural invasion was absent.

Histopathological findings were suggestive of infiltrating ductal carcinoma of breast. Incisional biopsy from mandibular condyle and mass arising from external auditory meatus was performed to confirm whether it was metastatic tumour or tumour of a separate entity. Histopathological findings of these sites revealed metastatic tumour cells of similar morphology as detected at the primary carcinoma breast site (figure 6A–D). Immunohistochemistry was not of much help as oestrogen,

Figure 4 CT scans axial and coronal view, showing destruction of mandibular bone and involvement of adjacent soft tissue.

Figure 5 CT scans axial and coronal view, showing destruction of mandibular bone and involvement of adjacent soft tissue.

progesterone and HER 2/neu receptors status were found to be negative at the primary as well as at the metastatic sites, probably owing to the poorly differentiated nature of the tumour cells.

TREATMENT

On the basis of investigations, diagnosis of carcinoma of breast metastasising to mandible was made. Since tumour was metastasising to mandible involving both bones and soft tissues, chemotherapy was the only option. Neoadjuvant chemotherapy (NACT) regimen comprising of cyclophosphamide, docetaxel, doxorubicin and granulocyte colony-stimulating factor (G-CSF) with adequate hydration was started. Four cycles of chemotherapy were given and patient responded well. There was significant regression in size of the lesion at both primary and metastatic sites (figures 7 and 8).

OUTCOME AND FOLLOW-UP

Patient was responding well to therapy but unfortunately patient developed uncontrolled diarrhoea and was admitted into the emergency ward where she died of electrolyte imbalance.

DISCUSSION

Primary tumours metastasising to oral cavity are lung, breast, liver, thyroid, kidney, adrenal gland, colon, rectum, female genital organs, testis and oesophageal tumours.^{7–9} However, breast cancer remains the most common primary tumour.¹⁰ Breast cancers most commonly metastasise to lungs, liver, bones, regional lymphatics and brain.¹¹ Breast cancer usually metastasise to bones most frequently and hence, the mandible is a rare site for breast cancer metastasis.¹⁰

Metastatic lesions to oral cavity are often confused with primary lesion of oral cavity like pyogenic granuloma, epulis, central and peripheral giant cell tumours, mucoepidermoid carcinoma and pleomorphic adenoma. These are usually smooth, non-tender and regular in shape mimicking a benign lesion.¹² Metastasis in oral cavity is seen after the appearance of primary tumour at a distant site in 75% cases, while in 30% cases site of primary tumour is unknown.⁸ In the present reported case, primary tumour was located in the left breast which

Figure 6 Sections from the breast mass (A) as well the auricular growth (C) show an invading tumour mass with cells of similar morphology, characterised by high nucleocytoplasmic ratio, vesicular nuclei, prominent nucleoli at places and ill-defined margins. Similarly immunohistochemistry with oestrogen receptor status was found to be negative at both the locations (B and D), possibly due to poorly differentiated nature of the tumour cells.

metastasised to contralateral side (right) of mandible. Average age for oral metastasis is between 50 and 60 years; however, it may be seen at any age with no sex predilection.⁴

Sign and symptoms of oral metastasis may be either asymptomatic or there may be ulcer, pain, swelling, bleeding, trismus, pathological fracture and paraesthesia.¹³ Reported patient developed otitis media first then swelling of mandible at preauricular region and growth in auditory canal. Later on, patient had severe pain and paraesthesia in mandible. Otitis would have developed due to condylar destruction which would have destroyed the auditory canal and infection would have spread in the ear.

Radiological findings of bony metastatic tumours are seen as radiolucent osteolytic lesions with ill-defined margins. Osteoblastic picture may be seen in some cases and in fact, no radiographic change may be seen in 5% of cases.⁸ In the reported patient, destruction of bone was seen in the condylar region which would have travelled toward ramus of mandible. Haematogenous spread is the most common route; however, spread has also been reported through general circulation or the vertebral venous plexus.¹⁴

Treatments of metastatic lesions depend on the extent of metastasis. If primary tumour is controlled and no additional metastasis is seen, surgery is the treatment of choice. If only oral

Figure 7 Photograph of breast showing regression of lesion after chemotherapy.

Figure 8 Photograph of face showing regression of swelling of face and disappearance of auricular mass after chemotherapy.

metastasis is present, surgery may improve prognosis slightly. Palliative excision of lesion is considered if soft tissue metastasis is causing pain, infection, bleeding and difficulty in mastication.¹³ Antineoplastic hormone therapy with letrozol has shown good therapeutic result.¹³ NACT with cyclophosphamide, doxorubicin and 5-fluorouracil are used in chemotherapy.¹ The patient responded well to cyclophosphamide, docetaxel and doxorubicin but died due to electrolyte imbalance.

Metastasis to oral cavity is a bad prognostic sign indicating disseminated disease and poor outcome; most of the patients die within months. Less than 10% patients survive for 4 years after diagnosis.⁴ Reported patient survived for 6 months.

Learning points

- ▶ Breast cancers most commonly metastasise to lungs, liver, bones, regional lymphatics and brain, but in our case it metastasised to mandible.
- ▶ Breast cancer usually metastasises to bones most frequently, but the mandible is a rare site for breast cancer metastasis.
- ▶ Metastasis may be seen in bones as well as soft tissues, but bones are more frequently involved. Our case is unique as there was involvement of both bone (condyle and ramus) and soft tissue (muscles and parotid gland).
- ▶ Metastatic tumours to oral cavity are very rare and indicate extremely poor prognosis.
- ▶ Metastasis may occur within months to 25 years of appearance of primary tumour.

Contributors HR prepared the manuscript. AS undertook the histopathological work. SK performed web search for articles. RS carried out the radiological research work.

Competing interests None.

Patient consent Obtained.

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