From the breast to the upper jaw: A rare case of metastatic breast cancer

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Abstract

Breast cancer is the commonest malignancy in women globally. Metastases of advanced breast carcinoma to bones, lungs and liver are well known but spread to maxillary bone presenting as maxillary sinus and palatal swelling is rare. We present a case of advanced breast carcinoma in a female Nigerian with clinical, radiological and histopathological features of lung and right maxillary bone metastases. To the best of our knowledge, this is the first reported case of metastatic breast cancer to the lungs and maxilla in Nigeria. The debilitating sequelae of advanced untreated breast carcinoma in a resource limited setting with suboptimal comprehensive cancer care are highlighted.

Keywords: Breast cancer; orofacial metastasis; resource limited setting, Nigeria

Introduction

Breast cancer is the commonest cause of cancer deaths in females worldwide. Mortality from breast cancer is particularly high in low- and middle-income countries (LMICs), primarily due to late presentation and inadequate access to comprehensive cancer care.[1, 2]

Generally, metastasis to the oral cavity and jaw bones from any site is rare, accounting for about 1% of all orofacial malignancies. Although a few cases of mandibular metastasis of breast carcinomas have been reported, primary breast cancers rarely metastasise to the maxilla.[3, 4] We document an unusual advanced breast cancer with metastases to the maxilla and lungs in a Nigerian female.

Case Presentation

A 42-year-old premenopausal and diabetic woman presented with a 6-month history of progressively increasing, painless right breast mass, which underwent spontaneous ulceration and bloody discharge shortly before presentation. There was cough and difficulty with breathing of about one month duration. She noticed orofacial swelling five months after the initial breast mass which rapidly grew in size with difficulty in chewing because of intermittent bleeding during chewing and swallowing of solid foods (Figures 1A and 1B). There was a history of right nasal blockade secondary to the orofacial mass but no bleeding from the nose. She presented in respiratory distress, with tachypnoea (respiratory rate= 40 per minute) and tachycardia (pulse rate=100 beats per minute).

Head and neck examination showed right sided diffuse mid-facial swelling with a bucco-palatal fungating mass extending from the right maxillary central incisor to the right maxillary tuberosity antero-posteriorly and extension to the left hard palate transversely (it measured 7cm in the widest dimension). The overlying mucosa was hyperaemic with areas of ulceration and necrotic sloughs. The lesion was firm with bleeding on slight palpation. The right maxillary teeth (canine to third molar) were mobile. There was no blurring of vision, exophthalmos, epistaxis, sensory deficit in the distribution of right infraorbital nerve and

Figure 1A. The patient with right fungating breast mass - covered with dressing. (Credit: Drs Wuraola and Olasehinde)

Figure 1B. Orofacial mass (Credit: Drs Famurewa and Aregbesola)

limitation in mouth opening. There were no palpable cervical lymph nodes.

Breast examination showed a normal left breast, while the right breast was enlarged with 10cm x 12cm hard mass with an ulcer at its summit at the right upper outer quadrant extending to the right lower outer quadrant with peau d'orange. The mass was not tender, no differential warmth, with attachment to overlying skin but not to underlying structures and the nipple was normal. There were multiple mobile non-tender ipsilateral axillary lymph nodes. No palpable supraclavicular or contralateral lymph nodes. Chest expansion was reduced on the right with a dull percussion note, reduced air entry bilaterally and coarse crepitations at the lower lung zones.

Baseline investigations revealed hyperglycaemia (random blood sugar-22 mmol/l) and anaemia (haemoglobin 8g/l). She was admitted for in-patient care.

There were multiple cannonball metastases on chest X-ray (Figure 2). Abdominopelvic ultrasound revealed no evidence of spread to the intra-abdominal organs. The occipitomental (OM) and posterior-anterior (PA) views of the skull showed complete opacity of the right maxillary antrum. Contrast enhanced cervicofacial computed tomography scan to assess the three-dimensional extent of maxillary lesion and neck nodal involvement was not ordered because of financial difficulty and the need to prioritize available meagre funds on resuscitation of patient and palliative treatments.

Incisional biopsy of the maxillary swelling was undertaken to confirm the histological diagnosis. The core biopsy of the right breast showed infiltrating ductal carcinoma Not Otherwise Specified (NOS) Nottingham grade III and maxillary mass showed similar cells with pleomorphism. The histopathology report of the maxillary mass was metastatic carcinoma secondary to intraductal carcinoma

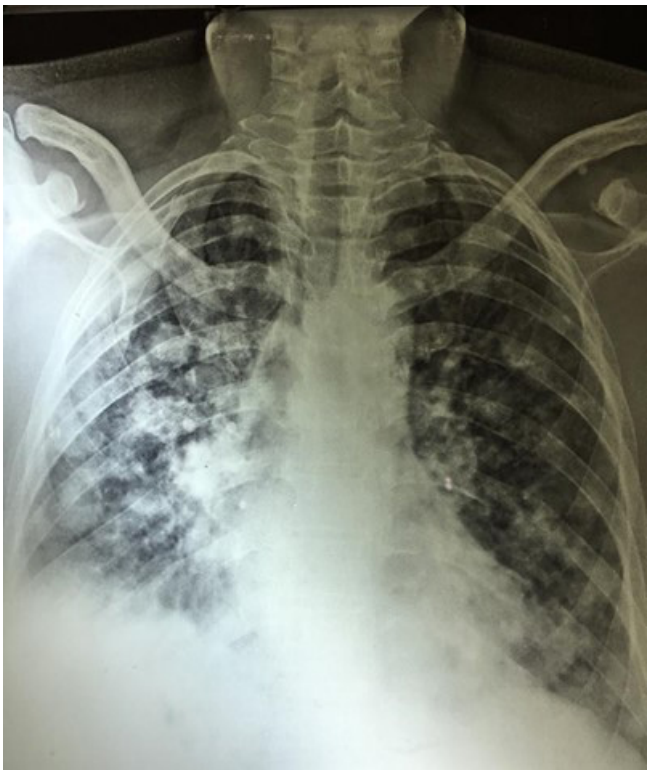

Figure 2. Chest X-ray (posterior-anterior view) showing multiple cannonballs metastases (Credit: Drs Wuraola and Olasehinde)

of the breast. Immunohistochemistry of the breast and maxillary lesion demonstrated triple-negative; ER (oestrogen receptor) negative, PR (progesterone receptor) negative and Her2/neu (human epidermal growth factor) negative (Figures 3 and 4).

Palliative care was instituted, anaemia corrected (by packed cell transfusion and subsequently placed on erythropoietin; she had two doses before her demise), hyperglycaemia corrected, patient was placed on intranasal oxygen, she

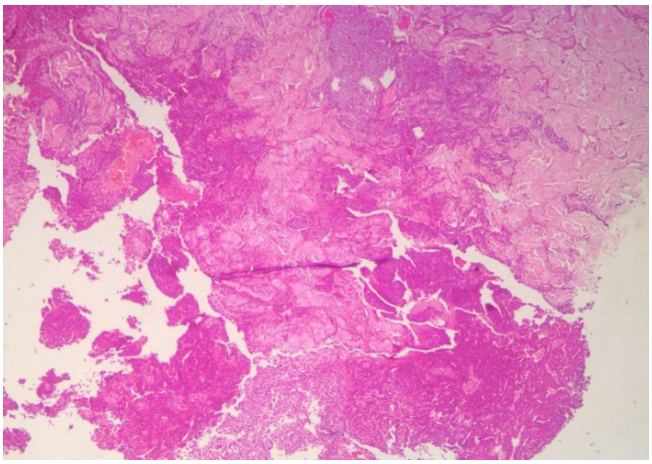

Figure 3. Photomicrographs of breast mass. Section from the breast lump shows proliferation of malignant epithelial cells that are disposed in broad nests and irregular clusters. They are seen infiltrating the adjacent fibrocollagenous stroma. (H and E X40). (Credit: Dr Odujoko)

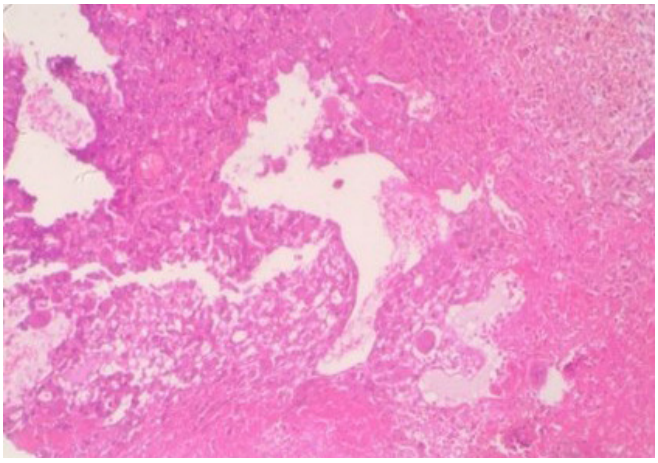

Figure 4. Photomicrograph of the maxillary mass showing proliferation of malignant epithelial cells with giant cells similar to that in the breast. (Credit: Dr Adesina)

had fluid management (intravenous fluid based on her weight and daily requirements) and nutritional support with 50% dextrose infusion (the fluid was fortified with vitamin B complex and maintenance potassium chloride). The patient could not afford parenteral nutrition. She died ten days after admission following respiratory failure.

Discussion

The clinical profile of this case fits the presentation pattern of patients with metastatic breast carcinomas in the study location except the unusual involvement of the maxilla. Also, late presentation which is common with these patients is the end result of poor health education, poverty, superstition and a high patronage of unorthodox healing practices. The peculiarity of this case is the unusual location of the metastasis and the management challenge it posed. The involvement of other specialists in the care of our patient showed the value of the multidisciplinary team care for cancer patients.

Unlike colonic cancer with a clear pathway for metastasis which is associated with massive cell trapping in the capillaries leading to the liver and the lungs as the first and second sites of metastasis, breast cancer does not seem to have a clear pathway. Breast cancer metastasis has been categorized as visceral and non-visceral. Non-visceral metastases are those which spread to soft tissue and bone while metastases to organs such as lung or liver are referred to as visceral metastases.[1, 2]

Metastasis to the jaw bones often involves the posterior part of the mandible because the mandible retains its haemopoietic properties which favours cell growth, a subdivision of local blood vessels, and reduced velocity of blood flow.[5, 7] Breast cancer metastasis to the maxilla is very uncommon. The first reported case was in 1985, which was a case of metastatic maxillary mass in a 51-year-old woman, two years post-mastectomy.[8] In 1988, a case of metastasis from cystosarcoma phyllodes of the breast was documented in an elderly woman with metastasis to the cerebrum, maxilla and maxillary sinus seven years after mastectomy.[3] Ertas et al [9] in 2010 in a series of 14 patients reported one case of metastatic breast carcinoma to both the mandible and maxilla in a middle-aged woman, 18 months after mastectomy. All the reported cases were patients who had been previously treated for their primary disease. However, our case presented de-novo with metastasis to the right maxilla.

The management of patients with distant metastases to maxillofacial bones and other bones is usually palliative to improve the patient's quality of life and manage some of the associated orofacial complications such as discomfort during mastication, odynophagia and halitosis. Radiation therapy and/or chemotherapy are the mainstay of management to ameliorate regional and systemic oncologic sequelae while palliative surgery may occasionally be indicated to debulk the tumour.[10] In our case, toilet mastectomy (simple mastectomy) with or without chemotherapy for the breast lesion, radiotherapy to shrink the maxillary metastasis and other palliative supportive care could have improved her quality of life but she died before these treatments could be provided.

Furthermore, palliative care includes assessment and management of presenting physical (pain, breathlessness, fatigue and delirium) and psychological (anxiety, depression and existential suffering) symptoms. Pain management should be given the attention it deserves by the use of opioid analgesics with rescue doses and non-pharmacological approach for chronic neuropathic pain (e.g. occupational therapy and social support). Patients with advanced breast carcinomas with psychological symptoms may benefit from anxiolytics, antipsychotics

and supportive psychotherapy (with cognitive therapy). While caring for these terminally ill patients, their relatives (family carers) should not be neglected.[11]

The cost of managing breast malignancy is huge even in developed countries with comprehensive cancer care and affordable access (because of functional health insurance schemes). Blumen et al[12] in their study among newly diagnosed breast cancer patients in the United States of America reported that treatment costs were higher in patients with advanced breast carcinoma than those with early-stage diseases. This finding was corroborated by a 2018 systematic review on global treatment costs of breast cancers by Sun and colleagues.[13]

In Nigeria, and indeed most countries in sub-Saharan Africa without universal health care coverage, payments for cancer treatments are largely made by patients (and/or their relatives) which has contributed immensely to late presentation with its attendant poor outcome.[14] Financial constraints on the part of patients and limited advanced diagnostic and therapeutic facilities in our settings are some of the reported challenges faced during treatment of patients with metastatic breast cancers.[2] The present case report typified these challenges in a resource-poor setting like ours.

Conclusion

The key message of this report is the atypical nature of the site of metastasis and the challenges associated with its management in a resource limited setting.

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References

1. Jin X, Mu P. Targeting breast cancer metastasis. Breast Cancer (Auckl). 2015; 9 (Suppl 1):23-34. doi:10.4137/BCBCR.S25460.
2. Adisa A, Arowolo O, Akinkuolie A, et al. Metastatic breast cancer in a Nigerian tertiary hospital. Afr Health Sci. 2011;11 (2):279–284.
3. Tenzer JA, Rypins RD, Jakowatz JG. Malignant cystosarcoma phyllodes metastatic to the maxilla. J Oral Maxillofac Surg. 1988; 46 (1):80–82. doi: 10.1016/0278-2391(88)90307-2
4. Poulias E, Melakopoulos I, Tosios K. Metastatic breast carcinoma in the mandible presenting as a periodontal abscess: a case report. J Med Case Rep. 2011;5:265. https://doi.org/10.1186/1752-1947-5-265
5. Stavropoulos MF, Ord RA. Lobular adenocarcinoma of breast metastatic to the mandibular condyle. Report of a case and review of the literature. Oral Surg Oral Med Oral Pathol. 1993;75 (5):575–578. doi: 10.1016/0030-4220(93)90227-u
6. van der Waal RIF, Buter J, van der Waal I. Oral metastases: report of 24 cases. Br J Oral Maxillofac Surg. 2003;41 (1):3–6. doi: 10.1016/s0266-4356(02)00301-7
7. Varghese G, Singh SP, Sreela LS. A rare case of breast carcinoma metastasis to mandible and vertebrae. Natl J Maxillofac Surg 2014;5 (2):184-187. doi: 10.4103/0975-5950.154832
8. Spott RJ. Metastatic breast carcinoma disguised as periapical disease in the maxilla. Oral Surg Oral Med Oral Pathol. 1985;60 (3):327–328. https://doi.org/10.1016/0030-4220(85)90318-4
9. Ertas U, Yalcin E, Erdogan F. Invasive ductal carcinoma with multiple metastases to facial and cranial bones: A case report. Eur J Dent. 2010;4 (3):334–337.
10. Namad T, Benbrahim Z, Najib R, et al. Maxillofacial metastasis from breast cancer. Pan Afr Med J. 2014;19:156. doi: 10.11604/pamj.2014.19.156.4948.
11. Cherny NI, Paluch-Shimon S, Berner-Wygoda Y. Palliative care: needs of advanced breast cancer patients. Breast Cancer (Dove Med Press). 2018;10:231-243. doi:10.2147/BCTT.S160462
12. Blumen H, Fitch K, Polkus V. Comparison of treatment costs for breast cancer, by tumor stage and type of service. Am Health Drug Benefits. 2016; 9(1):23–31.
13. Sun L, Legood R, dos-Santos-Silva I, Gaiha SM, Sadique Z. Global treatment costs of breast cancer by stage: A systematic review. PLoS one 2018;13(11): e0207993. https://doi.org/10.1371/journal.pone.0207993
14. Foerster M, Anderson BO, McKenzie F, Galukande M, Anele A, Adisa C, et al. Inequities in breast cancer treatment in sub-Saharan Africa: findings from a prospective multi-country observational study. Breast Cancer Res. 2019; 21:93