

A Typical Case of a Widespread Metastatic Breast Carcinoma

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Abstract

Cutaneous metastasis is an uncommon manifestation of visceral malignancy. Among all malignancies, the highest incidence of cutaneous metastasis is seen in breast cancer. Cutaneous metastasis can be the initial presentation of breast carcinoma. However, it usually presents a few months or years after the primary disease has been diagnosed and treated. Cutaneous metastases develop most commonly at the same time as internal metastases.^{3,8} The incidence of cutaneous metastases for all types of carcinomas ranges from 0.7% to 10.0%.^{3,5} A more recent meta-analysis demonstrated the overall incidence to be closer to 5.3%.^{4,5} We present herein a case of carcinoma breast in a 55-year-old female presenting initially with skin lesions on the chest wall. Further evaluation identified a bilateral breast mass with axillary metastasis and multiple nodules over the trunk and right thigh. There was also evidence of metastasis to the lungs, bilateral adrenals and mesenteric lymph nodes. FNAC of all the nodules revealed infiltrating duct carcinoma of the breast which was confirmed by excision biopsy.

Key words: Breast cancer; carcinoma erysipeloides; cutaneous metastases

Case Report

A 55-year-old female presented in December 2014 with a two-month history of nodular erythema over the right parasternal region. On examination, the nodule was found to measure 1 x 1 cm in size, and was hard, reddish with an indurated perinodular region and central ulceration over the right supramammary region. Fine needle aspiration cytology (FNAC) of the lesion revealed infiltrating duct carcinoma. Both breasts were normal at the time of examination and no other lesions were detected clinically. Ultrasonography and mammography performed at the time only revealed the presence of focal calcifications and spiculations. The patient was started on paclitaxel-based chemotherapy and was subsequently followed up.

After the second cycle, she failed to attend treatment until June 2015. The lesion over the chest wall had healed leaving only pigmentation in that area. However, she developed

two new nodular swellings over the right inframammary and left parasternal region. The lesion over the right chest wall was a hardened erythematous plaque with restricted skin mobility. The right inframammary swelling was nodular, measured 4 x 3 cm, was fixed to the skin and chest wall and had a shiny purple hue over the surface (Figure 2). The left parasternal swelling also measured 4 x 3 cm, was fixed to the skin but free from the chest wall (Figure 1).

On further evaluation, a large 5 x 4 cm mass was identified in the upper outer quadrant of the right breast and retroareolar region. It was freely mobile within the breast; the skin over the swelling was free but there was slight nipple retraction. Another mass was found in the upper outer

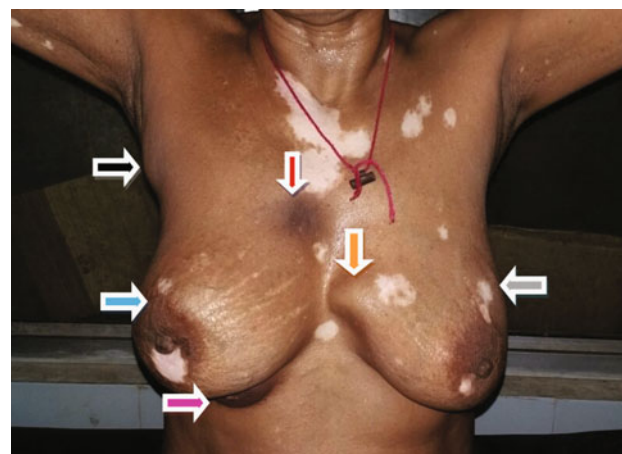


Figure 1. Nodules/Mass in the breast and chest wall. Erythematous plaque over the right parasternal region (red), right breast mass (blue), right inframammary (pink), left parasternal (orange), left breast (grey).

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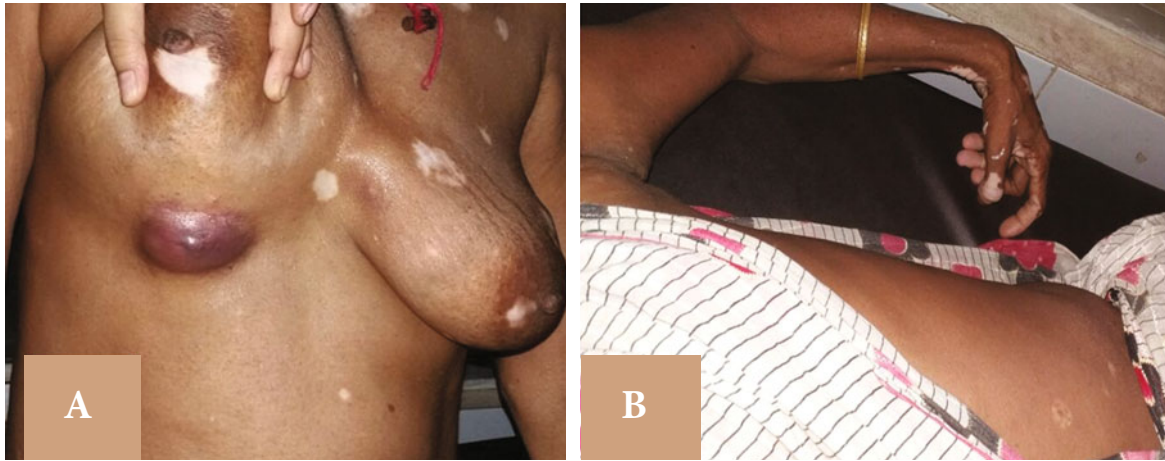


Figure 2. A: Right inframammary nodule with purplish hue and a papulovesicular lesion. B: Nodular lesion over the left lumbar region.

quadrant of the left breast measuring 3 x 2.5 cm, which was also freely mobile within the breast substance with no skin involvement (Figure 1).

Three more skin nodules were detected during examination in the left lumbar region, right side of the umbilicus and right upper thigh. All were subcutaneous but adherent to the skin with the exception of the right thigh nodule which was later found to be in the intermuscular plane (Figure 2, 3). The locations of these nodules were confirmed by ultrasonography.

FNAC of all skin nodules revealed infiltrating duct carcinoma (Figure 5). Ultrasonography of the breasts and chest wall showed primary lesions in both breasts and nodular metastasis over the right inframammary and left parasternal region (Figure 4). Excision biopsy of the left upper outer quadrant mass and abdominal nodule was

performed (Figure 3). Both showed features of infiltrating duct carcinoma and were positive for the oestrogen receptor (OR) but negative for the progesterone receptor (PR).

A chest X-ray showed non-homogenous opacity in the left upper zone with a trachea-mediastinal shift to the left side suggestive of left upper lobe collapse due to the mass. Ultrasonography of the abdomen revealed metastasis to bilateral adrenals and mesenteric lymph nodes (Figure 4). Other organs were tumour-free and bones were not involved. Contrast-enhanced computed tomography (CECT) of the abdomen was not performed and the positron emission tomography (PET) modality was not available at our hospital. FNAC from both adrenals were suggestive of metastasis from the breast (Figure 5).

The patient was started on paclitaxel-based chemotherapy, tamoxifen 20 mg once daily and was followed up.



Figure 3. A: Right thigh nodule B: Excised nodule from abdominal wall.

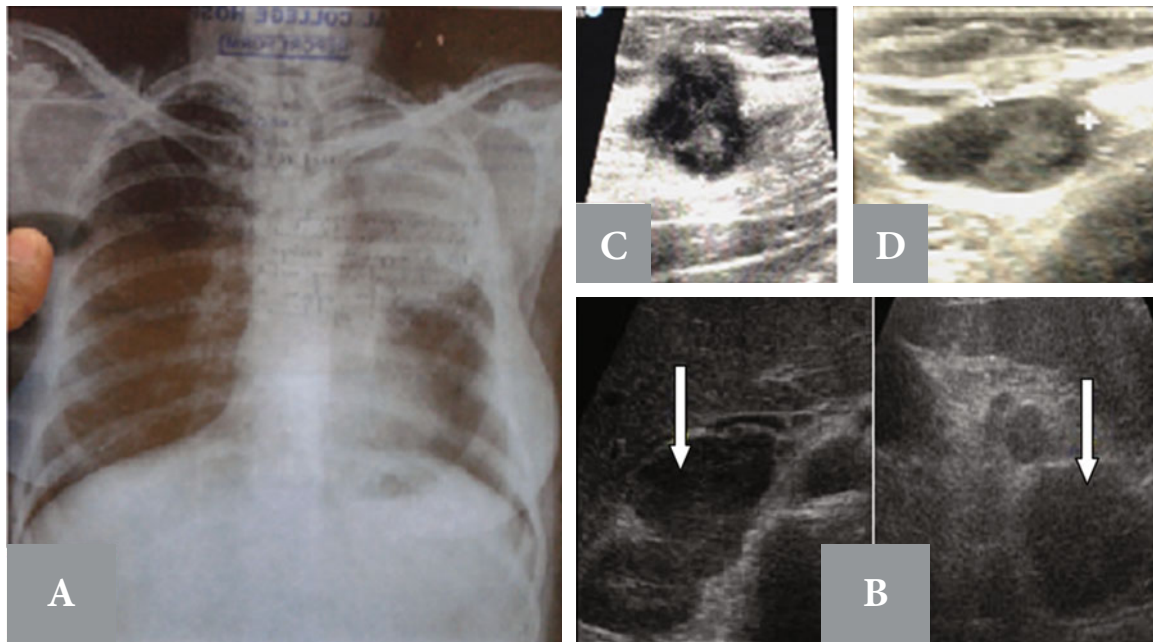


Figure 4. A) Chest X-ray showing metastasis in the left upper lobe. B) Metastasis in bilateral adrenals, C) abdominal wall nodule and D) right thigh nodule.

She was irregular with her follow-up attendance: her last follow-up was in October 2014. She had completed only four cycles of chemotherapy by then. Her general condition worsened over time and while the size of the nodules had

shrunk during the first three months, they later began to increase again.

The patient reported no family history of breast cancer among first or second degree relatives, nor any history of

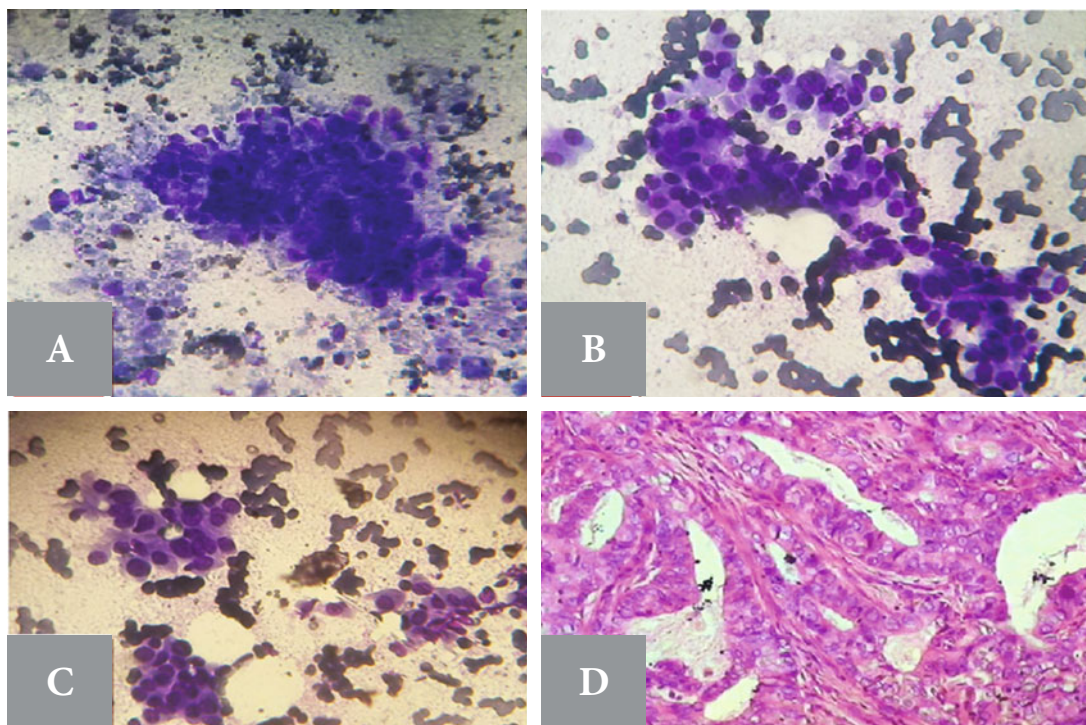


Figure 5. FNAC from A) right breast lump, B) abdominal wall nodule, C) adrenal gland and D) Excision biopsy of left breast nodule.

major ailments in the past. She had suffered from vitiligo since birth, was a non-smoker and only occasionally chewed betel leaves with areca nuts. Her father had died of prostate cancer.

Discussion

Breast adenocarcinoma is the most frequent primary site of cutaneous metastasis in females, mainly presenting with thorax involvement [1,2,3]. Cancers that have the highest propensity to metastasize to the skin include melanoma (45% of cutaneous metastasis cases), breast (30%), nasal sinuses (20%), larynx (16%), and the oral cavity (12%) [6,7]. Metastatic cutaneous lesions are more often found in women with breast cancer than in those with other visceral malignancies, with an incidence exceeding 20% [3,4]. It is reported that 6.3% of breast cancer patients presented skin involvement at the time of the primary tumour diagnosis and in 3.5% of patients, skin involvement was the initial sign of disease presentation [3,5].

Mordenti et al. retrospectively reviewed 164 cases of skin metastases specifically originating from breast carcinoma as the most common clinical and histopathological presentations [7,8]. Skin papules and/or nodules were found in 80% of patients, telangiectatic carcinomas in 11%, erysipeloid carcinomas in 3%, carcinoma-en-cuirasse in 3%, alopecia neoplastica in 2% and a zosteriform type in 0.8%. There are also other clinical and pathological varieties of cutaneous metastases from breast carcinoma [7,8].

Nodular metastatic carcinomas mostly present as firm, solitary or multiple skin masses or lumps. They may display pigmentation or irregular borders which can mimic melanoma or pigmented basal cell carcinoma. They appear as atypical neoplastic cells arranged in small nests, islands or cords in single-file within the collagen bundles of the dermis histologically [7,9]. Carcinoma-en-cuirasse is rare and usually begins as scattered, firm, lenticular papulonodules over an erythematous or red-blue smooth cutaneous surface over the chest. The nodules form a sclerodermoid plaque with no inflammatory changes. Telangiectatic metastatic carcinoma is characterized by its purple colour due to blood in the dilated vascular channels. The lesions are papulovesicles appearing over an erythematous surface similar to inflammatory metastatic carcinoma. Patients often complain of intense pruritis [7,9]. Alopecia neoplastica is believed to be caused by haematogenous spread and appear as circular areas of alopecia on the scalp with marked induration. They can often be confused with alopecia areata.

In our case, multiple cutaneous and subcutaneous nodules were found over the trunk, chest wall, axilla and right thigh. The right inframammary swelling had a telangiectatic character, the right parasternal swelling was the erysipeloid

type, and the other remaining swellings were skin nodules. The right thigh swelling was in the intermuscular plane. There was a very diverse presentation of skin involvement in our case. Case reports of cutaneous metastasis have been reported from the chest, trunk, milk line, but very few reports had such diverse presentation and lower limb involvement [10,13]. In many instances, FDG-PET scanning has been used but since that facility is not available to us, it is possible to miss many small nodular metastases [14].

Major sites of extramammary involvement, in decreasing prevalence, are the lungs, bones, liver, adrenal, brain, skin and kidneys [15]. Cutaneous metastases develop most commonly at the same time as internal metastases [3, 7]. In a series of 4000 autopsies by Glomset et al., there were 821 cases of malignant neoplasms, of which 445 had organic metastases. Of these 821 cases, 34% metastasized to the liver, 27% to the lungs, 13% to the adrenals, 6% to the kidneys, and 3.7% to the spleen [16]. Our patient had metastases to the lung, bilateral adrenals and mesenteric lymph nodes. There was no involvement of bone, liver or brain.

This was a rare case of breast carcinoma presenting with initial cutaneous metastasis with diverse morphological features. Distant skin nodules and internal organ metastasis were also detected in an unusual pattern. Identifying the cutaneous lesions as a sign of internal malignancy is very important as it can facilitate prompt treatment and diagnosis.

Informed Consent: *Written informed consent was obtained from the patient for publication of her medical data*

Conflict of Interest: *The authors declare that there is no conflict of interest*

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