Scalp metastasis in a male breast cancer: A case report

Ritam Joarder, Kakali Choudhury, Krishnangshu Bhanja Choudhury, Arya Sen, Debangshu Bhanja Choudhury, Srikrishna Mandal

ABSTRACT

Introduction: Breast cancer in males is a rare disease accounting for less than 1% of all cancers in men. Common sites for metastases are bones, lungs, liver and brain. Exact incidences of cutaneous metastases in male breast cancer patients have not been reported.

Case Report: A 68-year-old male was admitted for superior vena cava obstruction (SVCO). Biopsy from left breast tumor was diagnostic of triple-negative breast cancer (TNBC) Blooms Richardson grade was 7/9. Fine-needle aspiration cytology (FNAC) from an ulcerated, firm to hard, 3x3 cm tender scalp mass was suggestive of metastatic adenocarcinoma. Clinically staged as T4b, N0, M1. After two cycles of FEC (fluouracil (5FU), epirubicin and cyclophosphamide) chemotherapy, the patient condition deteriorated with fall in left ventricular ejection fraction (LVEF) to 45% and appearance of multiple skin nodules. Though the primary and metastatic scalp lesions were reduced in size, no further treatment was attempted. He was put on best supportive care and at the time of last follow up in June, 2012, was stable, eastern cooperative oncology group (ECOG) status 3, pericardial effusion was treated with closed balloon pericardiotomy and was on 24 hours schedule of oral morphine analgesics.

Conclusion: Ductal carcinoma in situ comprises approximately 10% breast cancers in men. The most common growth patterns are papillary and cribriform, and the majority of these tumors are low grade. Male breast cancers have high rates of hormone-receptor expression. Approximately 90% of male breast cancers express the estrogen receptor, and 81% express the progesterone receptor. The rates of hormone-receptor positivity increase with increasing patient age. We report here a rare case of scalp metastasis in an TNBC elderly male patient presenting with SVCO.
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Introduction: Breast cancer in males is a rare disease accounting for less than 1% of all cancers in men. Common sites for metastases are bones, lungs, liver and brain. Exact incidences of cutaneous metastases in male breast cancer patients have not been reported. Case Report: A 68-year-old male was admitted for superior vena cava obstruction (SVCO). Biopsy from left breast tumor was diagnostic of triple-negative breast cancer (TNBC) Blooms Richardson grade was 7/9. Fine-needle aspiration cytology (FNAC) from an ulcerated, firm to hard, 3x3 cm tender scalp mass was suggestive of metastatic adenocarcinoma. Clinically staged as T4b, N0, M1. After two cycles of FEC (fluorouracil (5FU), epirubicin and cyclophosphamide) chemotherapy, the patient condition deteriorated with fall in left ventricular ejection fraction (LVEF) to 45% and appearance of multiple skin nodules. Though the primary and metastatic scalp lesions were reduced in size, no further treatment was attempted. He was put on best supportive care and at the time of last follow up in June, 2012, was stable, eastern cooperative oncology group (ECOG) status 3, pericardial effusion was treated with closed balloon pericardiotomy and was on 24 hours schedule of oral morphine analgesics. Conclusion: Ductal carcinoma in situ comprises approximately 10% breast cancers in men. The most common growth patterns are papillary and cribriform, and the majority of these tumors are low grade. Male breast cancers have high rates of hormone-receptor expression. Approximately 90% of male breast cancers express the estrogen receptor, and 81% express the progesterone receptor. The rates of hormone-receptor positivity increase with increasing patient age. We report here a rare case of scalp metastasis in an TNBC elderly male patient presenting with SVCO.

Keywords: Male breast cancer, Scalp metastasis, Trucut biopsy, Superior vena cava obstruction (SVCO)

INTRODUCTION

Breast cancer in males is a rare disease accounting for less than 1% of all cancers in men [1]. Common sites for metastases in these patients are bones, lungs, liver and
brain. Cutaneous metastases in males, accounting for 3–10%, are from melanoma, kidney, lung, gastrointestinal and oral cavity malignancies. The exact incidence of cutaneous metastases in male breast cancer patients has not been reported. We report herein the first noted incidence of male breast cancer with scalp metastasis.

**CASE REPORT**

In January 2012, a 68-year-old male presented to emergency department suffering from hoarseness of voice for last three months and progressive respiratory distress with productive cough for last four months, which was associated with profuse foul smelling expectoration. Both the upper arms and neck were swollen with puffiness of face with venous engorgement over right arm and thorax. Being a known patient of asthma and ischemic heart disease, he was treated conservatively for clinically suspected superior venacaval obstruction syndrome with injection furosemide and dexamethasone. A 5x5-cm mass, non tender, firm to hard in consistency, over the central quadrant of left breast, with peau-d’orange changes of overlying skin, no nipple retraction and fixity to underlying chest wall was detected, suspecting breast neoplasm of malignant nature, for which the patient was subsequently referred to us (Figure 1). Patient was suffering from bilateral gynecomastia, grade 1. There was no left axillary or supraclavicular lymphadenopathy. Additional clinical finding included an ulcerated, firm to hard in feeling, tender mass over the scalp 3x3 cm in diameter (Figure 2). Patient gave no specific history how long the breast lump was present, but the scalp lesion was for one month, progressively increasing in size from a pea sized nodule to the present day ulcerated lesion.

Contrast enhanced computed tomography of thorax showed widening of mediastinum with a soft tissue mass at superior mediastinum predominantly on the right side encircling the great vessels suggesting mediastinal lymphadenopathy, moderate pericardial effusion, multiple thin walled lucencies representing centrilobular emphysema in left lung upper lobe and right lung upper and middle lobes. There was no evidence of any pleural effusion. Additional finding included a soft tissue density nodular enhancing lesion seen at the left mammary region (Figure 3). Fine needle aspiration cytology (FNAC) from swelling over scalp and mediastinal mass were suggestive of metastatic adenocarcinoma. Trucut biopsy from breast tumor was diagnostic of invasive ductal adenocarcinoma, Blooms Richardson grade was 7/9 (moderate differentiated variety) and negative for estrogen, progesterone and HER-2/neu (c-erb-B2) receptors, labeling the patient as triple-negative breast cancer (Figure 4). Complete hemogram, liver function test and renal function test were within normal range. Echocardiography showed borderline 62% left ventricular ejection fraction (LVEF) with pericardial effusion, anteriorily 9 mm and posteriorily 28 mm. Ultrasonography of abdomen did not reveal any metastatic disease. There was no family history of breast cancer or other tumors; neither was there any sign of exposure to epidemiologic risk factors. The patient was clinically staged as T4b, No, M1 of AJCC 7th TNM cancer staging.

Patient was planned for four cycles of chemotherapy, consisting of cyclophosphamide, epirubicin and 5-fluorouracil. However after two cycles, the patient condition deteriorated with fall in LVEF to 45% along with appearance of multiple skin nodules. Though the primary lesion and the metastatic scalp lesion were reduced in size, no further treatment was attempted. He was put on best supportive care and at the time of last follow-up in June 2012. His condition was stable, with eastern cooperative oncology group (ECOG) status of 4, pericardial effusion was treated with closed balloon pericardiotomy and was on 24 hours morphine analgesics.
DISCUSSION

World standardized incidence rates of breast cancer were 66.7 per 10^5 person-years in women and 0.4 per 10^5 person-years in men. Women were diagnosed at a younger median age (61.7 years) than men (69.6 years). Male patients had a poorer 5-year relative survival ratio than women (0.72 [95% CI, 0.70 to 0.75] vs 0.78 [95% CI, 0.78 to 0.78], respectively), corresponding to a relative excess risk (RER) of 1.27 (95% CI, 1.13 to 1.42). However, after adjustment for age and year of diagnosis, stage, and treatment, male patients had a significantly better relative survival from breast cancer than female patients (RER, 0.78; 95% CI, 0.62 to 0.97) [2]. Age-specific incidence patterns showed that the biology of male breast cancer resembled that of late-onset female breast cancer.

The etiology of male breast cancer is unclear, but hormonal levels may play a role in the development of this disease. Testicular abnormalities such as undescended testes, congenital inguinal hernia, orchietomy, orchitis, and infertility have been associated with elevations in breast cancer risk. Benign breast conditions, including history of breast trauma and nipple discharge, have also been reported to increase risk. Gynecomastia, a common phenomenon in elderly healthy males, has been reported in association with breast cancer. Klinefelter’s syndrome may be present in 3–7% of men with breast cancer. Men with a family history of breast cancer in a female relative have 2.5 times the odds of developing breast cancer. Other risk factors are exposure to chest wall radiation, such as in patients previously treated with mantle radiation for Hodgkin’s disease, alcohol use, liver disease, obesity, electromagnetic field radiation, and diet. Mutations in BRCA1 and BRCA2 also increase the risk of affected men developing breast cancer, although not to the same absolute risk as in women. In our patient excepting gynecomastia no other risk factor was identified.

Ductal carcinoma in situ comprises approximately 10% breast cancers in men [3, 4]. The most common growth patterns are papillary and cribriform, and the majority of these tumors are low grade [4]. Lobular carcinoma in situ is very rare because the male breast lacks terminal lobules, but has been reported in association with invasive lobular carcinoma [5]. For invasive carcinomas, the ranges of histologic subtypes for female and male breast cancer are similar [3]. Data from more than 2,000 male patients in the Surveillance, Epidemiology, and End Results (SEER) cancer registry show that 93.7% of male breast cancers are ductal or unclassified carcinomas, 2.6% are papillary, 1.8% are mucinous, and only 1.5% are lobular [3]. This distribution is in contrast to that seen in female breast cancer, in which almost 12% of cancers are lobular carcinomas. Male breast cancers have high rates of hormone-receptor expression. Approximately 90% of male breast cancers express the estrogen receptor, and 81% express the progesterone receptor. The rates of hormone-receptor positivity increase with increasing patient age. In contrast, her-2/neu proto-oncogene is less likely to be overexpressed in cancers of the male breast. The reported rates of androgen-receptor expression have ranged from 34–95%, but this receptor has not been associated with breast cancer prognosis. In this regard this patient is suffering from rare variant invasive ductal carcinoma of breast: triple-negative breast cancer.

The most common presenting symptoms in male breast cancer patients are a painless subareolar lump, nipple retraction, and bleeding from the nipple [6, 7]. As in women, there is a slight preponderance of left-sided versus right-sided disease [8]. Usually, the primary consideration in the differential diagnosis is gynecomastia, which affects approximately 30% of the healthy men [9].

Metastatic breast cancer in males usually spreads to bones, liver and lungs. Cutaneous metastases from internal cancer are relatively uncommon in clinical practice, accounting for 2–4% of metastatic sites, but they are very important to recognize. The cutaneous metastases occasionally manifests as firm, round or oval, mobile, non-painful, solitary or multiple nodules.
of varying color and size. The skin metastases may break down and ulcerate through the skin. Other specific patterns include carcinoma erysipeloides (sharply demarcated red patch due to local spread of primary cancer blocking lymphatic blood vessels in adjacent skin), en cuirasse or sclerodermoid carcinoma (indurated fibrous scar-like plaques due to cancer cells infiltrating collagen in the skin) and carcinoma telangiectodes (red patches with numerous blood vessels (telangiectasia) or lymphatic vessels (lymphangiomatous-like). Tumors on the scalp, although most commonly non-melanoma skin cancers, may be a sign of an internal malignancy. One study reported cutaneous metastasis to be the third most common cause of a malignancy on the scalp following basal cell carcinoma and squamous cell carcinoma. Spread to the scalp is thought to occur through the valveless vertebral venous system and may possibly localize to the scalp due to the vascularity of this region. The most common primary sites of scalp metastases in males are kidney, colon, lungs and stomach. The incidences of cutaneous metastases are not available even after extensive research of literature. Isolated cases have been rarely being reported [10]. There has been no previous reported case of scalp metastasis in metastatic breast cancer.

In general, the approach to the treatment of metastatic breast cancer is similar in male and female patients with breast cancer. Given that the vast majority of men have estrogen receptor–positive tumors, hormonal therapy is often the first approach, depending on age, performance status and co-morbidities. Tamoxifen has established efficacy in metastatic male breast cancer, with an approximate 50% response rate, and is considered the preferred first-line approach. Luteinizing hormone–releasing hormone agonists, with or without antiandrogens, have also been reported to be effective in male breast cancer. For male patients with hormone-refractory disease or rapidly progressing visceral metastases, chemotherapy can provide significant palliation. Generally, a similar approach is used for chemotherapy in metastatic male breast cancer as in female breast cancer. The effectiveness of trastuzumab in her-2/neu over-expressing male breast cancer is unproven, but certainly seems reasonable given the strong evidence in support of trastuzumab in women with breast cancer. As our patient is both estrogen receptor and progesterone receptor negative so no scope of hormone therapy could be initiated. Due to co-morbidities and poor performance status palliative treatment could not be completed and patient was put on best supportive care.

CONCLUSION

We report a rare case of scalp metastasis in an elderly male patient with breast cancer who presented with superior vena cava obstruction syndrome.

Author Contributions

Ritam Joarder – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Kakali Choudhury – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Krishnangshu Bhanja Choudhury – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Debangshu Bhanja Choudhury – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Srikrishna Mandal – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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