

Case report

Metastasis of cervical cancer to breast: A case report and review of literature



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ABSTRACT

Metastasis to the breast from an extra-mammary malignancy has been documented in literature, however cervical cancer metastasis to the breast is very rare. Thirty-eight cases of metastatic deposit to the breast from cervical cancer have been reported in literature. Though most patients present with a breast lump, it is very difficult to clinically distinguish a primary breast malignancy from a metastatic deposit. Histopathology of the tissue, aided with immune-histochemical staining pattern provides a definitive diagnosis. Our patient, a 51-year old woman presented with breast lump and history of post-menopausal bleeding. Upon further workup, the patient was diagnosed with cervical cancer. The mammogram and ultrasound of the breast showed multiple lumps within the breast. Histopathology of the breast mass showed metastatic deposit in the breast from cervical cancer. The patient was treated with radiation therapy to the cervix along with concurrent chemotherapy for local control of pain. After completion of local treatment, she started systemic chemotherapy, however she developed health-care associated pneumonia and subdural hematoma leading to deterioration in her performance status. The patient opted for hospice care and died 2 months later. In this report, we will review the presentation of the 38 cases reported in literature and the imaging and histopathologic findings of metastatic deposits to the breast.

1. Introduction

Breast cancer metastasizing to different organs is a common phenomenon, however metastasis to the breast from a distant malignancy is quite rare. The first reported case of an extra-mammary organ metastasizing to the breast was published in 1903 (Trevithick, 1903). In a 90-year study of tumor registry from Royal London hospital, only 60 out of nearly 14,000 patients with breast cancer were identified to have metastatic deposit in the breast from a hematological or non-hematological malignancy (Georgiannos et al., 2001). Out of these 60 patients, approximately 30% were identified postmortem (Georgiannos et al., 2001). The cumulative incidence of non-mammary malignancies metastasizing to the breast is nearly 1.7–6.6% based on other post mortem autopsy studies (Bonito et al., 1991). Clinical studies estimate a lower incidence of nearly 0.4–3% (Bonito et al., 1991; Klingen et al., 2009). It is important to distinguish primary breast malignancy from a metastatic

deposit, as it not only changes patient management but also foretells a poor prognosis (Lee, 2007). Histopathology, immunohistochemistry (IHC) and imaging studies play a critical role in evaluation of a breast lump and distinguishing a primary tumor of the breast from a metastatic deposit from an extra mammary malignancy (Lee, 2007). In this case-report, we describe the case of a patient who presented with a breast lump and on further workup was diagnosed with poorly differentiated cervical carcinoma with metastatic deposit to the breast. Here, we will discuss the diagnostic challenges, radiographic features and utility of histopathological studies in differentiating primary breast cancer from metastasis to the breast from an extra-mammary malignancy.

2. Case report

A 50-year old woman with past medical history of congestive heart

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Abbreviations: AUC, area under curve; EBRT, external beam radiation therapy; ECOG, European Cooperative Group; GCDFFP, gross cystic disease fluid protein 15; HPV, human papilloma virus; IHC, immunohistochemistry; LN, lymph nodes; US, ultrasound

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failure, asthma and hypertension presented with a hard, non-tender lump in her right breast which she noticed on breast self-exam. On review of systems she gave history of post-menopausal vaginal bleeding and several incidents of severe pain in the pelvic area for the past 3 months. She also gave history of unprotected sexual intercourse and post-coital bleeding a couple of weeks prior to the presentation. She denied any constitutional symptoms including weight loss, appetite loss or night sweats. Her obstetric and gynecologic history was significant for G6P5015, menarche at the age of 14 years and spontaneous menopause around 20 years ago. The patient denied any workup being done for early menopause and only remembered having hot flashes around that time. She also confirmed having regular pap smears over last 3 decades, which were reported to her as ‘normal’. Her family history was significant for first degree relatives being diagnosed with ovarian and cervical cancer. Physical exam at presentation was significant for a 3 × 2.5 cm mass in the right breast which appeared to be within the subcutaneous fat. The mass was hard, not tender and was not stuck to the chest wall or the skin above the mass. The pelvic exam showed a firm cervix with nodularity of the os from 6’o clock to 8’o clock position. No discrete mass was seen on ectocervix, but induration was noted on endocervix and enterovesical septum. The uterus was nearly 10 weeks in size and firm on palpation.

The endovaginal ultrasound showed 10.6 × 3.8 × 4.1 cm uterus with endometrial stripe of 9.2 mm (no internal vascularity noted within the endometrium). Another 4.8 × 4.4 × 5.1 cm bulky heterogenous hypervascular mass was noted within the cervix. A simple cyst was noted within the right ovary, the left ovary was not visualized. The mammogram with targeted ultrasound showed a grossly well circumscribed 1 cm mass in right breast and a 7 mm nodule in the left upper outer breast (Fig. 1). Targeted ultrasound of right breast showed an ill-

defined oval 2.8 cm mass at 5’o clock position and another ill-defined 8 mm solid mass at 1’o clock position along with multiple enlarged lymph nodes in the right axilla measuring upto 2 cm. Targeted ultrasound of left breast showed a small 7 mm oval, well circumscribed mass in medial upper quadrant (Fig. 1). The CT of the Chest, abdomen and pelvis showed multiple small pulmonary nodules (approximately 7 mm in size), multiple bilateral adrenal nodules and extensive lymphadenopathy (8–12 mm size) including supraclavicular, mediastinal, gastro-hepatic, retroperitoneal and bilateral Illiac and inguinal lymph nodes (LN). The histopathology from the endocervical and endometrial tissue showed poorly differentiated carcinoma (Fig. 2, Panel A). The IHC stains showed that the tumor cells were positive for Cam 5.2, EMA, AE 1/3 and p16 (Fig. 2, Panel B–D). The tumor cells did not stain with CK-7, CK-20, Vimentin, p53, p63, squamous cocktail, HMB-45, chromogranin, synaptophysin and CD-10. Based on the pattern of IHC staining, the patient was diagnosed with poorly differentiated carcinoma favoring cervical origin. The breast mass was also biopsied and the pathology showed metastatic poorly differentiated carcinoma with similar histologic and IHC features when compared with endocervical tissue. The IHC stains were positive for p16, E-cadherin, AE1/3 and Cam 5.2. The IHC stains were negative for CK-7, CK-20, p63, mammaglobin and gross cystic disease fluid protein 15 (GCDFFP). The mammogram was read as BIRADS-6 (Biopsy proven malignancy).

The patient was diagnosed with stage IVB cervical cancer. The patients’ case was discussed in a multidisciplinary meeting and a decision was made to treat her with concurrent chemoradiation to alleviate symptoms and achieve a more durable response. She was treated with palliative external beam radiation therapy (EBRT) (45 Gy delivered over 22 fractions) to the pelvis and concurrent chemotherapy with weekly Cisplatin (40 mg/m²). Restaging CT scans after completion of

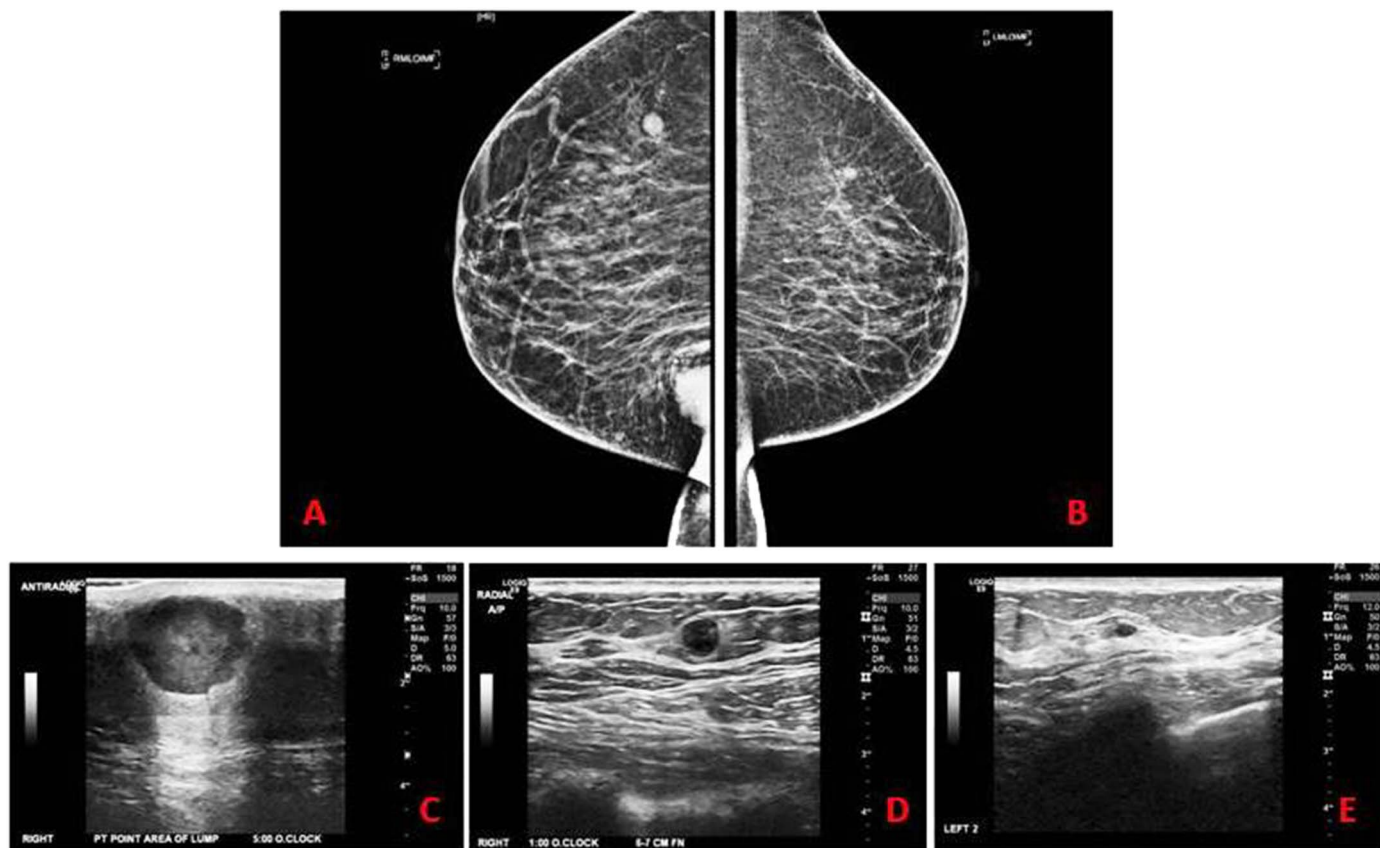


Fig. 1. Panel A: Right breast-shows incompletely included mass in the right infra-mammary central region and 1 cm well circumscribed mass in the right upper inner breast. Panel B: Left breast- shows small sub-centimeter nodule in the left deep upper breast and scattered round micro-calcifications in the left deep outer breast. Panel C: Targeted right US- ill defined 2.8 cm mass at 5’o clock position. Panel D: Targeted right US- Slightly ill defined round 8 mm solid mass. Panel E- small 7 mm oval well circumscribed lesion at 2’o clock.

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