

Bilateral Breast Cancer: Different in More Ways than One

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Background	Accessory breast tissue occurs in up to six percent of general population, and most of these are in axillary region on the milk line. Malignancy arising in an accessory breast accounts for only 0.3 to 0.6 percent of all cases. More often these lesions are confused with metastatic lymph nodes or skin appendageal tumours. Unlike primary breast cancers, the treatment protocols and prognostic factors for these tumours are not well-defined, which makes them a therapeutic challenge. This study highlights the feasibility of doing wide local excision with sentinel lymph node biopsy (SLNB) in an axillary accessory breast as well the need to report similar cases so that appropriate management and staging guidelines may be formulated in the future.
Summary	We herein describe an unusual case of bilateral breast cancers with differing histologies and location, wherein right-side cancer arose in an accessory axillary breast, and the left-side cancer arose in the normal pectoral breast. Both were amenable to wide local excision and SLNB.
Conclusion	Cancer arising in accessory breast tissue is extremely rare, and high clinical suspicion is required for a timely diagnosis. Histologically diagnosis is made by focusing on malignant cells with interspersed breast epithelia in the absence of lymphoid tissue. Evaluation of bilateral breast in every case of breast carcinoma remains of prime importance. Wide local excision with sentinel lymph node evaluation is feasible in appropriately selected cases.
Keywords	Breast cancer, accessory breast, sentinel lymph node biopsy

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Case Description

Accessory breast tissue occurs in up to six percent of general population and undergoes physiological changes similar to normal breast tissue.¹ It is also, uncommonly, the seat of various benign and malignant breast lesions.² Due to rarity of these tumours and their unusual location, these are often misdiagnosed as lymph node masses, skin appendigeal or axillary tail tumours. Anatomically and embryologically, cancers arising in the axillary tail of breast lie deep to the deep fascia while those from accessory breast lie superficial to it. The presence of an accessory breast cancer is very uncommon, accounting for 0.3 to 0.6 percent of all breast cancers.³ Even rarer is the association of malignancy in an accessory breast along with a synchronous malignancy in either ipsilateral or contralateral normal breast parenchyma. We herein report an unusual case of bilateral breast carcinoma of differing histology with one of the tumours occurring in an accessory breast tissue and the other arising in a contralateral pectoral breast.

A sixty-six-year old postmenopausal female noticed a painless swelling in her right axilla two years ago, which gradually increased in size. It was not associated with any overlying skin changes or other symptoms. The patient was subsequently evaluated at a health care facility, where the lesion was thought to be a skin appendigeal tumor and subjected to a fine needle aspiration cytology, which depicted atypical cells. Core needle biopsy (CNB) from the lesion showed focal apocrine metaplasia with benign mammary ducts. The patient then underwent an incisional biopsy, which depicted monomorphic tumour cells with scant cytoplasm, diffuse loss of E-cadherin, positivity for both estrogen(ER), and progesterone receptor(PR), suggesting an invasive lobular carcinoma. The patient underwent mammogram of both breasts, which revealed suspicious lesions with clustered microcalcification in the lower outer quadrant of left breast and localised skin thickening (BI-RADS V) with mass like lesion in right axilla (which needed further characterisation due to recently done excision biopsy). MR mammogram showed two spiculated T2 hypodense focal mass lesions measuring 1.8 X 1.4 cm and 1 x 1 cm adjacent to each other at four to five o'clock position in the left breast, characterised as BI-RADS 5. The right breast was normal, with axillary skin thickening likely due to postoperative changes and few sub-centimetric lymph nodes with maintained fatty hila (Figure1). In view of a suspicious lesion in the left breast, the patient underwent an ultrasound guided (USG) core needle biopsy, which showed ER/PR positive invasive carcinoma

with extracellular mucin. Positron emission tomography (PET)-computed tomography (CT) did not show any distant metastasis.

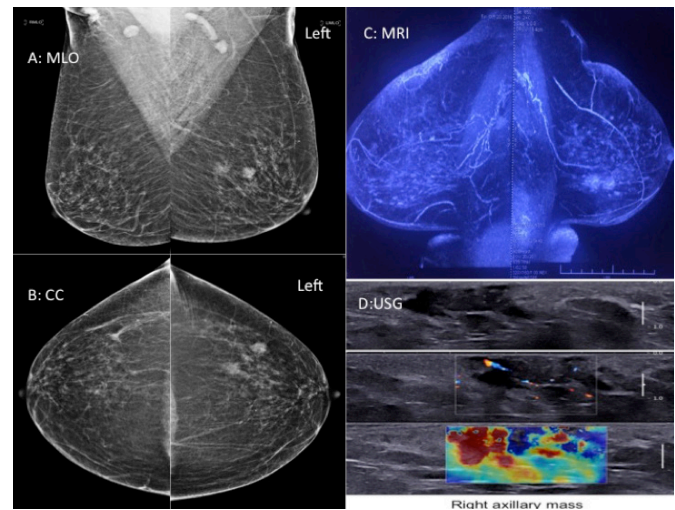


Figure 1. Depicts the imaging of the patient. **A:** Mediolateral oblique view of the mammogram showing clustered microcalcification with mass lesion in lower outer quadrant of left breast and skin thickening in right axilla. **B:** Cranio caudal view of the mammogram showing two suspicious mass like lesion in left breast. **C:** MRI bilateral breasts showing two suspicious lesions in left breast. **D:** USG with elastography right axilla showing suspicious right axillary mass

On examination, the patient had bilateral accessory breasts, with a biopsy scar on the right accessory breast area below which a firm lump of 1 X 1 cm was palpable. The right breast and axilla were normal. The left breast had a lump at the four o'clock position measuring 1.5 cm in the maximum dimension. Bilateral axilla were free. Rest of the examination was unremarkable. Slides of previously done biopsy were reviewed and diagnosis of right accessory breast carcinoma and left-breast carcinoma (T1N0M0) was made. The patient opted for breast conservation surgery and underwent ultrasound guided wide local excision (WLE) of left breast lump with sentinel lymph node biopsy (SLNB) and WLE of right accessory breast lesion with its overlying scar and SLNB. Both SLNBs were negative. Final histopathology of the right accessory breast lesion was reported as invasive lobular carcinoma. Final histopathology of the left breast lesion was reported as invasive ductal carcinoma. All margins were negative (Figure 2). The patient received adjuvant chemotherapy, radiation and hormonal therapy. She is doing well at one-year follow-up.

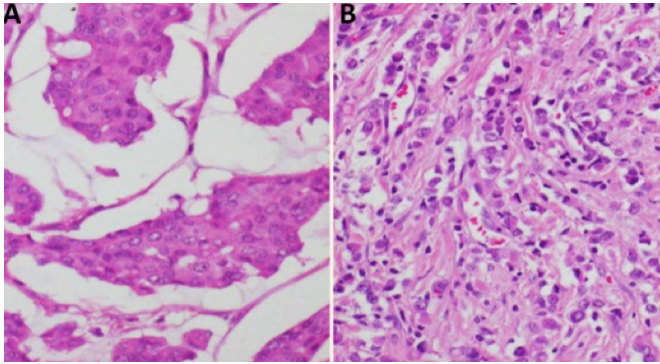


Figure 2. Histopathology slides. **A:** Ductal carcinoma breast, left breast. **B:** Lobular carcinoma breast, right accessory breast

Discussion

Accessory breasts occur in 0.22 to 6 percent of the general population and can occur anywhere along the milk line.¹ These are most commonly seen in the axilla, which accounts for 60 to 70 percent of ectopic breast tissues.^{4,5} While breast cancer is the most common malignancy in women, those arising in accessory breast constitute only 0.3 to 0.6 percent of total breast cancers.³

Common tumours presenting in the axillary accessory breast include benign lesions like fibroadenomas, or malignancies like primary mammary carcinoma, lymphoma, or skin appendageal tumour.^{6,7} These usually present with lump or skin changes. In a review of ectopic breast cancers done by Yanagi et al, skin changes in the form of discoloration, depression, and ulceration were seen in 49 percent of patients.⁸

Most of the women with axillary accessory breast are symptomatic at presentation, as these are often missed on screening mammography due to their peculiar location. Oblique and exaggerated cranio-caudal view can help in the visualisation of axillary breast tissue.⁹ Ultrasonography and MRI are helpful in radiological characterisation of the lesion and may help in excluding other common lesions. These are usually seen as hypoechoic lesions on USG, interspersed within echogenic normal breast parenchyma in axillary location, and discontinuous with normal breast tissue. Imaging of the breast with mammogram or MRI should also be done to identify any primary breast cancer.

Diagnosis of this tumour type is often delayed because they rank low in clinical suspicion and are often confused with an axillary lymphadenopathy or skin appendageal tumour. Definitive diagnosis depends on histopathology of the

lesion demonstrating malignant ductal cells surrounded by normal breast parenchyma with absence of lymphoid tissue. Immunohistochemistry can further confirm their mammary origin. Mammary glandular tissue interspersed amongst axillary gland suggests an accessory axillary breast tissue rather than normal breast. The most common histological type is infiltrating ductal carcinoma.¹⁰ In a review by Marshall et al, invasive ductal carcinoma was seen in almost 80 percent cases, while medullary and lobular carcinoma comprised the remainder.⁵

Due to the rare occurrence of such cancers, no definitive diagnostic, staging, or treatment protocols exist for management of tumours arising from accessory breast. There has been a shift from radical mastectomy to wide local excision in accessory breast cancer management. Cogswell & Czerny studied the autopsy results of patients who died of metastasis from accessory breast tissue and found that even in the presence of metastasis, ipsilateral breast did not show presence of invasive breast cancer, making wide local excision a feasible option in these cases.¹¹ Subsequently various articles have suggested that the surgical procedure of choice for ectopic breast carcinoma should be a wide resection of the tumour with surrounding normal tissue, including the skin and regional lymph nodes.¹² Zhang et al stated in their paper that “when the accessory breast tissue is closely connected to normal breast tissue, the indications for surgery should be the same as those for a tumour anatomically situated in the breast.” Likewise, there are also no standard protocols for axillary management in these cases.

While routine axillary lymph nodal management was previously followed in view of the understanding that axillary lymph nodes are more often involved, SLNB is now being increasingly adopted. In the review by Zang et al, it was seen that lymph node positivity was similar between accessory and usual breast cancers when compared stage to stage.⁸ Although the indications for adjuvant chemotherapy and hormonal therapy remains the same, the need for irradiating the normal ipsilateral breast after wide local excision remains controversial.

The prognosis of such tumours is difficult to characterise due to limited data on such cases and absence of recommended TNM staging. While some authors consider similar prognosis and prognostic characteristics as with mammary carcinoma, others believe that they have a worse prognosis due to close proximity and increased axillary lymph nodal involvement. Further data is needed to ascertain the prognostic variables for this entity.¹³

Our case is unusual for more than one reason: it represents bilateral disease, with right-sided disease arising within an axillary accessory breast, and left-sided disease arising in the normal pectoral breast tissue. Each of these had differing histologies. Both the tumours were amenable for WLE and SLNB as per standard protocols for breast cancer management.

Conclusion

Cancer arising in accessory breast tissue is rare, and a high clinical suspicion is required for a timely diagnosis. Wide local excision with sentinel lymph node biopsy is feasible in appropriately selected cases.

Lessons Learned

Cancer arising in accessory breast tissue is extremely rare, and a high clinical suspicion is required for a timely diagnosis. Histologically, diagnosis is made by having focus of malignant cells with interspersed breast epithelia in the absence of lymphoid tissue. Evaluation of bilateral breast in every case of breast carcinoma remains of prime importance to rule out a second primary tumour or a tumour in the opposite breast. Wide local excision with SLNB is feasible in appropriately selected cases.

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