

CASE REPORT

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A case of accessory breast cancer mimicking metastatic lymph node from occult breast cancer

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ABSTRACT

Introduction: Primary breast cancer occurring in accessory breast tissue is rare. Presently, the diagnostic procedures and therapeutic approaches of this disease are not well established. Moreover, the rarity of this disease leads to its occasional misdiagnosis from other diseases. **Case Report:** We report the case of a 69-year-old woman with accessory breast cancer who presented with a subcutaneous palpable mass in her right axillary region. The axillary mass was initially diagnosed as a metastatic lymph node from occult breast cancer at a previous hospital as her skin was intact without any sign of accessory breast. **Radiological and pathological re-examination of a coreneedle biopsy (CNB) specimen from the tumor yielded a diagnosis of accessory breast cancer. We performed partial mastectomy of the mass and sentinel lymph node biopsy. Conclusion:** As this disease can be misdiagnosed and mistreated, additional clinical information regarding this disease would be highly beneficial. Although

early diagnosis of accessory breast cancer may be difficult, the possibility of this disease should be considered when a palpable subcutaneous mass is detected.

Keywords: Accessory breast cancer, Lymph node, Occult breast cancer, Sentinel node biopsy

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INTRODUCTION

Accessory breast tissue can occur at any site along the embryonic mammary line from the axilla to the inguinal region. This results from an incomplete embryological regression of the breast bud. The most common location of accessory breast tissue is the axilla. At six weeks of gestation, the mammary gland develops from the ectodermal ridges, also called milk line, that extend from the axilla to the inguinal region [1, 2].

Accessory breast tissue can be seen as a result of failed involution during embryogenesis except in the thoracic region [1]. Accessory breast tissue occurs in 2–6% of the general population [3, 4], with 70% occurring most commonly in the axilla [5]. Unusually, it has also appeared outside the mammary ridge, that is, in the face, posterior neck, chest, midback, buttock, vulva, flank, hip, thigh, shoulder, and upper extremities [6].

Of all breast cancers, accessory breast cancer is rare, with an incidence ranging from 0.3 to 0.6% [7]. A palpable mass is the most common physical sign of this carcinoma. Edema, tenderness, breast pain, and ambiguous discomfort are occasionally observed [1, 8]. An accessory breast may be composed of breast parenchyma, areola, and nipple, or any combination of these three components [1, 9].

We report a case of accessory breast cancer that was initially diagnosed as a metastatic lymph node from an occult breast cancer. Our findings may add further clinical information beneficial for avoiding the misdiagnosis and mistreatment of accessory breast cancer.

CASE REPORT

This case involved a 69-year-old woman with no significant past and family medical history including breast cancer. However, she noticed a painless mass in her right axillary region. Her body mass index was 30.04 (height 145.5 cm; body weight 63.3 kg). Her reason for attendance was a recently diagnosed adenocarcinoma of the breast through CNB presenting as a painless lump in the right axillary region. The mass was suggestive of a metastatic lymph node from an occult breast cancer as her breast showed no abnormal findings.

Physical examination revealed a smooth, firm, elastic movable mass measuring 20 mm in size in the right axilla. Her skin was completely intact without any sign of an accessory breast. Routine mammography (MMG) (Figure 1A) and ultrasonography (US) showed no abnormal findings in her breasts bilaterally. Additional magnified and spot-compressed axillary MMG around the palpable mass showed a high density lobular mass with a microlobulated border (Figure 1B). US detected an 18 mm microlobulated hypoechoic mass with regular margins (Figure 2A). Color Doppler US revealed mixed vascularity with both peripheral and central vessels (Figure 2B).

Invasive ductal carcinoma tissue was found by CNB, but non-neoplastic lactiferous ducts and lymph node structure components (e.g., lymph follicle, sinus, or capsule) were not observed (Figure 3). Because of lack of lymph node structure, suspicion of an adenocarcinoma arising from the right axillary mammary gland, that is, accessory breast cancer, arose. The TNM staging in the right axilla was cT1NoMo.

Following her diagnosis of breast cancer, magnetic resonance imaging (MRI) showed an irregular mass with a heterogeneous enhancement pattern in the right axilla. The signal intensity-time curve showed a fast washout pattern (Figure 4). Positron emission tomography-computed tomography also demonstrated a hypermetabolic mass in the right axillary region and increased FDG uptake (maximum standardized uptake value [SUV_{max}]= 10.24) (Figure 5). All the examinations revealed no continuity between the mass and the right mammary gland.

Following the diagnosis of accessory breast cancer, the patient underwent a wide resection of the right axillary mass with 1.5 cm margins and sentinel lymph node biopsy (SNB). The skin above the mass was removed by spindle-shaped resection. ^{99m}Techetium-radiolabeled phytate was injected into the right areola six hours before surgery. Indigo carmine was injected into the right areola 10 minutes before surgery. It was difficult to identify the axillary sentinel lymph node because of the “shine through” effect (Figure 6). The gamma probe identified no radioactive lymph node, and there were no blue dye-filled tract and node in the right axilla. However, several lymph nodes were easily detected and sampled because of a good view in the axilla by skin incision for the wide resection. The frozen section diagnosis of lymph nodes was negative, thus axillary dissection was not performed.

The definitive pathological diagnosis based on the surgical specimen was accessory breast cancer consisting of solid-tubular carcinoma of nuclear grade 3, forming a 1.6×1.2 cm tumor (Figures 7 and 8). There were no signs of lymph-vascular invasion. The surgical margins were free from cancer and the six resected lymph nodes were all negative. The TNM staging of the lesion was pT1NoMo. Immunohistochemical staining showed that the tissue was positive for both estrogen receptor and progesterone receptor, and negative for human epidermal growth factor 2. Ki-67 staining

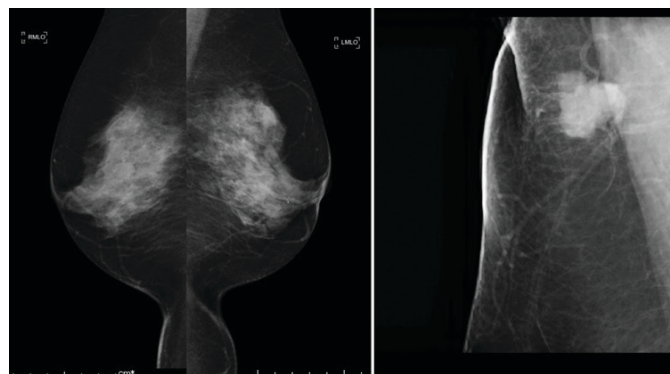


Figure 1: Mammography (MMG) imaging. (A) An axillary mass was not found by MMG at the standard mediolateral oblique position, (B) but was detected at a more oblique position.

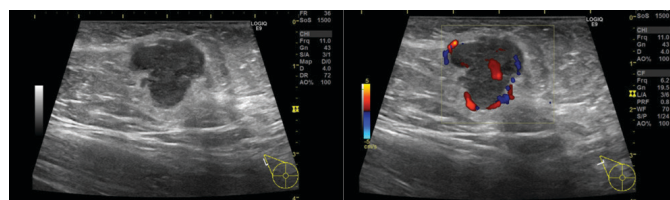


Figure 2: Ultrasonography (US) of the right axilla. (A) Ultrasonography of the right axilla showed a heterogeneous and microlobulated hypoechoic lesion with a regular margin and a maximum size of 18 mm. (B) Doppler US revealed mixed vascularity with both central and peripheral vessels in the right axillary mass.

showed a proliferative index of 30%. Postoperatively, the patient was started on endocrine therapy with anastrozole, which was planned to be taken for five years. Radiotherapy was declined by the patient.

DISCUSSION

In this case, a palpable mass was found only in the right axillary region without any other skin symptoms. Thus, the mass was initially misdiagnosed as a metastatic lymph node from occult breast cancer.

When accessory breast cancer is presented without the nipple or areolar complex, a definitive diagnosis of carcinoma arising from the accessory breast tissue in or outside the axilla can be difficult to make, and it is frequently misdiagnosed as a subcutaneous lesion [10, 11]. The clinical differential diagnosis of an axillary mass may include other subcutaneous masses, such as neurofibroma,

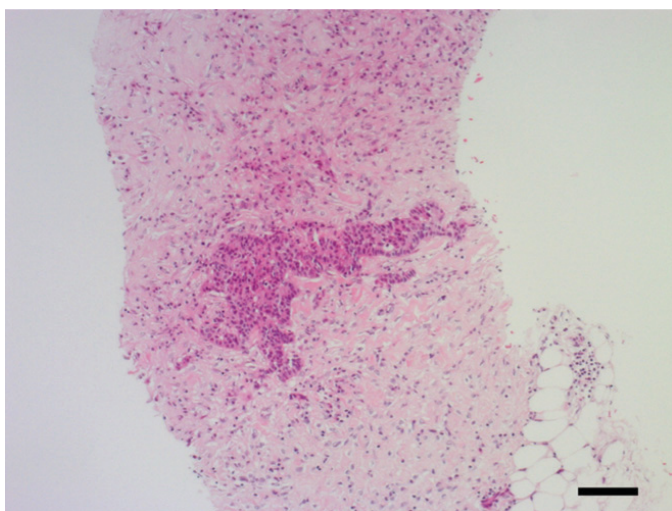


Figure 3: Histology of preoperative biopsy specimen. Adjacent fibrosis was present in the invasive carcinoma. Neither lymph node structures nor components of the mammary gland duct tissue were observed (bar = 100 μ m).

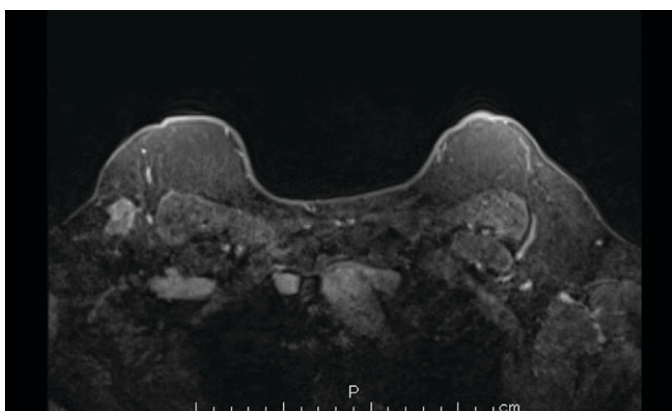


Figure 4: Dynamic breast magnetic resonance imaging (MRI). Magnetic resonance imaging revealed that both mammary glands were free of lesions. An irregular mass with a heterogeneous enhancement was observed. There was no continuity between the mass and the right mammary gland.

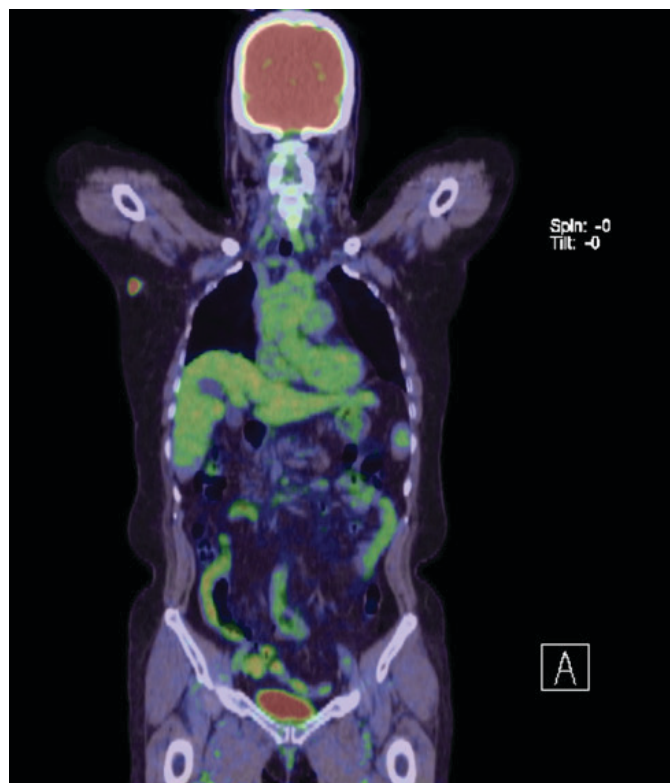


Figure 5: Positron emission tomography-computed tomography (PET-CT) findings.

Positron emission tomography-computed tomography showed no evidence of any occult or malignant primary lesions, except for a mass located in the right axilla with an SUV_{max} of 10.24.

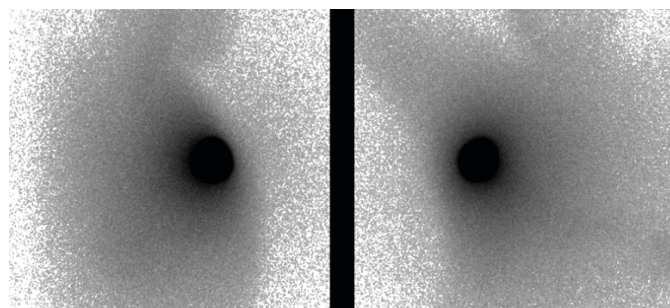


Figure 6: Lymphoscintigraphy of the patient. Lymphoscintigraphy showed the “shine through” effect of radioactivity. An axillary sentinel lymph node could not be detected.

lipoma, lymphoma, hidradenitis suppurativa, and follicular cysts [1, 12]. There are also metastatic lymph nodes from breast cancer and subsequently from other malignancies, such as lung cancer, digestive tract cancer, and ovarian cancer. Notably, accessory breast cancer is also one of the most commonly reported palpable axillary masses [13–15]. Accessory breast cancer should also be carefully considered when a mass is found in the axillary region even if there are no accompanying skin findings.

Accessory breast cancer is usually treated by a wide resection of the tumor together with the surrounding tissue, covering skin, and regional lymph nodes [5, 16, 17].

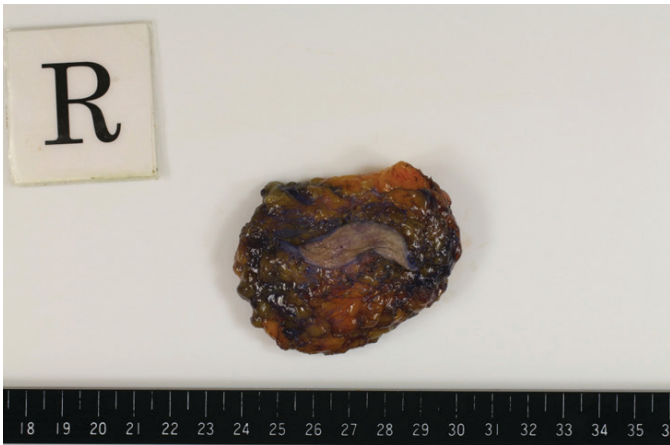


Figure 7: Macroscopic diagnosis of the resected specimen. The skin above the mass was removed by spindle-shaped resection. The tumor was 1.6 cm in size.

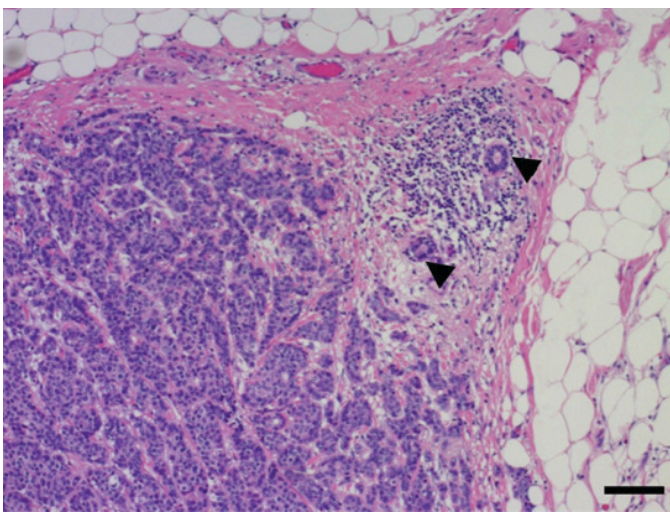


Figure 8: Histopathological findings of the resected specimen. The invasive carcinoma was accompanied by non-neoplastic lactiferous ducts (arrowheads), indicating the presence of ectopic mammary gland tissue (bar = 100 μ m).

Currently, there are a few studies on SNB for accessory breast cancer [18–20]. As accessory breast cancer is located in the axilla, the radioactive colloid often causes diffusion of radioactivity, or the “shine through” effect which makes SNB difficult [4, 21]. An unpredictable lymphatic drainage has also been reported in the accessory breast [4], which may subsequently hinder successful SNB mapping. We could not identify lymph nodes by dual mapping with the radioisotope and dye. However, several lymph nodes were easily identifiable for sampling.

Although endocrine therapy was expected to be added as an adjuvant therapy, irradiation of the whole breast in accordance with the routine practice for breast cancer was questionable. Thus, we considered partial irradiation of the resected area. Although the middle- and long-term benefits, safety, and indications of adjuvant radiotherapy have not yet been fully evaluated for accessory breast

cancer [1], irradiation of the axilla tumor site appears to decrease local recurrence [1, 4]. In the present case, however, radiotherapy was not performed in accordance with the patient’s preference.

CONCLUSION

The early diagnosis of accessory breast cancer may prove difficult because of the rareness of this disease, particularly when it presents without the nipple-areolar complex. Accessory breast cancer should be carefully taken into consideration in cases of a palpable subcutaneous mass. As identification of a sentinel node using the routine mapping method is difficult, careful sampling is required for cases of clinically negative nodes.

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Natsuki Uenaka – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Kimito Yamada – Analysis of data, Interpretation of data, Revising the work critically for important intellectual content, Final approval of the version to be published,

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Takashi Ishikawa – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Guarantor of Submission

The corresponding author is the guarantor of submission.

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Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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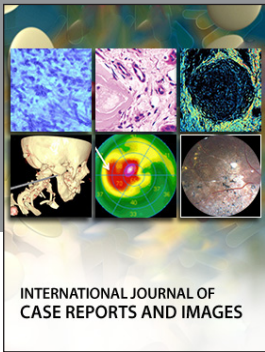
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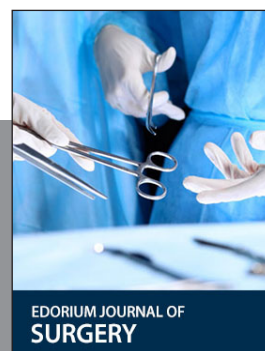
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