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Case report

Primary invasive ductal carcinoma of axillary accessory breast

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ABSTRACT

Primary accessory breast cancer is an extremely rare pathology, representing less than 1 % of all breast cancers, and it is found in more than 90 % of cases in the axilla.

The diagnosis of accessory axillary breast cancer (AABC) is often late and at an advanced stage with an average delay of 40.5 months. Histological sampling and immunohistochemical results confirm the diagnosis. Most patients are diagnosed with stage II disease or higher, so it is considered to have a poor prognosis. There is no specific management for AABC; it follows the guidelines for orthotopic pectoral breast cancer.

We therefore report the case of a 50-year-old woman diagnosed with grade II invasive ductal carcinoma found in accessory axillary breast, treated by wide local resection and sentinel lymph node dissection.

1. Introduction

Tissues present in the axillary region, including the breast parenchyma, may develop into an axillary mass. Using imaging modalities, we can detect the possible tissue of origin or the underlying pathology. In up to 19 % of cases, there is fibro glandular tissue of breast origin [1].

Accessory breast tissue is the most common congenital breast defect found in 2–6 % of women and 1–3 % of men. It tends to affect patients 10 years earlier than those with orthotopic breast cancer. It forms when there is incomplete regression of the breast ridge, which extends from the axillary folds to the inguinal folds bilaterally and is commonly found in the axillary regions. It can be made up of any combination of the three main components of the breast: the parenchyma, the areola, and the nipple, and can undergo all the physiological and pathological changes of the orthotopic breast [2].

Primary accessory breast cancer is an extremely rare disease [2], accounting for less than 1 % of all breast cancers [3]. There is a lack of studies on cancer of accessory breast tissue due to its rarity, and most of what we found in the literature review are sets of case reports [3].

We present here a case of primary invasive ductal carcinoma of the axillary accessory breast (AAB) treated with by wide local excision and sentinel lymph node dissection (SLND). This case report has been reported in line with the SCARE Criteria [4].

2. Case presentation

We present the case of a 50-year-old woman in perimenopause, with a medical history of cervical cancer 10 years ago s/p radical hysterectomy. There was no family history of breast or ovarian cancer. She presented to the outpatient department with pain and an enlarged lump in her right armpit. She reports that this lump was found a long time ago.

On physical examination, the patient's parameters were all within the normal range. Examination of both breasts was normal, while at the level of the right armpits, we palpated a hard, fixed, and irregular mass of about 3 cm (Fig. 1), with cutaneous attachment associated with a palpable lymph node of 1 cm. On gynecological examination, she showed no signs of recurrence of her neoplasia. The remainder of the examination was unremarkable.

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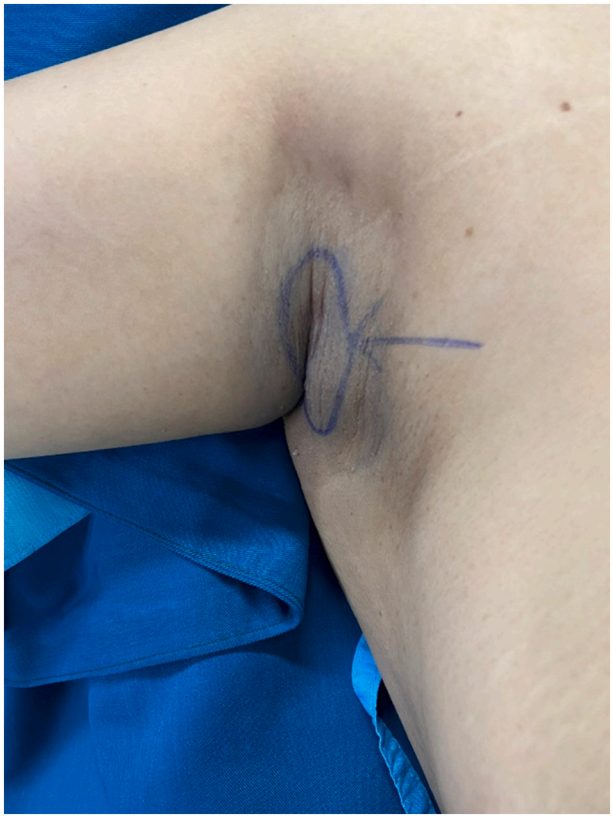

Fig. 1. marking around the mass found in the patient's right axillary region.

A routine bilateral breast and axillary ultrasound was performed which confirmed the presence of a 2.3 × 1.3 cm right axillary mass, infiltrating the surrounding and subcutaneous tissues. The mass was surrounded by fatty lobules and contained micro-calcifications, in addition, abnormal axillary lymph nodes have been described (Fig. 2). Given the shape and location of the mass, the suspicion of accessory breast tissue was raised.

Fine needle aspiration (FNA) of the mass and enlarged lymph node revealed the presence of breast carcinoma and atypical lymph node hyperplasia. An ultrasound-guided core biopsy of the mass was also performed, resulting in invasive ductal carcinoma grade II, ER +++, PR -, HER2/Neu 1+, while the Ki67 proliferation index was 10 %. (Fig. 3).

The assessment of extension done; Chest CT only revealed the known mass and associated lymphadenopathy (Fig. 4). Abdominal ultrasound, bone scan and CA 15.3 level were normal. We could not perform an MRI because the patient was claustrophobic.

The diagnosis of this patient was considered T2N0M0 right accessory breast cancer (TNM, AJCC 8th edition).

A wide local excision through an ellipsis incision of additional skin was performed, with sentinel lymph node dissection. The pathological finding of the mass confirmed the diagnosis with 0/3 positive lymph nodes.

The patient left the hospital the next day without complications, with a prescription for tamoxifen 20 mg/day for 5 years and regular follow-up every 3 months.

3. Discussion

The primitive milk-line is formed during the fifth week of embryogenesis by thickening of the ectoderm and extends from the axillary hollow to the inguinal fold. Only two pectoral buds remain when the breast ridge disappears, however ectopic persistence of breast tissue may be the result of embryological developmental abnormalities located mainly along this line [4], or away from it almost everywhere in the human body, for example face, neck, chest, back, shoulder, upper limbs, vulva, flank, hip, and thigh [2]. They consist of fibrous and glandular elements [1].

The axillary localization is the most frequent region [1–6], and since it is a complex region and contains many anatomical elements, it is therefore necessary to be careful in the investigations to establish the correct diagnosis. It is imperative to differentiate accessory breast from other differential diagnoses, which are divided into congenital, iatrogenic, proliferative as well as infectious. Their management is different, so to avoid unnecessary surgery, histological sampling with FNAB or Core Biopsy is crucial [1,7].

AAB are usually asymptomatic [2,7] and are hidden in the axillary fossa, so discovery is often incidental [7]; But as they undergo changes in relation to hormonal changes, especially after adolescence or during pregnancy and lactation, they may present with cyclic pain, hypertrophy, restriction of arm movements and secretions [1–3,6]. In 13 % of cases, AAB is found bilaterally [2]. Lymphatic drainage from AAB is normally to the ipsilateral axillary lymph nodes and then to the supraclavicular lymph nodes [3], with a possibility of drainage into the contralateral or inguinal axillary lymph nodes [5].

Excision of AAB tissue should not be systematic. It can be proposed if the patient is a carrier of a BRCA1 or BRCA2 genetic mutation [5], or if for aesthetic reasons or if it is painful or hinders the mobilization of the upper limb. Its disadvantage is that it sometimes leaves a large scar

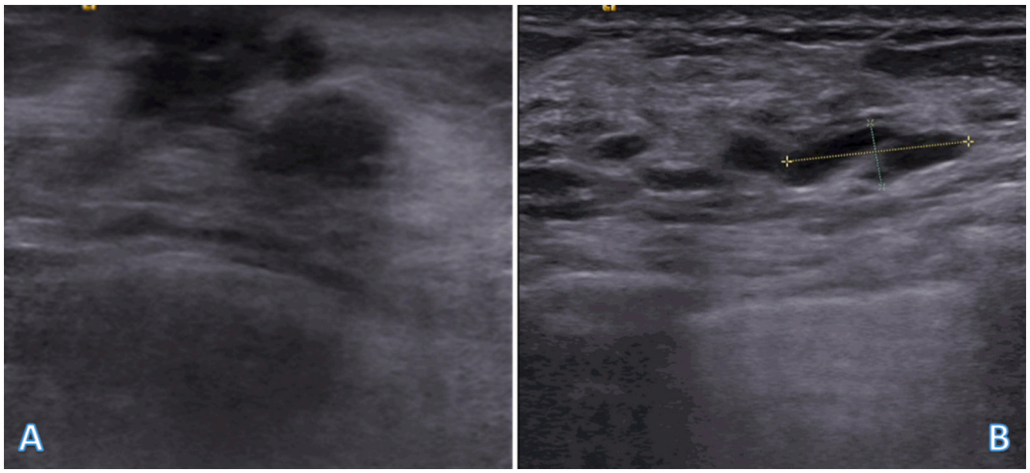

Fig. 2. Ultrasound of the right axillary region showing (A) a 2.3 × 1.3 cm irregular hypoechoic mass invading the subcutaneous tissue containing small hyperechoic foci and (B) an oval shaped lymph node with hyperechoic fatty hilum and asymmetric focal cortical thickening surrounded by breast tissue.

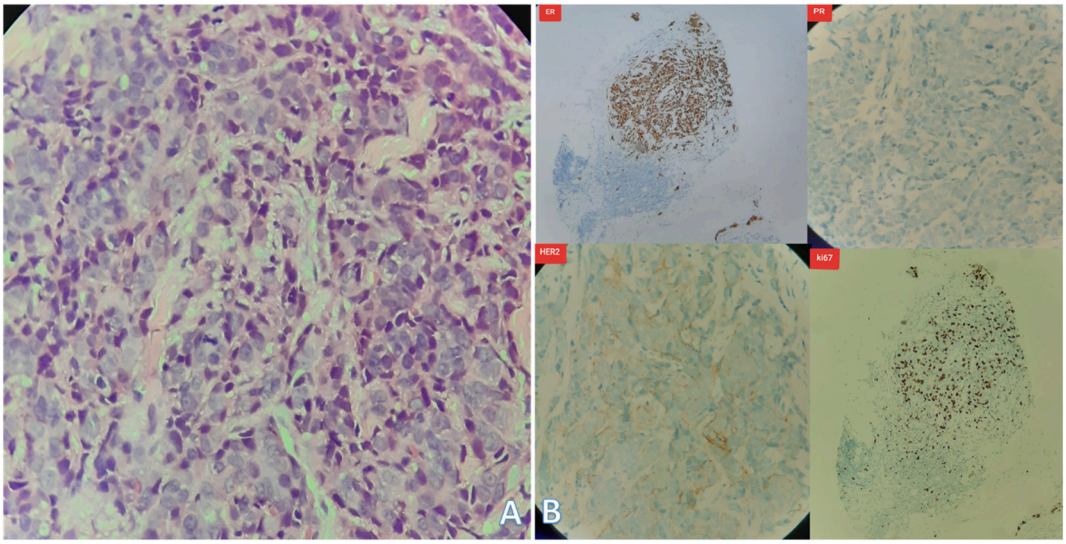

Fig. 3. A. Histology of an accessory breast tumor. B. Immunohistochemistry of an accessory breast tumor.

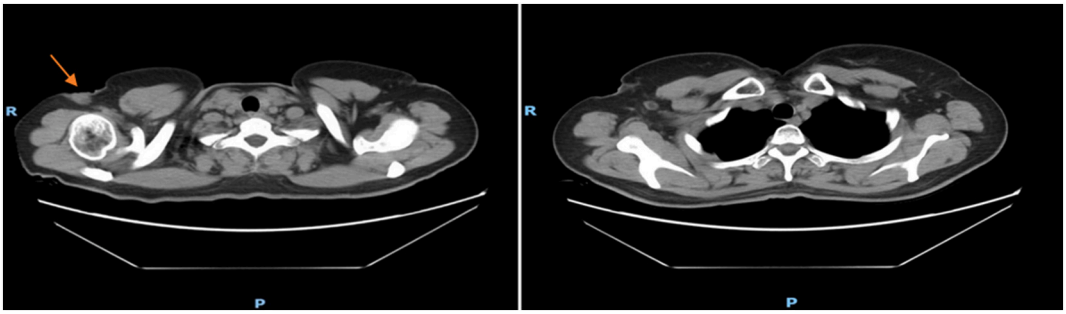

Fig. 4. CT scan with axial cuts showing a subcutaneous axillary mass (arrow) of 2.3 × 1.3 cm associated with few axillary lymph nodes.

following a major excision of the skin. Lee SR described a 2-step surgery which consists of first-step mammary gland excision followed by second-look redundant skin excision [6].

All the lesions that occur in the orthotopic breast can be discovered in the accessory breast: benign entities, malignant tumors, abscesses, fatty necrosis, or inflammatory disease [1].

The main differential diagnoses include breast cancer of the axillary tail, lymphomas, lymph node metastases, metastatic carcinomas, carcinomas of adnexal origin and benign changes which may include fibroadenomas and phyllodes tumors, but more frequently fibrocystic disease [2]. The development of cancer is extremely rare [2,3], it is found in more than 90 % of cases in the axilla [2]. the most common being ductal carcinoma [2,5].

The triple diagnostic assessment is necessary [2], starting with a thorough history [7]. AABC presents clinically as a fixed palpable nodule with irregular contours, which in 45 % of cases is superficial and subcutaneous [2].Using standard breast diagnostic procedures, fibroglandular tissue is found on mammography and ultrasound [1]. Routine mammography may miss AABC because of their location [7], it is unremarkable in 40 % of cases [2]. The presence of a suspicious mass or microcalcifications on a mammogram along with certain sonographic features such as an irregular hypoechoic mass and increased vascularity should initiate tissue sampling since AABC is suspected [2]. Ct Scan [7], Bone scintigraphy and breast MRI are useful for delineating tumor extension [2], in addition to the detection of another primary tumor [7].

Histological confirmation of the presence of benign breast glandular parenchyma beyond the normal tumor extent and immunohistochemical findings such as ER, PR, and GCDFP-15 may suggest AABC [2]. Ductal carcinoma is the most frequently encountered histology [2].

Given this hidden atypical localization in the axillae, and due to insufficient information and low clinical suspicion [3], the majority of patients are diagnosed with stage II disease or higher [2,3] with a mean delay of 40.5 months to obtain a diagnosis [2]. Huang et al. reported that AABC was misdiagnosed simply because they had never seen similar cases before [7]. Direct invasion of cancer cells into skin and surrounding tissues is common due to the relatively small amount of breast tissue in the axillae and early involvement of the axillary lymph nodes due to the proximity of cancer cells to the axillary lymph nodes [3]. AABC is therefore considered to have a poor prognosis [5].

There is no specific management for AABC; it follows the guidelines for orthotopic pectoral breast cancer [3], which consists of wide local surgical excision with regional axillary SLND, associated, depending on the case, with chemotherapy, radiotherapy, and hormone therapy [2]. Ipsilateral mastectomy is not recommended unless we detect an additional lesion in the breast [7].

In approximately 50 % of patients, axillary metastases were reported at presentation [2,5]. The management of the axillary lymph nodes is sometimes difficult because the location of the tumor makes dissection difficult, especially if there is severe adhesion or local invasion of the lymph nodes by the tumor [3]. Preoperative lymphoscintigraphy and SPECT can be used for better localization of involved nodes [3]. Localization of tracer injection is debatable, most reports favor peritumoral injection [3], but it can make detection of lymph nodes by gamma probe so difficult due to high background concentration of tracer [2]. Salamis et al. suggested radiotracer injection post tumor excision [2]. Axillary lymph node dissection (ALND) should be performed only If we have

lymph node metastasis [7].

Systemic neoadjuvant/adjuvant chemotherapy follows guidelines for the treatment of breast cancer [7]. Radiotherapy of axilla and tumor bed is indicated if lymph node metastasis is confirmed or if a sentinel lymph node sample has not been taken [3,7]. If, as in our case, the entire tumor was resected "en bloc" and the sentinel lymph nodes were negative, there is no indication for radiotherapy [3]. Radiotherapy of the ipsilateral anatomical breast is controversial [7].

Resection of AABC alone even without ALND gives risk of developing lymphedema [3].

Long-term follow-up is necessary to exclude a local recurrence and to exclude a concomitant breast tumor [2], by using same orthotopic breast surveillance recommendation in addition to special appropriate radiological views [5]. Guèye et al. reported breast cancer development on an AAB resection scar, detected during regular follow-up [5].

4. Conclusion

The armpit should always be a primary and integral part of the breast examination. All AAB must benefit from monitoring identical to that applied to the orthotopic breast.

AABC is an extremely rare pathology. It is important to diagnose it at an early stage to improve its prognosis.

We encourage to conduct more studies to develop specific management of AABC.

Awareness and a prominent level of suspicion are essential.

Abbreviations

AAB	axillary accessory breast
AABC	axillary accessory breast cancer
AC-T	adriamycin and cyclophosphamide, followed by Taxol
AJCC	American Joint Committee on Cancer
ALND	axillary lymph node dissection
BRCA	BReast CAncer gene
CA 15.3	carcinoma antigen 15–3
CT	computerized tomography
ER	estrogen receptor
FNA	fine needle aspiration
FNAB	fine needle aspiration biopsy
GCDFP-15	gross cystic disease fluid protein 15
HER2/Neu	human epidermal growth factor receptor 2
MRI	magnetic resonance imaging
PR	progesterone receptor
pTNM	pathological tumor-node-metastasis
SLND	sentinel lymph node dissection
SPECT	single photon emission computerized tomography

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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Ethical approval

The study type is exempt from ethical approval.

Author contribution

All authors were involved with the design, drafting, revision, and final approval of this case.

Registration of research studies

N/A.

Guarantor

Dr Etienne El Helou.

Declaration of competing interest

This article has no conflict of interest with any parties.

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