

Case Report

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Rare case of metastatic secretory carcinoma presenting as an abscess

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Abstract

Secretory Breast Carcinoma (SBC) is a rare and distinct type of breast cancer which accounts for less than 0.2% of all breast cancers. The modern breast imager should be aware of this rare entity as it can sometimes masquerade as a breast abscess as in the present case. This case underscores the importance of continued imaging follow up, biopsy and/or referral for surgical consultation in cases of chronic axillary masses including suspected abscesses regardless of pertinent history such as Hidradenitis Suppurativa predisposing the patient to infection/inflammation. This case also emphasizes that the axillary mass differential in the setting of Hidradenitis Suppurativa importantly includes Squamous Cell Carcinoma or primary/metastatic breast cancer such as Secretory Carcinoma as presented.

Keywords: Breast cancer; Breast imaging; Radiology; Secretory carcinoma; Abscess.

Abbreviations: SBC: Secretory Breast Carcinoma; ETV6-NTRK3: ETV variant 6-neutrophilic tyrosine kinase receptor type 3; TRK: Tropomyosin Receptor Kinase; HS: Hidradenitis Suppurativa; PMH: Past Medical History; U/S: Ultrasound; STEMI: ST Segment Elevation Myocardial Infarction; CT: Computed Tomography; CABG: Coronary Artery Bypass Graft; OR: Operating Room; PET/CT: Positron Emission Tomography/Computed Tomography; PAS: Periodic Acid-Schiff; FISH: Fluorescence in-situ hybridization.

Introduction

Secretory Breast Carcinoma (SBC) is a rare and distinct type of breast cancer which accounts for less than 0.2 % of all breast cancers [1,6]. The modern breast imager should be aware of this rare entity as it can sometimes masquerade as a breast abscess as in the present case. This case is an example stressing the importance of imaging follow-up of a suspected abscess. SBC was originally described in children in 1966, but is now known to occur equally as frequently in adult populations [2,3,5]. It rarely metastasizes, but when it does, it will typically spread to the axillary lymph nodes with distal metastasis exceedingly rare [4,5].

There are fourteen reported cases in the literature of SBCs with distal metastatic lesions [5]. SBC has characteristic histopathologic and molecular features which include a characteristic gene fusion (ETV Variant 6-Neutrophilic Tyrosine Kinase Receptor Type 3 (ETV6-NTRK3)) which is secondary to a balanced translocation, t(12;15) [5,6].

SBC is usually immune-profiled as a basal-like molecular subtype of breast cancer which is characterized by triple-negative receptor status (or weak ER expression) [6,7]. Despite basal-like cancers usually being the most aggressive subtype of breast cancer, SBC is slow growing and is associated with good long-

term survival [6]. There are only a total of eight cases of fatality due to metastatic Secretory Carcinoma [5]. Given the rarity and age range of patients, treatment is generally tailored to the patient's symptoms and clinical characteristics with surgery the mainstay of treatment [5]. Since there are cases of late local recurrence (usually 10-12 years after diagnosis), many surgeons recommend simple mastectomy at a minimum [5]. Adjuvant radiation or chemotherapy have been considered but have not been overly successful [5]. Tropomyosin Receptor Kinase (TRK) inhibitors such as larotrectinib or entrectinib are a novel treatment strategy with NTRK fusion-positive cancer which have demonstrated excellent clinical response in the metastatic setting [6].

Case presentation

A 63-year-old African-American woman with a past medical history notable for Hidradenitis Suppurativa (HS) presented for a diagnostic mammogram and ultrasound with a 1-year history of a palpable, draining lump in her left axilla. Diagnostic mammogram demonstrated a high-density mass in the left axilla on the MLO view (Figure 1). Targeted ultrasound of the mass demonstrated a 5.4 cm vascular oval mass with circumscribed margins and heterogenous but predominantly hypoechoic echogenicity (Figure 2A and 2B). It was favored to likely represent an abscess in the setting of known HS versus a necrotic mass. The diagnostic mammogram and ultrasound recommended referral to breast surgery, consideration of ultrasound-guided or surgical biopsy, antibiotics, and follow-up ultrasound in 6-8 weeks. Additional note was made that if the biopsy was consistent with an infection then imaging and clinical follow up to resolution was recommended. The patient did seek surgical follow-up and underwent punch biopsy which was consistent with inflammation and abscess. She was placed on antibiotics and elective excision was planned.

Surgery was deferred due to recurrent episodes of hypertensive urgency and progressive coronary artery disease. She presented 8 months later for a ST Segment Elevation Myocardial Infarction (STEMI) and underwent non-contrasted chest CT for evaluation prior to Coronary Bypass Grafting (CABG). The CT demonstrated an ovoid 6.6 soft tissue mass containing gas in the soft tissues of the left upper chest wall/axilla with associated overlying skin thickening and adjacent axillary lymphadenopathy (Figure 2). These findings were again thought to represent abscess with associated reactive lymphadenopathy.

CT surgery requested infection control prior to cardiothoracic surgery and she was taken to the operating room for excision of the mass lesion and sinus tract. Pathology returned with a diagnosis of Secretory Carcinoma possibly from mammary primary extending from the axillary tail versus cutaneous primary. The excised mass was found to be NTRK positive which is characteristic of SBC.

The patient was referred to Oncology. Post-excisional mammogram, ultrasound and MRI showed left axillary lymphadenopathy with a differential of reactive lymph nodes due to Hidradenitis Suppurative versus metastatic disease. Left axillary lymph node biopsy was recommended and performed without complication. Left axillary lymph node pathology was positive for metastatic disease.

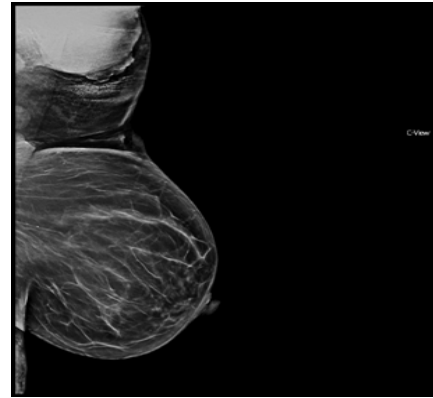


Figure 1: Mediolateral oblique mammographic view of the left breast demonstrates a partially visualized, high-density mass within the left axilla.

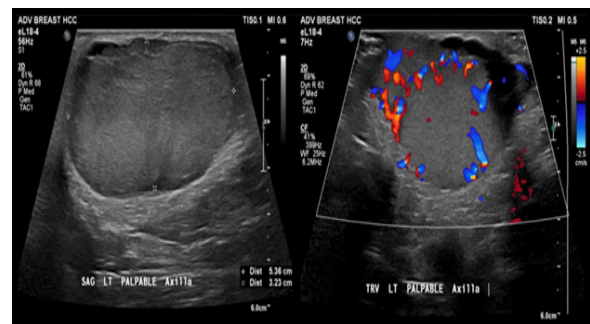


Figure 2: A) Sagittal grey-scale left axillary ultrasound image demonstrating a heterogenous but predominantly hypoechoic, well-circumscribed mass measuring 5.4 cm with abutment of the overlying skin and posterior acoustic enhancement. B) Transverse grey-scale left axillary ultrasound image with color Doppler of the left axillary mass demonstrating prominent surrounding hyperemia. Constellation of findings were favored to represent abscess versus necrotic mass with recommendation for surgical referral and consideration of ultrasound-guided or surgical biopsy.

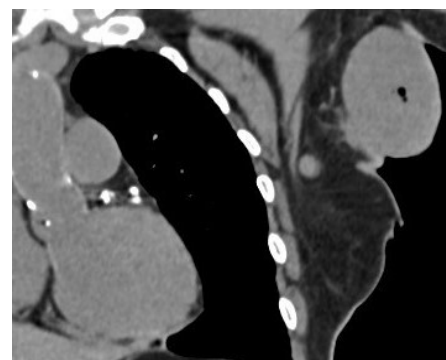


Figure 3: Coronal non-contrasted chest CT image showing the superficial left axillary mass with foci of gas and adjacent enlarged axillary lymph nodes. Constellation of findings were favored to represent abscess and reactive lymphadenopathy.

The patient was deemed not a good surgical candidate due to multiple comorbidities placing her at high risk for surgical mortality and is currently being evaluated for initiation of radiation treatments with consideration of the tyrosine kinase inhibitor, Larotrectinib.

Discussion/conclusion

Secretory breast carcinoma of the breast is a rare and slow growing tumor [5]. Management can uncommonly be complicated by late local recurrence and axillary lymph node metastases [5]. Distant metastases are extremely rare [6]. It usually presents as a slow-growing, painless, well-circumscribed palpable mass [6]. It can occur anywhere within the breast but does demonstrate a predilection for the upper outer quadrant of the breast which can include axillary breast tissue [5]. From a histopathologic standpoint, it has been shown to be associated with a solid, microcystic and tubular structure microscopically with cells demonstrating abundant intracellular and extracellular secretory material which stains positive for Alcian blue or Periodic-Acid-Schiff staining (PAS) [5]. Fluorescence In-Situ Hybridization (FISH) analysis indicates the characteristic fusion translocation of t(12;15) of the ETV6-NTRK3 [5].

We present the case of a 63-year-old woman with past medical history of Hidradenitis Suppurative (HS) who had a chronic left axillary mass which was thought to be secondary to a chronic abscess in the setting of known HS. Surgical resection of this mass for infection control prior to CABG yielded pathology of Secretory Breast Carcinoma. Left axillary lymph nodes were positive for metastatic disease. She was deemed high risk for surgical management due to her comorbidities and is planned to initiate radiation therapy with consideration of Larotrectinib (a TK inhibitor).

This case underscores the importance of continued imaging follow up for breast masses thought to be secondary to chronic abscesses regardless of pertinent history such as Hidradenitis Suppurativa predisposing the patient to infection/inflammation. The majority of cases of Secretory Carcinoma present as a breast mass; however, this case underwent delayed diagnosis due to an initially negative punch biopsy in the setting of Hidradenitis Suppurativa as well as lack of clinical follow-up imaging. Hidradenitis Suppurativa has an uncommon but known association with Squamous Cell Carcinoma due to chronic inflammation [8]. This case report highlights the importance of dedicated breast imaging including appropriate follow up, biopsy and/or referral for surgical consultation in cases of chronic axillary masses including suspected abscesses. This case also emphasizes that the axillary mass differential in the setting of Hidradenitis Suppurativa importantly includes Squamous Cell Carcinoma or primary/metastatic breast cancer such as Secretory Carcinomas presented.

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Conflicts of interest: None.

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