

Clinical Conundrum: Carcinoma of the Axillary Tail of Spence - A Case Report

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ABSTRACT

Carcinoma of the axillary space of Spence is a very scarce phenomenon appearing in females. This tumor arises from the tail-like expansion of breast-like tissue in the armpit abbreviated as (CATS). It is difficult to diagnose as its anatomical location can mimic other conditions such as other cancers and lymphadenopathy due to metastasis in Lymph nodes. Imaging modalities can lead towards the diagnosis but the most accurate diagnostic test for CATS is biopsy. The prognosis is satisfactory with a survival rate of 5 years in 80 to 90 percent of patients. We report a case of a 62-year-old female who presented with progressive swelling and a lump in her left breast that after diagnostic tests were found to be papillary and were present in the region of axillary tail. The diagnosis was confirmed by a tru-cut biopsy of the left breast leading to the finding of axillary tail carcinoma and CT scan showed it was non metastasising so was treated by Modified radical mastectomy and chemotherapy was not required.

Keywords: Abnormal breast discharge; Rare breast mass; Papillary breast tumors; Ca breast prognostic markers, Axillary tail

Categories: Pathology, Radiation Oncology, Oncology

INTRODUCTION

Papillary Carcinoma of the breast is an uncommon cancer of the breast, making up only 0.5 to 1 percent of all breast carcinomas^[1]. This form usually begins within the milk ducts but contains both invasive and noninvasive forms of cells leading to it having metastatic potential^[2], however, to other forms of cancers Papillary carcinoma's involvement with lymph nodes is unlikely^[2]. On Histopathology we see the tumor exhibiting small finger projections known as papules, hence giving it a unique histopathological outlook in comparison to other forms of breast cancers. Genetically we see the cancer being ER+, PR +, ER/PR+, or HER2-negative. A retrospective study published in 2021 analyzed 44 cases of invasive papillary breast cancer. According to this study, 72.7% were estrogen receptor-positive and progesterone receptor-positive, while only 13.6% were HER2-positive. When we take a look at how cancer presents clinically, the presentation includes a lump, nipple pulled inward, discharge, redness, pain, or puckering of skin^[3].

Cancers occur due to mutation in the normal cellular genetics and hence what we see in its risk factors are inherited BRCA 1 and BRCA 2 mutations. This also indicates that there is a strong relationship with family history. Other risk factors include menses before 12, oral contraceptives, alcohol, and menopause before 55. When we treat this cancer, we need to take a look at a few things which include the ER/PR/HER2 status, symptoms, and TNM staging which comprises tumor size, lymph node involvement, and metastasis. Most cases will eventually require surgery with discretion being given to the surgeon on whether a lumpectomy^[4] or mastectomy is required. Chemotherapy includes drugs that target said receptors depending on what types are expressed.

CASE PRESENTATION

Case history

A 62-year-old female patient presented in the outpatient department with the complaint of a solitary swelling in the left axilla which was noticed by her 3 months ago. The swelling was progressively increasing in size and was characterized as firm, hard in consistency, and mobile. The symptoms reported include mild pain in the left axillary area with scanty discharge observed just before approaching the hospital. The patient was already diagnosed with type 2 Diabetes Mellitus.

Physical examination

On physical examination, a 2x2 cm lump was seen in the axillary part of the left breast which was not adherent to skin and underlying structures. The examination revealed palpable left axillary lymph nodes and mild tenderness in the axillary region. The left nipple was diverted a bit laterally in comparison to the right nipple. Right breast examination was unremarkable with no abnormalities. Respiratory examination showed bilateral symmetrical movements of the chest wall indicative of non-metastatic carcinoma. A Bilateral axillary lipoma lump was noted in the left axillary tail. No family history related to any type of Carcinoma was found.

Investigations

Complete blood count results were unremarkable and the Lipid profile revealed normal findings except mildly elevated triglycerides which were 203 mg/dl (Normal: <150 mg/dl). Liver function tests showed values within

the reference range. (Table 1) Renal function tests revealed normal values except 1.4 mg/dl creatinine (Normal: 0.4-1.1mg/dl). Hemoglobin A1c value was 8.1 (Normal: <5.7 %).

Table 1. Table showing lab results along with normal reference ranges and units.

PARAMETER	NORMAL	PATIENT'S VALUES
Triglycerides	<150 mg/dl	203 mg/dl
Cholesterol	<200 mg/dl	164 mg/dl
Ldl-cholesterol	94 mg/dl	< 130 mg/dl
Hdl-cholesterol	45-65 mg/dl	40
Total cholesterol/hdl cholesterol ratio	<5	4.1
Bilirubin total	<1.2 mg/dl	0.2 mg/dl
Alt (sgpt)	<35 U/L	28 U/L
Alkaline phosphatase	30-120 U/L	76 U/L
Urea	10-43 mg/dl	45 mg/dl
Serum creatinine	0.4-1.1mg/dl	1.4 mg/dl
Hba1c	<5.7 %	8.10%
Mean glucose level	-	184 mg/dl
Prothrombin time	10-14 second	13
Inr	1	1.1
Aptt	30-34 second	30

The Patient tested negative for hepatitis markers including HBsAg and Anti HCV. Ultrasound findings included a simple cyst measuring 4.9 x 3.8 mm at a 12 O'clock position in the left breast while a hypoechoic lesion with lobulated margins was seen at a 2 O'clock position measuring 15.8 x 9.7 mm. Internal calcifications were seen however no internal vascularity was present. Normal nipple areola was observed in the left breast while a hypoechoic lesion noted in the axillary tail measuring 23 x 16 mm was also observed.

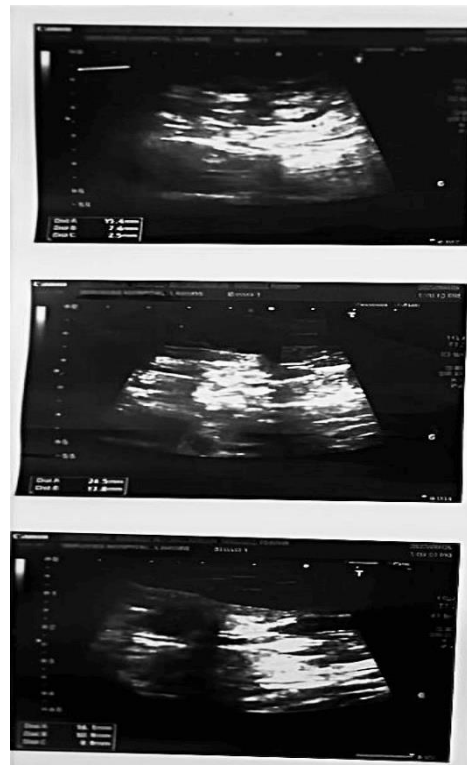


Figure 1. Ultrasound of left breast showing lesions.

Left breast parenchyma shows a simple cyst measuring 49 x 3.8 mm at 12 O'clock position. A hypoechoic lesion with lobulated margins is seen at 2 O'clock position measuring 15.8 × 9.7 mm showing internal calcifications however no internal vascularity is seen.

Right breast parenchyma appeared normal without any solid or cystic abnormality with a normal nipple- areola complex. Based on the US findings the mass in the left axillary tail was classified as breast imaging reporting and data system (BI-RADS) category 4C. To confirm carcinoma ultrasound-guided fine needle aspiration cytology revealed low cellularity with a hemorrhagic background against which cohesive groups of atypical-looking cells having pleomorphic, hyperchromatic nuclei were seen (Figure 1).

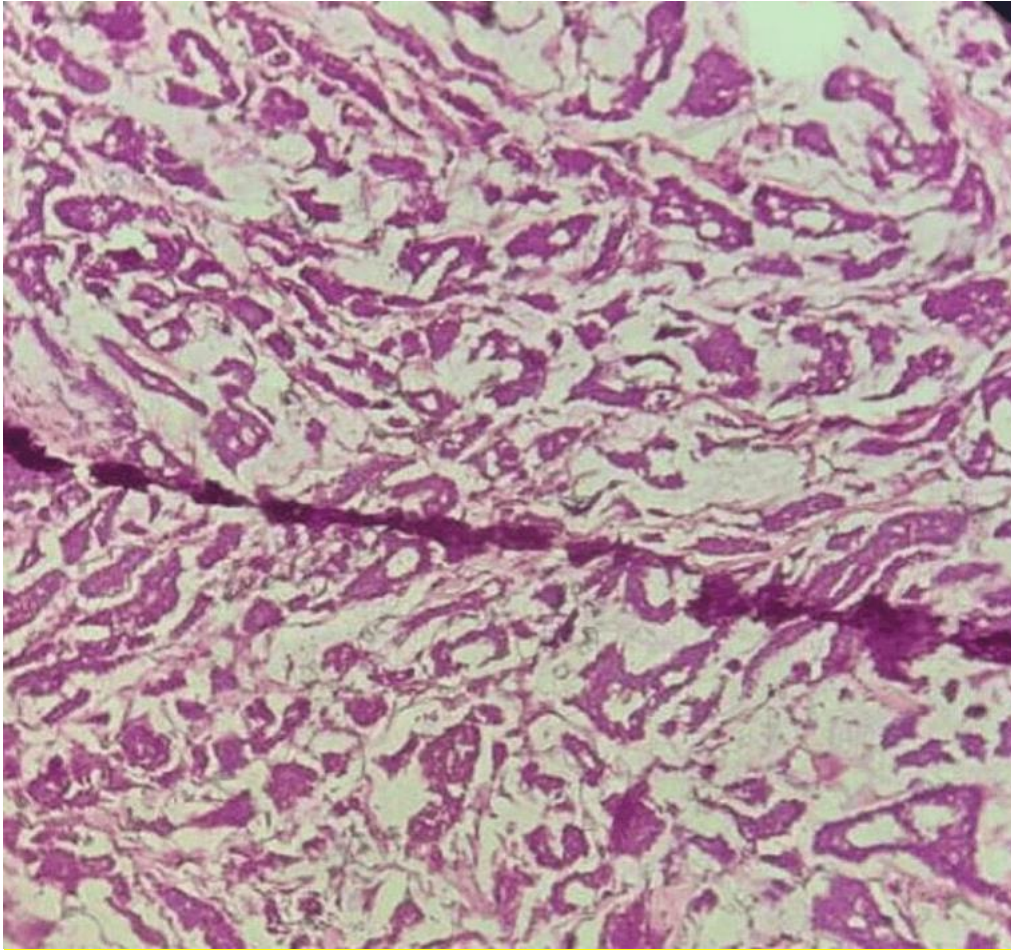


Figure 2. H and E staining of biopsy sample (magnified microscopic picture). This picture shows cohesive groups of atypical cells showing pleomorphism.

Left breast tru-cut biopsy revealed the in-situ proliferation to be positive for immunohistochemical stains Cytokeratin AE1/AE2 and ER and negative for p63, ASMA, and Cytokeratin 5/6 stains. Mammography was advised and the findings included scattered fibro glandular parenchyma with a 19 x 18 mm partly defined radiopaque lesion in the outer quadrant and region of the axillary tail. Adjacent architectural distortion and microcalcification were noted with unremarkable retro mammary space, nipple, and areola. Contrast- enhanced Computed tomography of the chest, abdomen, and pelvis showed an ill-defined enhancing soft tissue mass in the left breast approximately 20.7 x 21.3 x 20.3 mm (AP x TR x CC), 20 mm deep to the skin, with no thickening of underlying skin in keeping with biopsy-proven case of papillary ductal carcinoma (Figure 2).

Bilateral axillary lymph nodes were seen with preserved fatty hilum, the largest measuring 17 x 13 mm on the left side. Liver, kidney, adrenals, and other bowel structures appeared unremarkable. No osseous and soft tissue metastasis was noted in bones on Computed Tomography. Skeletal scintigraphy showed homogenous and symmetrical tracer uptake indicative of non-metastatic carcinoma (Figure 3).

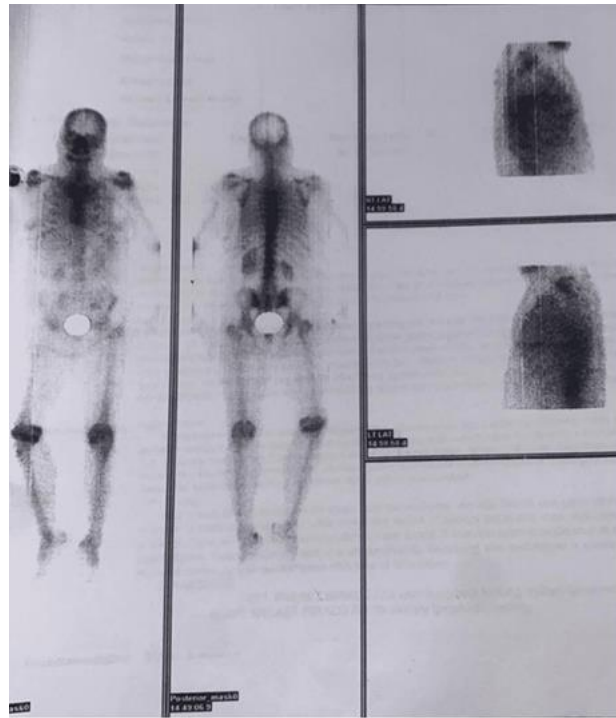


Figure 3. Skeletal scintigraphy showed homogenous and symmetrical tracer uptake indicative of non-metastatic carcinoma.

TREATMENT

A Modified radical mastectomy of the left breast performed under local anesthesia was done. Approaching the axilla by dividing clavipectoral fascia, level 2 axillary clearance was done by securing the axillary vein, long thoracic nerve, and thoracodorsal bundle. Flap and axillary drain were placed. Post-operative suction and physiotherapy were performed. Loperamide was given for surgical site pain relief (Figure 4).



Figure 4. Left breast sample resected through modified radical mastectomy.

DISCUSSION

Carcinoma of the axillary tail of Spence (CATS) is an extremely rare disease with very few studies that have studied its characteristics. It has a reported incidence of 0.3 %. The "axillary tail of Spence" referred to an extension of breast tissue, including fat and sometimes ducts, supposedly extending from the upper outer quadrant of the breast into the armpit (axilla). Named after Scottish surgeon James Spence, this concept served as a reference point for surgeons, oncologists, and plastic surgeons for over a century. Understanding the correct anatomy is crucial for accurate diagnosis and treatment of breast cancer, including potential involvement of the armpit area. Misidentifying anatomical structures could lead to incomplete surgical procedures or misinterpretations of imaging studies. There are very reports written on it^[5].

This carcinoma is of prime concern after prophylactic mastectomy and breast reconstruction as it leaves remnant breast tissue in place^[6]. It commonly presents as a painless lump, change in size, and shape of the breast, skin changes (redness, dimpling), nipple changes (inversion, flattening), and axillary lymph node enlargement. The lesser common signs include Pain or aches in the armpit or arm. Numbness or tingling in the arm or hand (from nerve compression). Discharge from the nipple (uncommon in axillary tail cases). Weight loss or fatigue (advanced stages)^[7].

The diagnosis is started with a triple assessment followed by a thorough history of the patient. MRI is the most precise imaging to localize CATS^[8]. Histologic examination shows a histologic pattern of primary breast carcinoma and immunohistochemical characteristics such as Estrogen receptors, Progesterone receptors, Her2neu

(human epidermal growth factor), and gross cystic disease fluid protein (GCDFP)^[9]. As in our case, examination showed positive in-situ proliferation for immunohistochemical stains Cytokeratin AE1/AE3 and ER and negative for p63, ASMA, and Cytokeratin 5/6 stains. Diagnosis is incomplete without USG and Biopsy. A very extensive examination is necessary to differentiate CATS from other diagnoses such as occult carcinoma, lymphoma, or non-breast metastatic lymphadenopathy^[9]. CATS may be hidden under the pectoralis muscle and nodes in ATS may be missed, which can lead to the undertreatment of CATS.

When encountering a mass in the axillary tail of the breast, clinicians must consider several differential diagnoses. These include primary breast carcinoma extending into the axillary tail, lymphoma, metastatic disease from distant sites such as lung or melanoma, lipoma, and reactive lymphadenopathy^[10].

Based on imaging and biopsy results, doctors define the cancer's extent (stage) and size, guiding treatment decisions. Whether cancer has spread to lymph nodes significantly impacts treatment approaches. The surgical options include wide local excision, complete or partial mastectomy, Identifying and removing the first lymph nodes draining the tumor area to assess spread, radiation, chemo, and hormone therapy^[11]. Ipsilateral mastectomy is not recommended unless we detect an additional lesion in the breast.

CONCLUSIONS

Carcinoma of the axillary tail of Spence is a rare carcinoma of the breast found in females present in the axilla. It is usually detected when the tumor has reached a higher grade. It is necessary to examine the breast occasionally at home to diagnose it at an early stage. After a proper diagnosis is done through imaging and biopsy various treatments can be done. Currently, very few cases of this carcinoma are documented globally due to its rare occurrence rate so more work should be done on it to raise awareness as it would benefit us clinically.

Additional Information

Disclosures

Human subjects: Consent was obtained or waived by all participants in this study.

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