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Invasive Cribriform Breast Carcinoma Detected in A Male

Abstract – World Health Organization (WHO) has categorized invasive breast carcinoma into several subtypes. One of these includes invasive cribriform carcinoma (ICC) of breast which we will describe in our case report. ICC is a rare histological subtype of invasive breast carcinoma and it is extremely rare in male population. As far as our knowledge concerns, only few ICC cases in males have been reported in previous studies. In this case report, we will be describing the rare incidence of ICC of breast in a 66-year-old male with a pedunculated mass at the left nipple. Ultrasonography showed a non-circumscribed irregular heterogeneously hypoechoic lesion at left retro-areolar region (BI-RADS 4). On computed tomography (CT) imaging, this lesion appears as an enhancing spiculated soft tissue lesion. Histopathological examination demonstrates features of invasive cribriform carcinoma (Modified Bloom Richardson grade I). Patient was well after left mastectomy was performed.

Keywords – *Invasive cribriform carcinoma, breast, ultrasonography, male population*

1 INTRODUCTION

Breast carcinoma is the most common malignancy in female population [1]. However, it is an exceptionally rare disease in males which accounts for about 0.5 to 1.0% of all breast cancers [1,2]. It can be categorized into several subtypes based on WHO classification. One of these includes invasive cribriform carcinoma (ICC) of breast which we will describe in our case report. ICC of breast is a special and rare histological type of invasive breast carcinoma which accounts for about 0.3 to 6% of all types of breast carcinoma [1,3]. It was first described by Page et al (1983) as a carcinoma with more than 50% cribriform pattern in the invasive component and was classified into two categories which are known as classical and mixed types [4]. Recent update on WHO classification (5th edition), an invasive cribriform breast carcinoma must contain more than 90% cribriform islands of epithelial cells with low grade nuclei and sparse mitoses [5]. The goal of this case report is to describe the radiological findings of ICC of the breast in a 66-year-old male with left nipple pedunculated mass.

2 CASE PRESENTATION

A 66-year-old male presented to our centre with five months history of painless pedunculated mass at the left nipple region. It is associated with skin

itchiness and bleeding upon contact. There are no history of hormonal therapy or history of malignancy running in the family. Incisional biopsy was performed and it shows features of invasive cribriform carcinoma (Modified Bloom Richardson grade I). Immunohistochemistry study demonstrates positive for estrogen receptor (ER) and Progesterone receptor (PR) while negative for human epidermal growth factor receptor 2 (HER 2).

In ultrasonography, the lesion appears as an irregular, non-circumscribed, non-parallel and heterogeneously hypoechoic lesion at the left retro-areolar region measuring approximately 2.0 x 2.2 x 2.1cm. It has posterior shadowing and intralesional vascularity. The lesion shows strain ratio of 19.2 -25.0 with Tsukuba score 5. On shear wave elastography, tissue elasticity parameter measures 77-79 kPa (E_{median}) with surrounding fat measures 1.8-3.8kPa (E_{median}). (Figure 1) Few enlarged left axillary lymph nodes with preserved fatty hilum seen. There is no focal lesion noted on the right chest wall. In computed tomography (CT) imaging of thorax, abdomen and pelvis demonstrates an enhancing spiculated left retro-areolar soft tissue lesion measuring 2.2 x 1.6 x 2.3cm (APxWxCC). It has clear fat plane with the underlying muscle. No internal calcification seen. (Figure 2) Patient underwent left mastectomy and remains well.

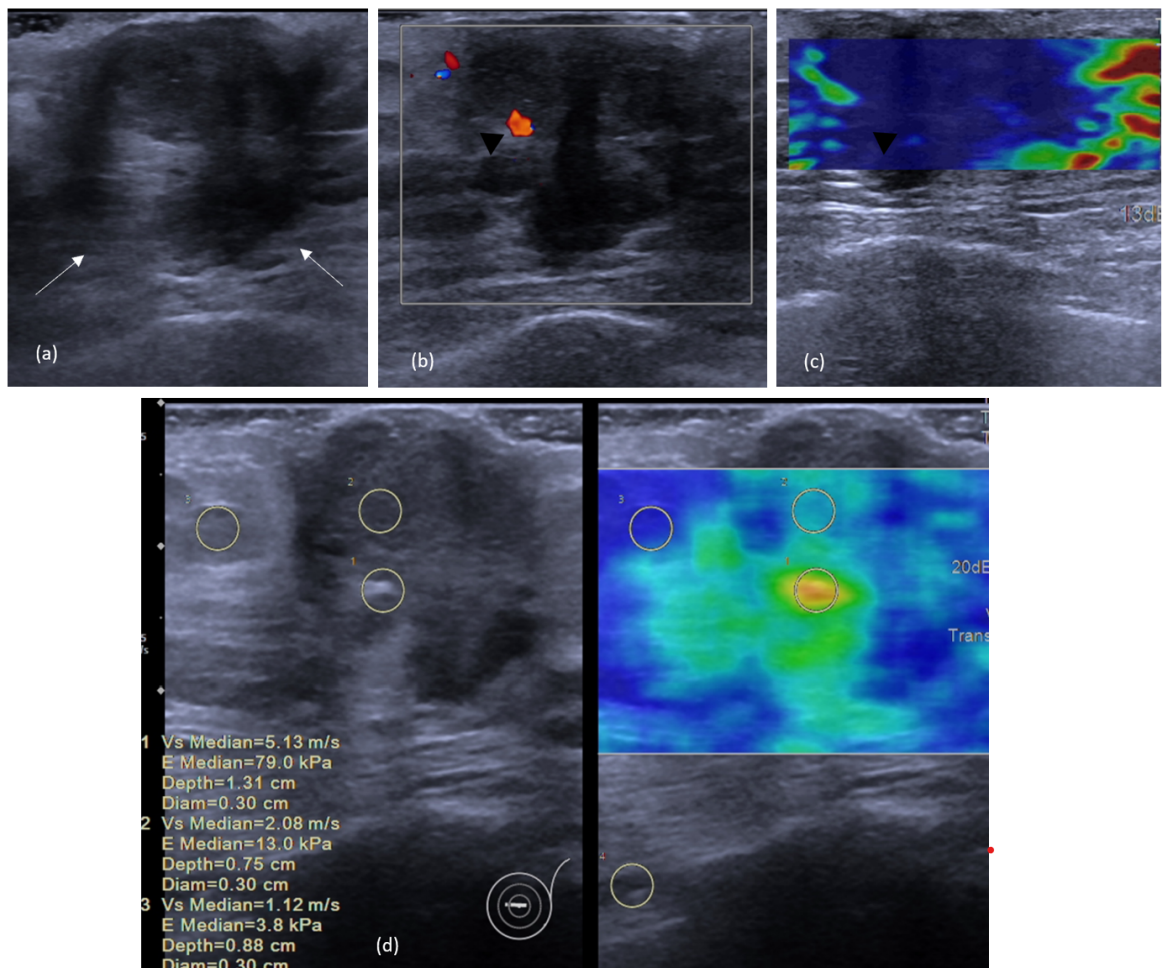


Figure 1. Ultrasonography images of left retro-areolar lesion. (a) White arrows show the irregular, non-circumscribed, non-parallel and heterogeneously hypoechoic appearance of the lesion. (b) Black arrow head indicates presence of vascularity within the lesion. (c) Tsukuba score 5 of the lesion based on elastography study. (d) Shear wave elastography study shows the stiffness of the lesion

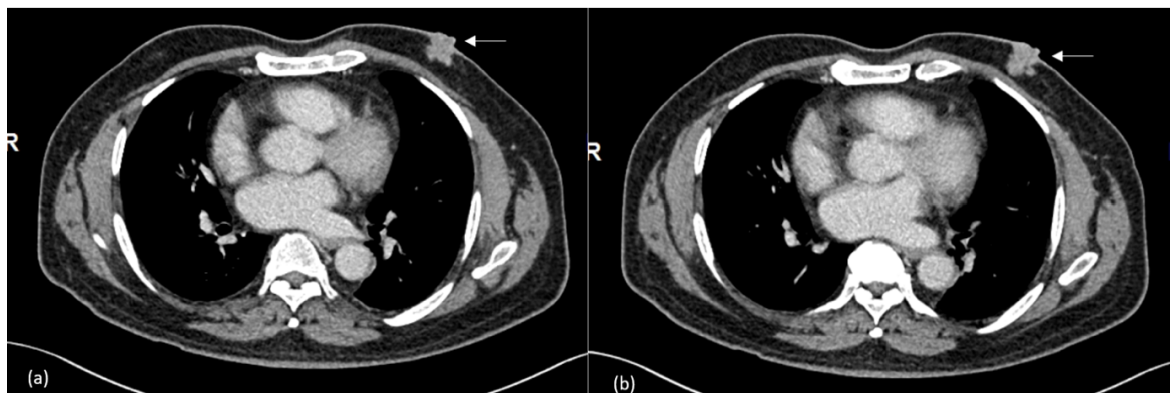


Figure 2. Serial contrasted CT images of enhancing spiculated left retro-areolar soft tissue lesion

3 DISCUSSION

Invasive cribriform breast carcinoma occurs predominantly in females >40 years old and extremely rare in male population [4]. The median age of ICC of breast is 61 [6]. It shows laterality towards the left breast [5]. The ICC of breast seems to appear smaller in size with low proliferative feature and lesser axillary lymph node involvement, thus giving rise to its better prognosis [5-8]. Histologically, the ICC of breast is graded based on modified Bloom-Richardson grading system. The grading includes tubule formation, nuclear pleomorphism and mitotic figures. The low-grade tumour tends to be less aggressive and provide good prognosis as seen in most of previous studies [5,9]. ICC of breast also proved to have higher rates of ER and PR positive with negative HER-2 in immunohistochemistry study [4,6,10].

Till recent years, the radiological features of ICC of breast are not well known, likely due to its rare incidence. Several studies and cases have reported various radiological features of invasive cribriform breast carcinoma. Stutz et al (1994) reported 8 cases with mammographic features [11]. Four out of these 8 cases shows spiculated mass while remaining appeared occult in mammogram [11]. Among 4 cases with ultrasonographic findings, 3 cases showed ill-defined inhomogeneous masses while the other 1 case appeared well-defined and homogenous [11]. Three out of these cases had echogenic halo [11]. Lee et al (2015) described radiological findings of invasive cribriform breast carcinoma based on mammography, sonography, magnetic resonance imaging and 18FDG PET CT [7]. In their study, most of the cases were reported to have irregular shape (72.8%), spiculated margin (63.7%), high density (81.8%) in mammogram.² Nine out of 28 cases show presence of microcalcification with majority were pleomorphic in shape (66.7%) [7]. In ultrasonography, most of the cases appear irregular in shape (77.8%), hypoechoic (81.5%) and had no posterior acoustic features (85.2%) [7]. Another study performed by Balci et al (2017) reported that most of the cases show irregular, hypoechoic and non-parallel mass [8].

In our case report, the lesion appears ill-defined, irregular, non-parallel and heterogeneously hypoechoic with presence of posterior shadowing in B-mode ultrasonography. Two additional studies were performed in addition to the B-mode of breast ultrasound imaging which are known as strain elastography and shear wave elastography

(SWE). These two studies help in measuring the tissue elasticity. In recent modern technologies, they have been a useful tool in improving the diagnostic performance of the breast ultrasonography as they have the capability to differentiate between benign and malignant lesions [12].

To our best knowledge, there is no specific treatment guideline created for ICC of breast due to its rarity. Thus, the standard therapy for breast carcinoma has been used in its treatment.¹⁰ Breast conserving surgery or mastectomy with sentinel node biopsy is the choice of treatment in the early stage [10].

4 CONCLUSION

Invasive cribriform breast carcinoma is a unique and rare histological type of breast carcinoma which is an extremely rare occurrence in male population. Here, we have described the radiological features of a male patient with invasive cribriform breast carcinoma. Further large population-based study may be needed later to have better understanding in clinicopathology, radiological features and treatment guideline for ICC of breast.

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