

Male Breast Abscess Mimicking Malignancy: Clinical, Mammographic, Ultrasound, and Shear-Wave Elastography Findings

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Abstract

Male breast abscess is an extremely rare benign lesion with few published literatures and reported cases. Due to its rarity, little has been reported about its clinical or imaging features. In this report, we present a 60-year-old male patient with idiopathic breast subareolar abscess mimicking malignancy in the clinical, mammography, ultrasound, and shear-wave elastography findings. Although rare, abscess should be kept in the differential diagnosis of male breast subareolar lesions mimicking malignancy.

Introduction

A variety of same pathologic conditions in the female breast, from benign to malignancy, have been reported for the male breast. In a symptomatic male patient with a palpable abnormality, gynecomastia and skin lesions account for the majority of pathologic conditions [1-3]. Breast abscess is also possible benign condition in men, but it is extremely rare [1-3]. Male breast abscess may have unfavorable imaging features which had to be differentiated from malignancy as like in women, requiring tissue sampling [4]. However, to date, there have been few literatures and case reports about male breast abscess [5-9]. Only limited information about their clinical or imaging features is available [1-3]. In this report, we describe a rare case of male breast abscess mimicking malignancy in clinical, mammographic, Ultrasound (US), and shear-wave elastographic findings. To the best of the author's knowledge, this is the first case report of male breast abscess focusing on imaging features including US elastography.

Case presentation

A 60-year-old Asian man presented with a palpable mass in the right breast for a week. The patient had a 20-pack-year history of smoking, and he had been treated with medications for hypertension, diabetes mellitus, and chronic obstructive pulmonary disease. On physical examination, the lesion was a non-movable, firm mass with mild tenderness and mild redness of the overlying skin, and was located beneath the right areolar area with mild nipple retraction. There was no palpable lymph node at the bilateral axillae.

Mammography showed a focal asymmetry at the subareolar area of the right breast (Figure 1). Areolar skin thickening was associated. On US, the mass was irregular, partially speculated

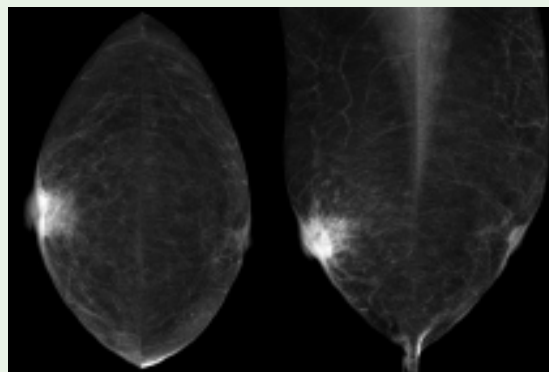


Figure 1: Right mammography shows a focal asymmetry at the subareolar area (black arrows) and periareolar skin thickening.

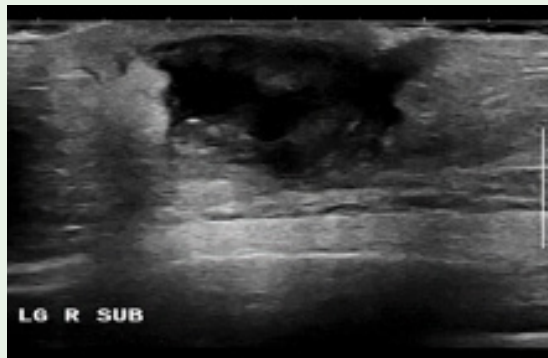


Figure 2: Ultrasound image shows irregular, partially spiculated and complex echoic mass and the overlying skin thickening.

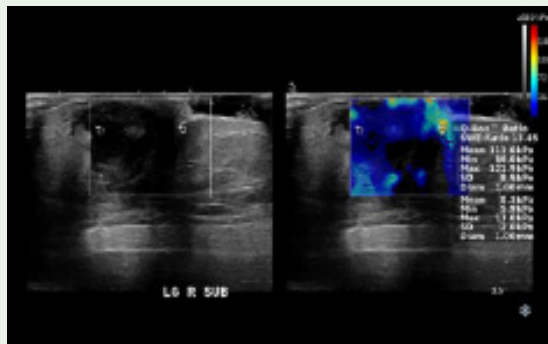


Figure 3: Shear-wave elastography was applied and revealed mean stiffness of 111.6 kPa at the peripheral portion of the mass.

and complex echoic, measuring 2.5 x 2.2 x 2.1cm (Figure 2). Color Doppler study showed increased peripheral vascularity with some internal flow of the mass. Ill-defined area of increased echogenicity in the adjacent fat lobules was also noted with the overlying skin thickening. Shear-wave elastography was applied and revealed mean stiffness of 111.6 kPa at the peripheral portion of the mass (Figure 3).

US-guided 14G breast core-needle biopsy was performed to exclude the possibility of malignancy. Histopathologic examination of the specimen revealed abscess with panniculitis. Subsequent surgical excision was immediately performed. Macroscopically, the specimen showed an irregular shaped and whitish gray colored soft tissue, and microscopically, it showed chronic nonspecific inflammation with surrounding fibrosis and foreign body type giant cell reaction. There was no keratinization or squamous metaplasia of the lactiferous duct in the excised specimen on the retrospective review of the pathologist.

After complete excision of the lesion, his symptom was relieved. He recovered without postoperative complication.

Discussion

Breast abscess generally occurs in young women, and it is an extremely rare condition in men [1-3]. Common clinical manifestations include pain, redness, heat, nipple swelling, nipple retraction, and nipple discharge, while fever is infrequently encountered [1-3]. According to clinical presentation, location, or pathologic organism, breast abscesses can be classified into puerperal, subareolar nonpuerperal, and peripheral nonpuerperal abscess in the

female breast [4]. Whereas, male breast abscess is mostly located at the subareolar area, and the etiology is idiopathic or related with smoking, HIV or salmonella infection [5-9]. The predisposition for the subareolar location of male breast abscess can be explained by that it arises from underlying gynecomastia, and gynecomastia is usually prominent at the subareolar area. In some subareolar abscesses, the uncommon and peculiar pathogenesis of lactiferous duct obstruction associated with squamous metaplasia by cigarette smoking is observed, and recurrence is not uncommon, occasionally leading to periareolar fistula formation [10]. It has been reported mostly in women, and there is little case report in men [11]. In the present case, there was no keratinization or squamous metaplasia of the lactiferous duct in the excised specimen, or no other predisposing factors.

Male breast abscess can have similar appearances to breast abscess in women on imaging. However, there have been scarcely reported cases about its imaging features. Therefore, this case report provides an opportunity for radiologists to be familiar with the imaging findings of this rare entity. On mammography, male breast abscess shows a subareolar ill-defined mass density with or without calcifications [1-3]. Focal or diffuse asymmetry and even normal looking are also possible mammographic findings [1-3]. The presence of skin and trabecular thickening may be helpful to distinguish from gynecomastia [1-3]. Eccentric location to the nipple can be a differential diagnostic point for the male breast cancer without microcalcifications [12]. On US, most male breast abscesses are appeared as subareolar hypoechoic lesions and in the acute phase cannot be differentiated from malignancy due to decreased parenchymal echogenicity by edema, dilated and thickened ducts, and skin thickening [1-3]. Associated skin thickening and distended lymphatic vessels are also can be noted [1-3]. In some cases, male breast abscess can mimic gynecomastia on US, too, and the presence of skin thickening and inflamed fat lobules suggests abscess or malignancy [1]. Increased peripheral vascular flow is identified in breast abscess at Doppler US, but there should be no vascularity in the fluid collection [3]. Generally, malignant breast lesions are stiffer than benign, and the reported optimal cutoff value of shear-wave elastography for differentiating benign and malignant breast lesions was 42.5 kPa - 82.3 kPa [13-14]. However, the present lesion showed hard stiffness of 111.6 kPa at the periphery, providing a possibility of malignancy. Hard elasticity can be observed in benign lesions such as fibrosis or sclerosis [13-14]. Our lesion showed microscopic findings of chronic inflammation and surrounding fibrosis in the histopathologic specimen, thus fibrosis can be correlated with had elasticity at the periphery of the lesion. According to Berg et al, 2 of their 939 ultrasound-depicted breast masses in women were abscesses and showed hard elasticity like invasive breast cancers [15]. Therefore, these suggest that elastography might be unreliable for the differentiation of breast abscess from malignancy.

Our lesion was a non-movable, firm mass with mild tenderness and redness of the overlying skin and was located at the subareolar area with mild nipple retraction, suggesting a possibility of inflammatory cancer. Additionally, it showed the mammographic, ultrasound, and elastography features which should be differentiated from malignancy. Finally, US-guided breast core needle biopsy played an important role to exclude malignancy.

Treatment strategies for male breast abscess are same to breast abscess in women and include antibiotics and repeated aspiration as

necessary with follow-up until complete resolution. After the failure of repeated US-guided aspirations, at least three to five, surgical drainage or surgical resection of inflamed retroareolar duct can be attempted [1-2]. For some subareolar abscesses, surgical resection is only a successful treatment option [10].

Conclusion

Male breast abscess is an extremely uncommon entity but should be kept as a differential diagnosis for a male subareolar lesion. Moreover, it can mimic malignancy in the clinical, imaging, and shear-wave elastography findings. Core needle biopsy will aid in resolving the diagnostic dilemma in this situation.

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