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## Case Report

# Male breast abscess: A rare entity <sup>☆</sup>

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### ABSTRACT

Breast abscess in males is a rare condition, which accounts for 1%-3% of all documented breast diseases. Males with certain risk factors may develop a breast abscess. The ultrasonographic, mammographic, and pathological characteristics of this case will be highlighted in the report. A 51-year-old morbidly obese Saudi male who is a 160-pack-years smoker presented to our surgical clinic complaining of a right breast mass that presented a long time ago and was changing in size. The mass was painless until 5 days prior to presentation. On physical examination, a firm nonmobile 3 × 4 cm mass was felt at 10-12-o'clock, 1 cm away from the nipple. A bilateral X-ray mammogram and ultrasound were performed with fine needle aspiration and culture. The mammogram of the right breast showed a well-circumscribed subareolar mass with equal density, and it was also associated with overlying skin thickening and relative breast parenchymal edema. The fine needle aspiration grossly showed yellowish-green turbid content followed by turbid blood. The anaerobic culture results showed the gram-positive cocci, *Finnegoldia Magna*. The patient was then instructed to take an antibiotic accordingly and return after 1 week. Fine needle aspiration and culture were performed again after antibiotics and grossly showed 2-3 cc of pus without any growth in culture. Male breast disorders are typically benign, with gynecomastia being the most prevalent, and malignancy being the most serious despite its rarity. Breast abscesses are a challenging clinical condition, and radiologists have a pivotal role in evaluation and follow-up of these lesions.

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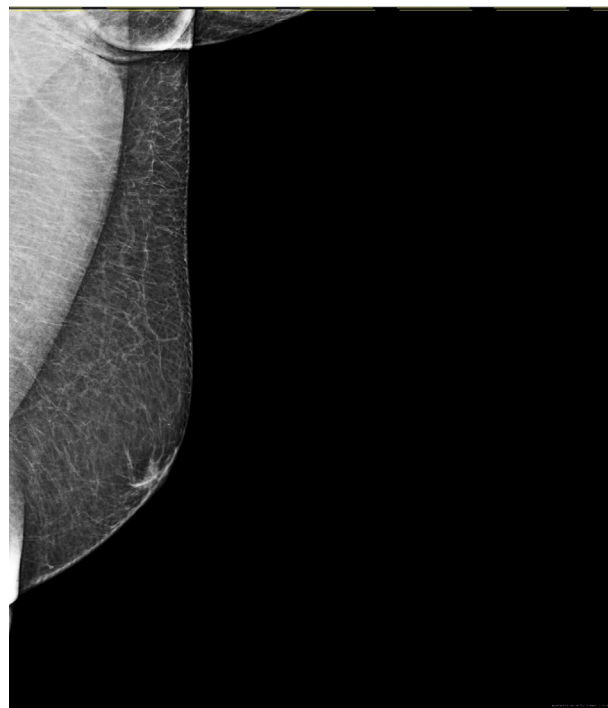
## Introduction

Male subareolar breast abscess (SBA) is an infrequent clinical entity, accounting for approximately 1%-3% of all documented breast disorders [1]. Although the exact cause of non-puerperal abscesses is still uncertain, it is known that it involves inflammation, infection, and obstruction of the lactiferous ducts [2,3]. This can be caused by squamous metaplasia of the epithelial lining, leading to blockages and the formation of an abscess [2,3]. A breast abscess clinically presents as a sore and painful breast lump either unilaterally or bilaterally [2]. Males with underlying immunosuppressive conditions such as Human Immunodeficiency Virus (HIV), cancer, trauma, nipple piercing, diabetes mellitus (DM), or tuberculosis (TB) are at a higher risk of developing breast abscesses [4]. The typical method for diagnosing SBA involves a triple assessment. This begins with a clinical evaluation, then proceeds with radiological examinations including X-ray, mammography, and ultrasound (US), and lastly involves fine needle aspiration cytology (FNAC) to confirm the abscess [5-7]. The majority of reported male breast abscesses have either aerobic or tubercular origins [1], and the causal organisms can include methicillin-resistant *Staphylococcus aureus* (MRSA), methicillin-sensitive *S aureus* (MSSA), coagulase-negative *Staphylococcus* (CONS), *Streptococcus* and *Proteus* [5]. A fine-needle aspiration cytology (FNAC) report with culture and sensitivity of the aspirated material can facilitate the development of a specific treatment approach for a male breast abscess [2]. Breast cancer may also develop in male patients, but few cases are reported in the literature, making it a challenging disease to navigate [8]. In this paper, we report a case of retro-areolar breast abscess with anaerobic bacteria in a male patient.

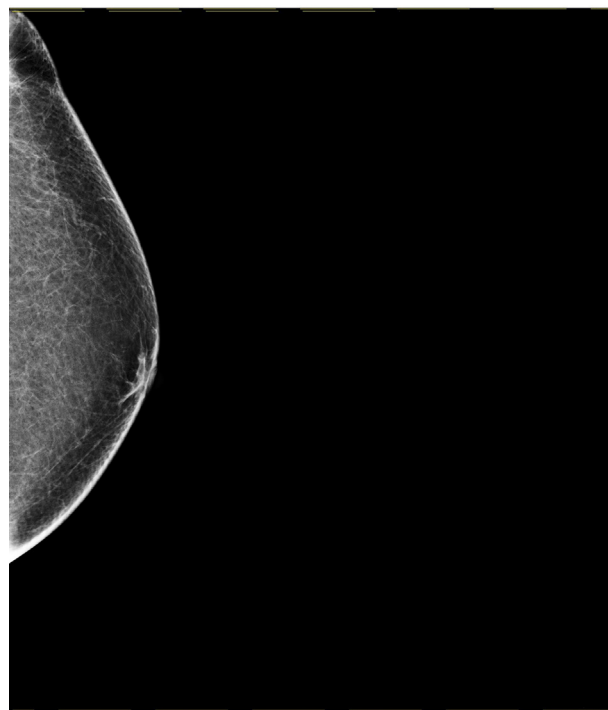
## Case report

A 51-year-old morbidly obese Saudi male who is a 160-pack-years smoker presented to our surgical clinic complaining of a right breast mass that was noticed a long time ago. It increases and decreases in size with no apparent triggering factors. The mass was painless until 5 days prior to presentation. The patient did not experience fever, nausea, vomiting, weight loss, nipple discharge, or any skin changes. There was no history of prior breast infections, and his family history was negative for malignancy. The patient is a known case of coronary artery disease (CAD), with a history of percutaneous coronary intervention (PCI), hypertension (HTN), diastolic heart failure, and obstructive sleep apnea (OSA). He is poorly compliant with his medications. On physical examination, a firm nonmobile 3 × 4 cm mass was felt at 10-12-o'clock, 1 cm away from the nipple. Skin changes, nipple discharge, and palpable axillary lymph nodes were not appreciated. No mass was felt in the left breast. A complete blood count (CBC) was then ordered but showed normal results.

A bilateral X-ray mammography and US were performed the following day. The mammogram findings showed a left subareolar branching density consistent with chronic gy-



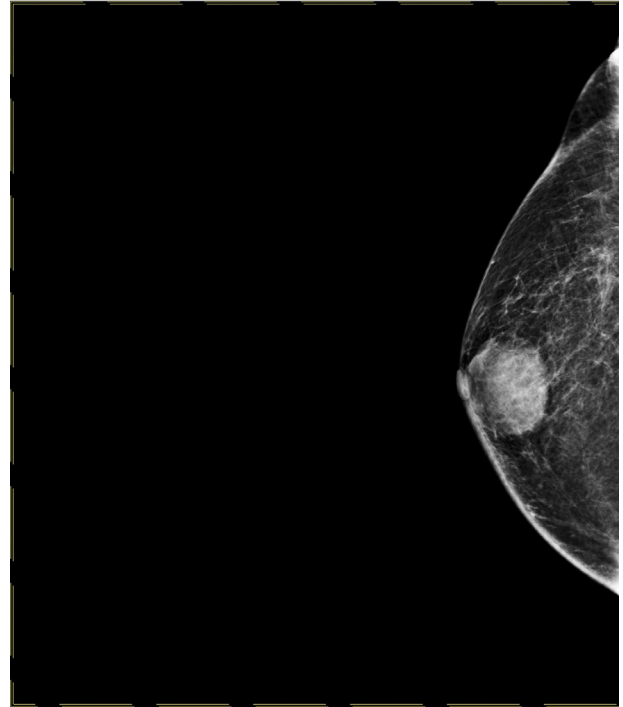
**Fig. 1 – Left mediolateral oblique mammography. The mammogram findings showed a left subareolar branching density consistent with chronic gynecomastia.**



**Fig. 2 – Left craniocaudal mammography.**



**Fig. 3 – Right mediolateral oblique mammography revealed a well-circumscribed right subareolar equal density mass with overlying skin thickening and relative breast parenchymal edema. No grouped microcalcifications or architectural distortions were found.**



**Fig. 4 – Right craniocaudal mammography.**

necomastia (Figs. 1 and 2). The right breast showed a well-circumscribed equal density subareolar mass associated with overlying skin thickening and relative breast parenchymal edema. No grouped microcalcifications or architectural distortions were found (Figs. 3 and 4).

The US showed a well-circumscribed right irregular complex cystic lesion with a posterior enhancement measuring  $3.6 \times 2.7 \times 3.4$  cm, and it demonstrated a peripheral hyperemia appearance highly suggestive of an abscess (Fig. 5). The elastography strain ratio was 1.54 (Fig. 6). The right axillary lymph nodes were hypervascular and enlarged, measuring  $2.6 \times 1.5 \times 0.6$  cm in length, width, and cortical thickness, respectively (Fig. 7).

After the initial radiology assessment, the mass was categorized as BI-RADS 4A (low suspicion for malignancy) and was said to be a complex cyst suggestive of abscess and infection. However, necrotic tumor was yet to be ruled out by FNAC due to the patient's clinical presentation and normal CBC. The results of the US-guided FNA grossly showed yellowish-green turbid content followed by turbid blood. Aerobic culture results showed no growth while the anaerobic culture results showed the gram-positive cocci *Finnegoldia Magna*. The patient was then instructed to take an antibiotic accordingly and return after 1 week.

The patient returned 1 month later for a follow-up US and FNA. The US of the right retroareolar collection showed regression in size, measuring  $21.3 \times 12.1 \times 29$  mm. Morphological changes were seen as more hypoechoic, along with a

thick wall with dependent internal echoes and multiple mobile echoes. Surrounding subcutaneous edema was also noted. The right axillary lymph nodes also showed interval regression in size with preserved cortical thickness. The US was categorized as BI-RADS 2 (benign). FNA grossly showed 2–3 cc of pus. Aerobic and anaerobic cultures were performed again and showed no growth in 48 hours.

## Discussion

In the intriguing realm of male breast disorders, male breast abscesses stand out as a rare yet potentially severe condition [1]. A breast abscess is a localized collection of purulent material within the breast tissue [1]. They can roughly be categorized into puerperal, which is most commonly a complication of untreated mastitis in breastfeeding females, and non-puerperal, which is associated with patients who have risk factors [5,15]. While breast abscesses most commonly affect females [16], there are few cases recorded in the literature of male breast abscesses. Nine male breast abscess cases were encountered in our literature review with ages ranging from 24 to 80 years old [4,7,9–14]. In Saudi Arabia, only 1 published case of a male with SBA was reported by Alqahtani et al. [4] found in the literature.

According to our review, infections (HIV, TB, and brucellosis), cancer, duct ectasia, coexisting diseases (diabetes and obesity), lifestyle habits (cigarette smoking and nipple piercing), iatrogenic procedures, and trauma are all considered risk factors for SBA [4]; most of the conditions possess a common element of immunosuppression. Upon the history tak-

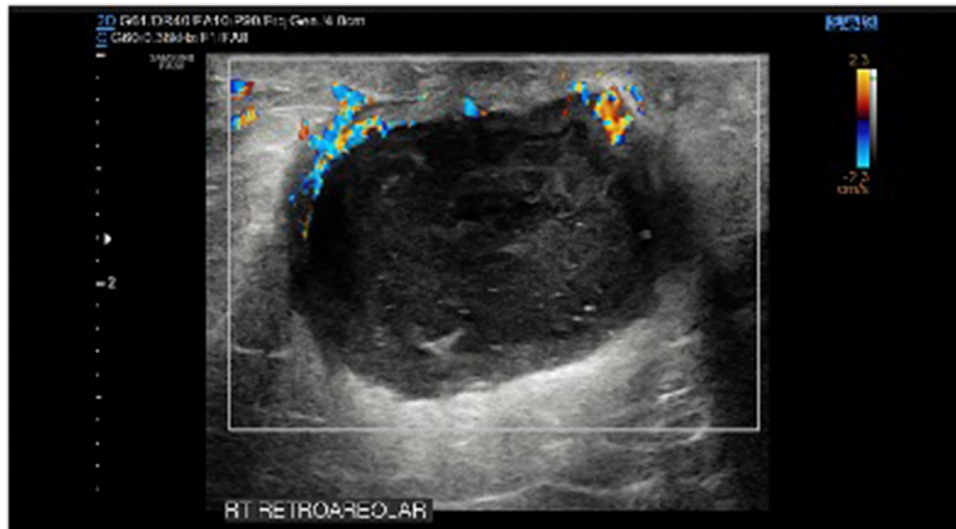


Fig. 5 – US showed a well-circumscribed right irregular complex cystic lesion with a posterior enhancement measuring 3.6 x 2.7 x 3.4 cm, and it demonstrated a peripheral hyperemia appearance highly suggestive of an abscess.

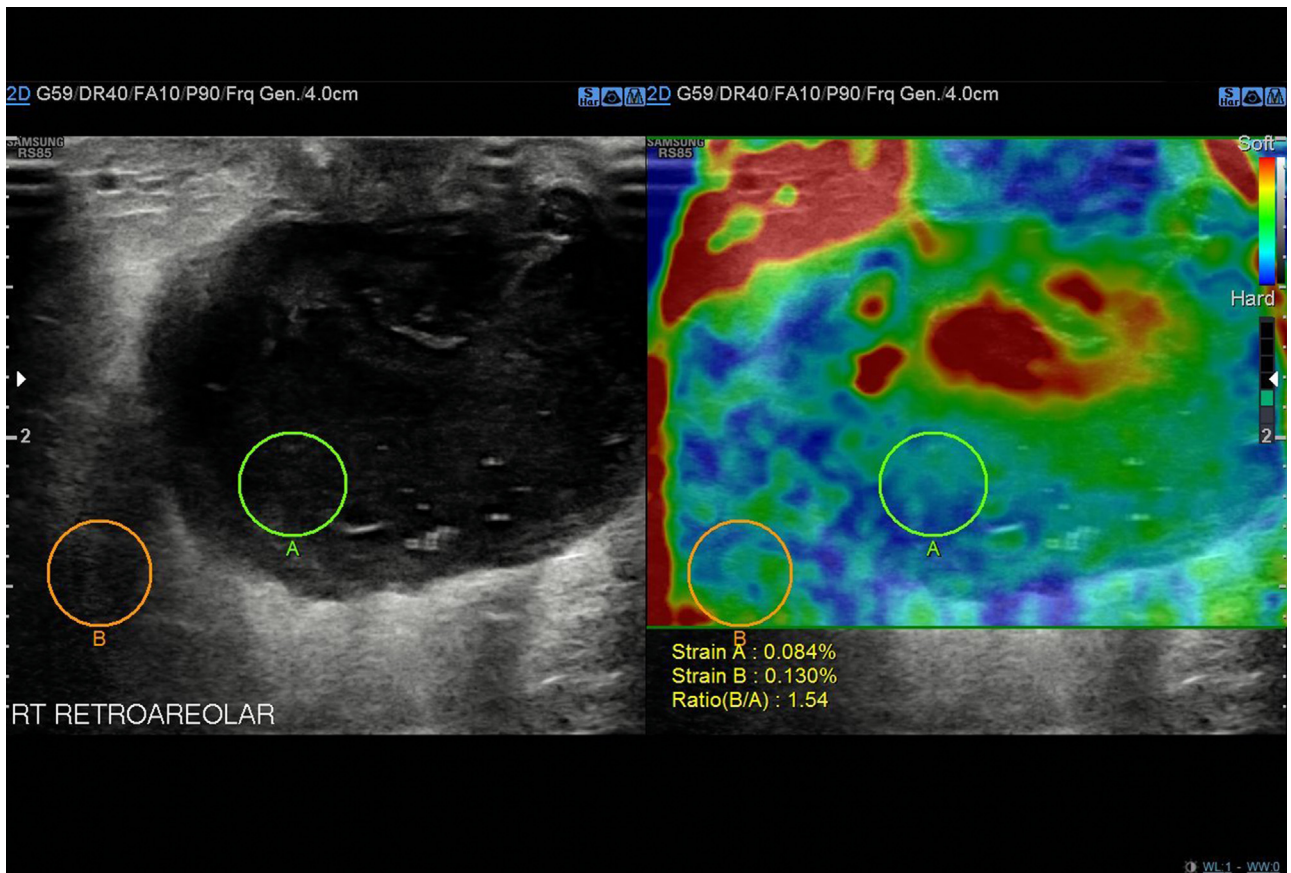
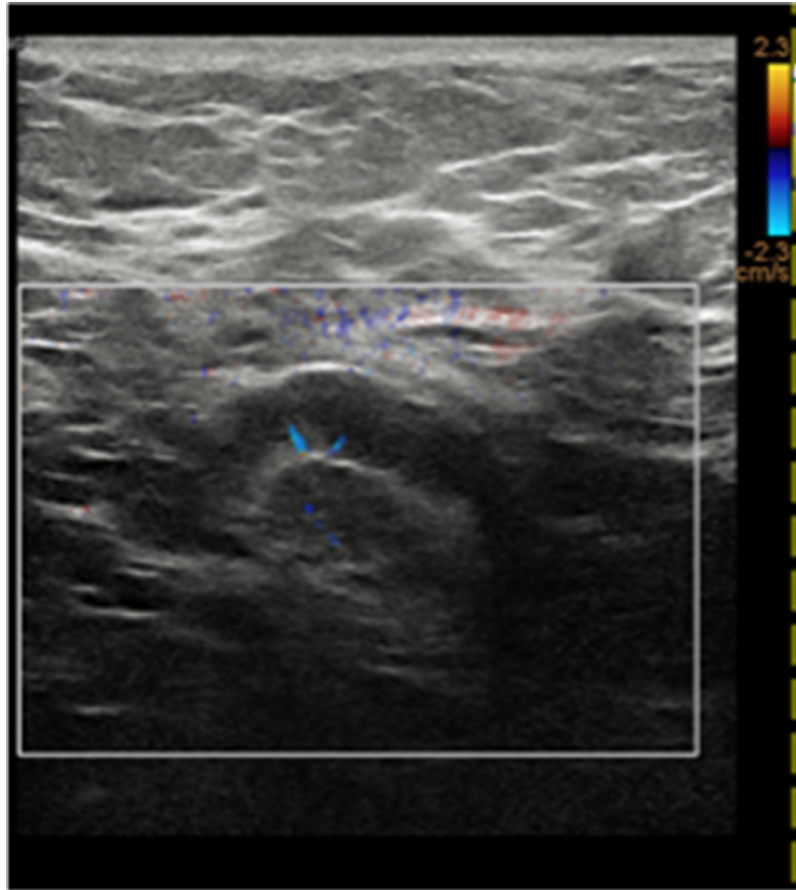


Fig. 6 – Elastography showing 1.54 strain ratio.





**Fig. 7 – The right axillary lymph nodes were hypervascular and enlarged, measuring 2.6 x 1.5 x 0.6 cm in length, width, and cortical thickness, respectively.**

ing of our patient, the aforementioned risk factors were negative other than obesity and smoking. Two cases reported by Kazama et al. [9] were known smokers similar to our patient. One patient did not have a smoking history [4]. Other risk factors such as DM, HIV, Syphilis, colorectal cancer, and Hepatitis C were found in 3 patients [9–11].

Patients with breast abscess present with breast swelling, pain, erythema, nipple discharge, or retraction [2]. In our conducted review, all patients had a unilateral presentation similar to our patient except the case reported by Sinha et al. [14], which presented bilaterally. At the time of presentation, our patient was complaining of a painful right breast mass that was fluctuating in size with neither nipple discharge nor skin changes.

In any male presenting with a breast lesion, it is critical to rule-out more serious pathology and differentiate the benign cases from malignant ones such as breast cancer [5]. The triple assessment starts with a clinical assessment, followed by radiology (X-ray, mammography, and US), and lastly a FNAC and culture [5–7]. A case was found by Gochhait et al. [12], in which a breast abscess mimicked breast cancer as the patient presented with a nontender breast mass and nipple retraction. On the contrary, a reverse in presenting events occurred in Ventham et al.'s [10] case, in which a patient with malignancy had initially presented with a breast abscess.

As per our patient, during the physical examination, a firm painful nonmobile 3 x 4 cm mass was detected. There were no noticeable skin changes, nipple discharge, or palpable axillary lymph nodes.

On US, features of a breast abscess may mimic that of malignancy [17]. Documented breast abscesses have been described as a heterogeneous lesion with one or multiple hypoechoic areas and a posterior echo enhancement [7,10,13]. Collections were also described to have irregular borders with a hyperechoic rim and no to mild increase in Doppler blood flow [4,10,13]. Because US findings in addition to FNA were sufficient to make a diagnosis of breast abscess, mammography was not ordered in many documented cases [4,7,9,10,11,13,14]. On mammogram, nonpuerperal breast abscesses usually show localized skin thickening [2,12], roughly 20% of mammograms appear normal [2], and the least common finding is a mass [2,17], which is shown in our patient's mammogram.

Although breast cancer and breast abscesses may not always be diagnosed by imaging with certainty, there are a few distinguishing features to assist in doing so [2,12], skin thickening is mostly localized to the site of the abscess, but it tends to be diffuse in malignancy [17]; malignant masses usually reveal a mostly solid component, while a mix of fluids and solids may be appreciated in an abscess [2]; and it is

also known that findings such as localized microcalcifications, and characteristic lymph node changes such as marked enlargement, can steer the diagnosis towards malignancy [17].

Alqahtani et al.'s and Aiyappan et al.'s cases were diagnosed using US showing a hypoechoic mass without a Doppler flow or an FNA to confirm the abscess [4,13]. For Kazama et al. [9], both cases revealed a hypoechoic lesion and blood flow in the US suggesting malignancy. As per our patient, the US showed a well-circumscribed right irregular complex cystic lesion with posterior enhancement. X-ray mammography was done and revealed a well-circumscribed equal-density subareolar mass with skin thickening. To confirm the breast abscess, FNAC was done followed by a culture that was positive for anaerobic bacterial infection.

Abscesses are treated with antibiotics according to the culture and sensitivity report [2]. Primary nonpuerperal breast abscesses are typically infected with methicillin-resistant *S aureus* (MRSA) (13%), methicillin-sensitive *S aureus* (MSSA) (11%), coagulase-negative *Staphylococcus* (CONS) (7%), *Streptococcus* (4%), and *Proteus* (4%) [5]. Despite our patient's diagnosis being primary breast abscess, his culture result was positive, showing the anaerobic bacteria *Finegoldia Magna*.

A breast abscess requires both antibiotics and drainage since they rarely resolve with antibiotics alone [18]. For non-MRSA breast abscesses, intravenous or oral antibiotics that target MSSA should be given along with supportive care such as analgesia [18]. Antibiotics treatment should be prescribed for 7–10 days [18]. In cases where the infection persists, surgical intervention may be needed [5]. Alqahtani et al. [4], Fujii et al. [7], Aiyappan et al. [13], and Sinha et al. [14] were all treated by antibiotics and drainage. As for Mahendiran et al. [11], the patient was treated with antibiotics alone. Similarly, our patient was treated with antibiotics for 1 week, which showed great progression by decreasing the size of the abscess.

## Patient consent

Appropriate written and informed consent was obtained from the patient.

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