Case 18360

Eurorad

Aggressive breast cancer mimicking sebaceous cyst in a young patient

Published on 31.10.2023

DOI: 10.35100/eurorad/case.18360
ISSN: 1563-4086
Section: Breast imaging
Area of Interest: Breast
Imaging Technique: Mammography
Imaging Technique: PET-CT
Imaging Technique: Ultrasound
Case Type: Clinical Cases
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Patient: 29 years, female

Clinical History:

Our patient was a 29-year-old woman who presented to the breast unit with a 4-day history of a tender lump in the right breast with no risk factors for breast cancer.

Imaging Findings:

Ultrasound showed a superficial small (12 mm) avascular hypoechoic area in keeping with a resolving infected sebaceous cyst (U2) (Figure 1).

Repeat ultrasound 6 months later showed that the lesion increased in size (29 x 18 x 28 mm) with heterogenous echotexture and increased vascularity. The possibility of an infected sebaceous cyst was raised (U2) (Figure 2).

Further repeat ultrasound 2 months later showed that the lesion had grown to 30 x 21 x 38 mm, had bright echogenic foci suggestive of calcification, and enlarged axillary lymph nodes (U4 - Probably malignant) (Figures 3a-3b).

Subsequent mammogram showed a larger area of pleomorphic calcification within the upper outer quadrant of the right breast measuring 85 x 70 mm (M5 - Highly suspicious of malignancy) (Figures 4a-4c).

Staging CT and PET CT scan confirmed a right breast lesion associated with level I axillary nodal spread without any distant metastatic disease (Figures 5a-5c).

Discussion:

Breast cancer typically presents with a breast lump in the majority of cases [1]. Differentials for a breast lump include malignancy, inflammation, solid non-inflammatory lumps, and cysts. Fibroadenoma being the most common in patients under 30 [2]. Breast cancer is uncommon in patients under 40, with only 2-7% of cases diagnosed in this age group [3].

Ultrasound imaging is the modality of choice in younger patients. It is reported to have a negative predictive value of 99.5% to classify benign solid lesions [4,5].

Typical ultrasound appearance of benign lesions includes smooth, well-circumscribed, hyperechoic, isoechoic, or mildly hypoechoic. In contrast, malignant lesions typically include spiculation, angular margins, hypoechogenicity, and calcifications [6].

Mammography is primarily used for screening and in older patients [7]. It is less useful in younger patients with typically denser breasts as this reduces the sensitivity of detection [8,9].

In our case, a young patient attended the breast clinic with a tender lump in the right breast and right duct ectasia. Clinical and imaging findings were initially suggestive of a sebaceous cyst (Figure 1). The patient reattended the clinic 6 months later due to an increase in the size of the lesion associated with new unilateral spontaneous nipple discharge, yellow in colour, on examination the skin overlying the lump was dark in colour. Clinical and imaging findings were suggestive of an infected sebaceous cyst (Figure 2), and the patient was discharged with antibiotics. The patient was advised to reattend for a repeat ultrasound (Figures 3a-3b), which was suggestive of malignancy. Subsequent mammography (Figures 4a-4c) was also suggestive of malignancy. Biopsies were taken of the lesion, lymph node, and area of calcification.

The patient was subsequently diagnosed with grade 3 invasive ductal carcinoma of the right breast, NST, T4N2M0, ER 0, PR 0, HER-2 Positive, Ki67 of 30%. With metastases to the axillary nodes (Figures 5a-5c). Staging CT and bone scan showed no further metastases.

The patient underwent a mastectomy and axillary node clearance, with adjuvant chemotherapy and radiotherapy.

Teaching Points

1. Clinicians should be mindful of the risk of a carcinoma masquerading as a sebaceous cyst.
2. If conservative treatment fails to resolve the cyst or if there are any changes in its size or appearance, a core biopsy should be considered for further investigation.
3. Patients should be educated on the significance of regular self-examinations and advised to seek medical attention if they notice any changes.

Written informed patient consent for publication has been obtained.

Differential Diagnosis List: Sebaceous breast cyst, Infected sebaceous breast cyst, Invasive carcinoma of breast, Fibroadenoma of breast

Final Diagnosis: Invasive carcinoma of breast

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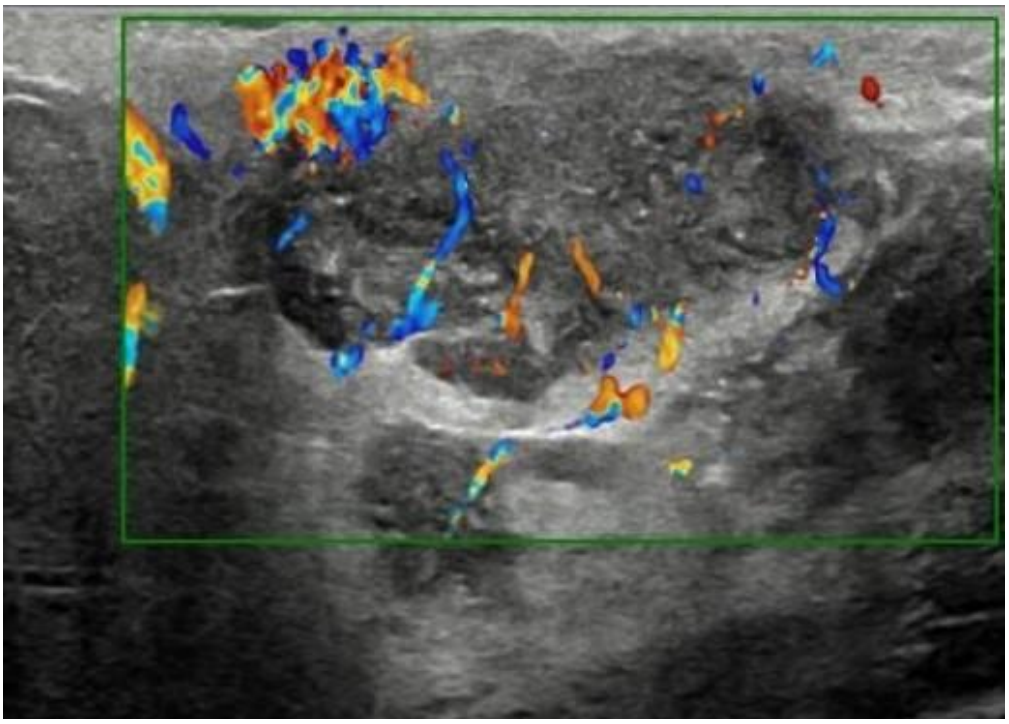
Figure 1

a

Description: Ultrasound of right breast shows a 12 mm hypoechoic area with some debris seen just beneath the skin at 10 o'clock close to the nipple with a faint sinus tract. **Origin:** © Department of Radiology, Basildon & Thurrock University Hospital, Basildon, United Kingdom

Figure 2

a



Description: Ultrasound right breast shows a superficial lesion measuring 29 x 18 x 28 mm. The lesion has a heterogenous echo texture with some irregular anechoic areas seen centrally and shows increased internal and peripheral vascularity. **Origin:** © Department of Radiology, Basildon & Thurrock University Hospital, Basildon, United Kingdom

Figure 3

a

Description: Ultrasound of right breast superficial breast lesion measuring up to 30 x 21 x 38 mm (a). This lesion appeared more heterogeneously hypoechoic with irregular borders. Few hyperechoic foci suggestive of microcalcifications are evident. Solitary prominent right axillary lymph node evident as well (b). **Origin:** © Department of Radiology, Basildon & Thurrock University Hospital, Basildon, United Kingdom

b

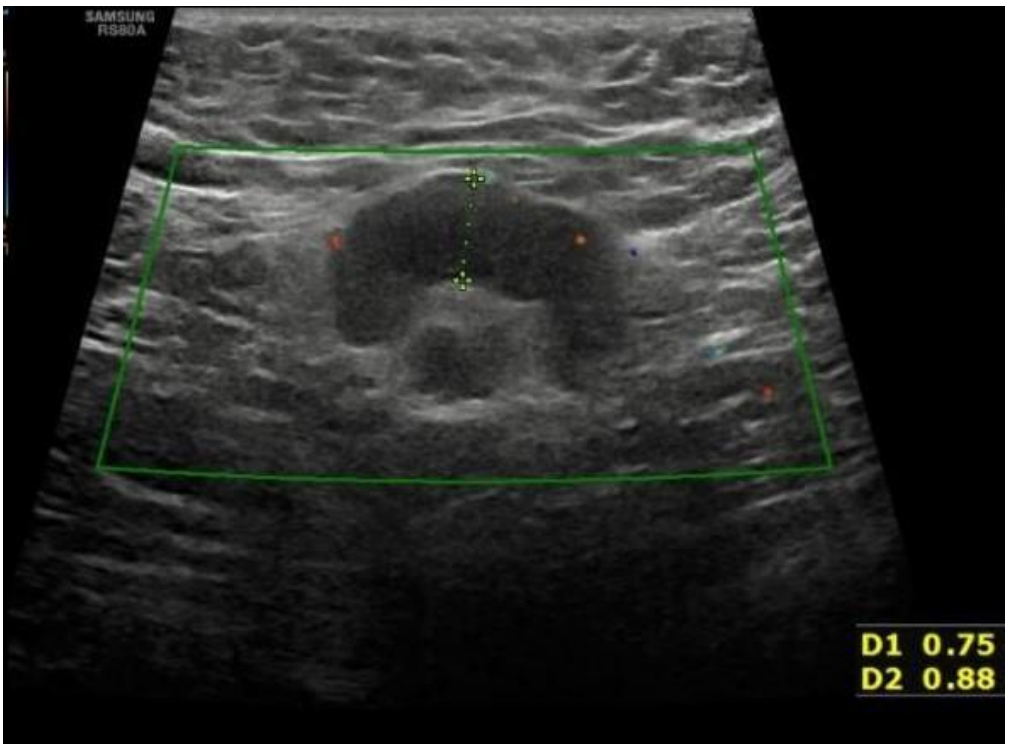


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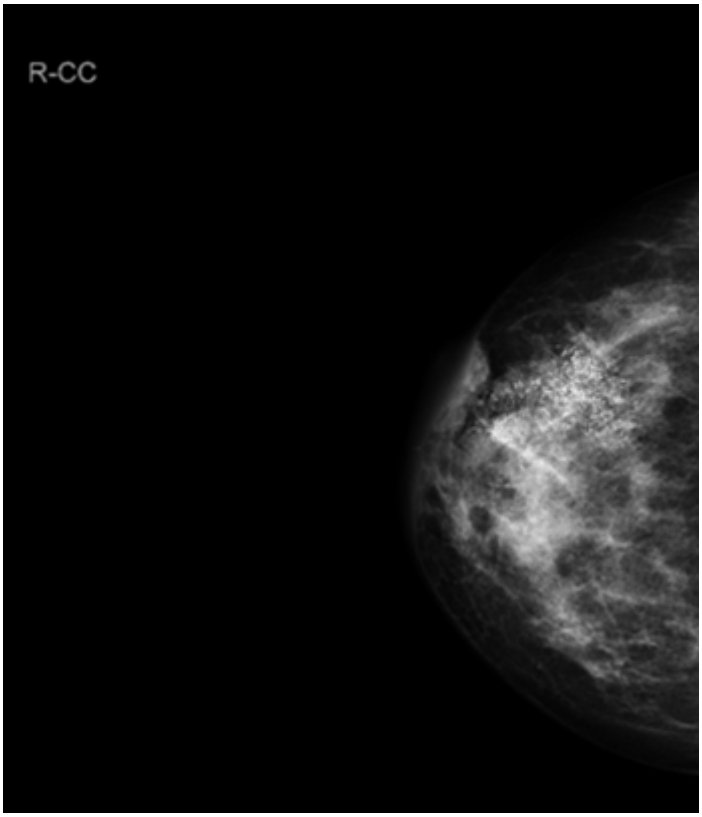
Figure 4

a

Description: Mammogram of right breast demonstrating pleomorphic microcalcifications in the right upper outer quadrant on MLO (a) & CC (b) Mammogram views measuring up to 80 x 70 mm (c). There is associated tissue asymmetry, architectural distortion, skin thickening and retro areolar radiodensity.
Origin: © Department of Radiology, Basildon & Thurrock University Hospital, Basildon, United Kingdom

b



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c

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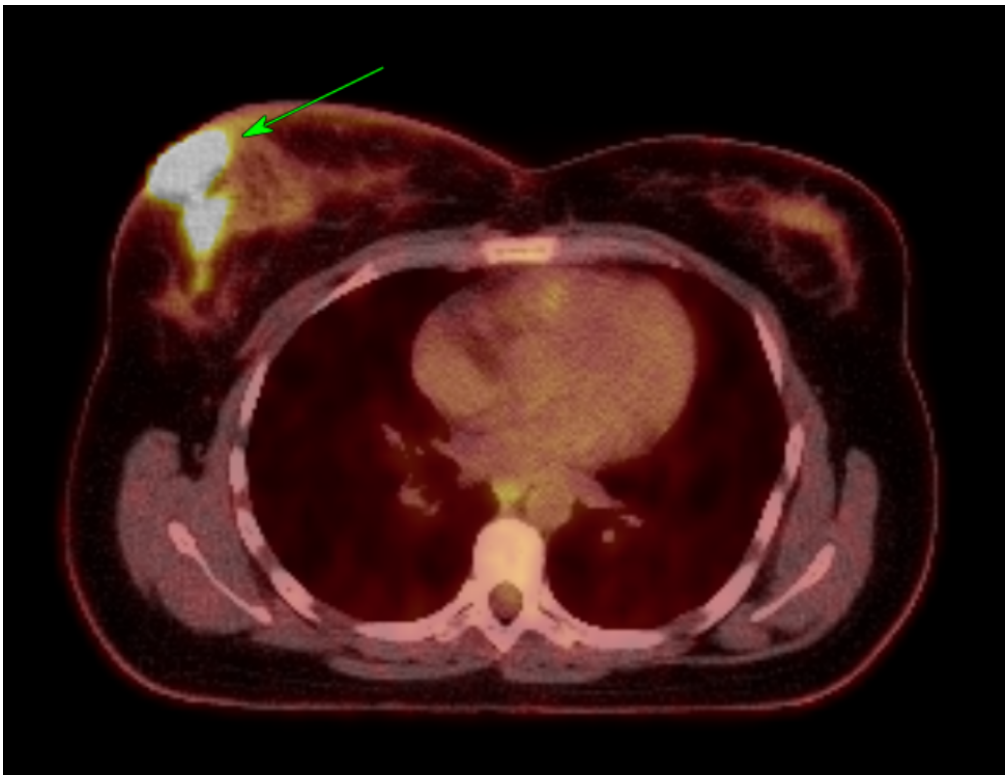
Origin: © Department of Radiology, Basildon & Thurrock University Hospital, Basildon, United Kingdom

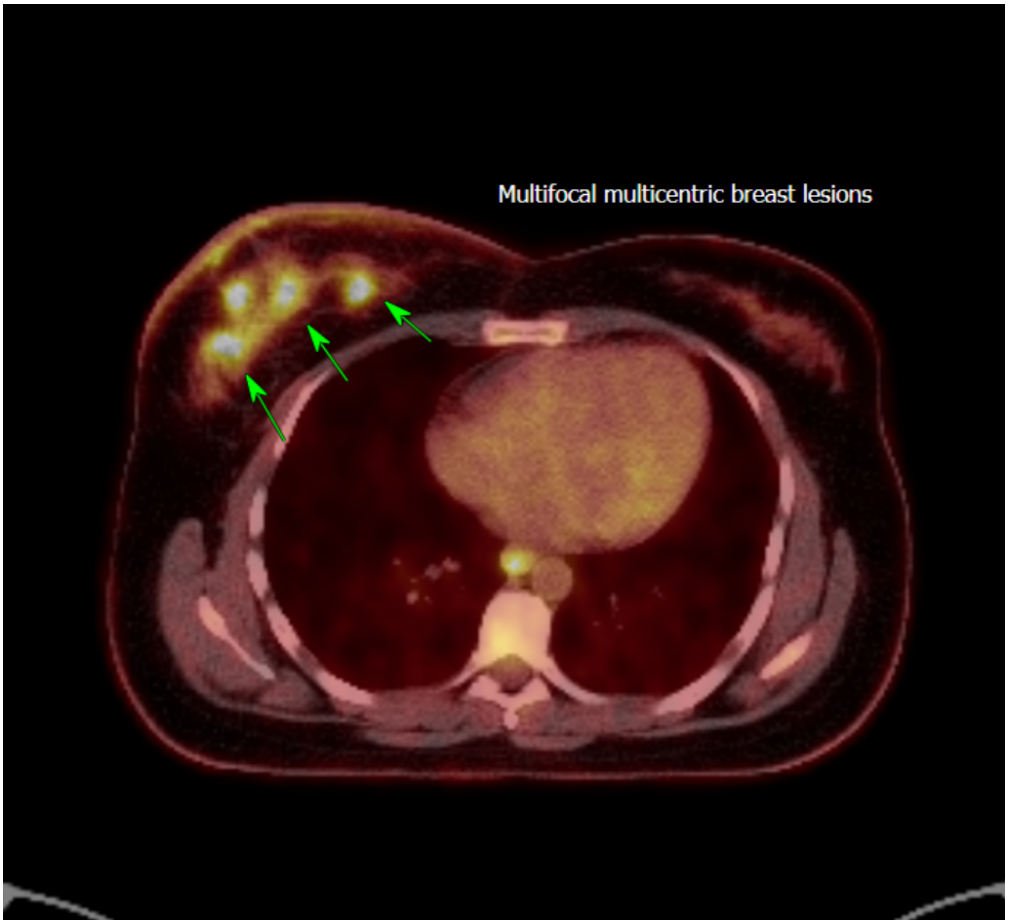
Figure 5

a



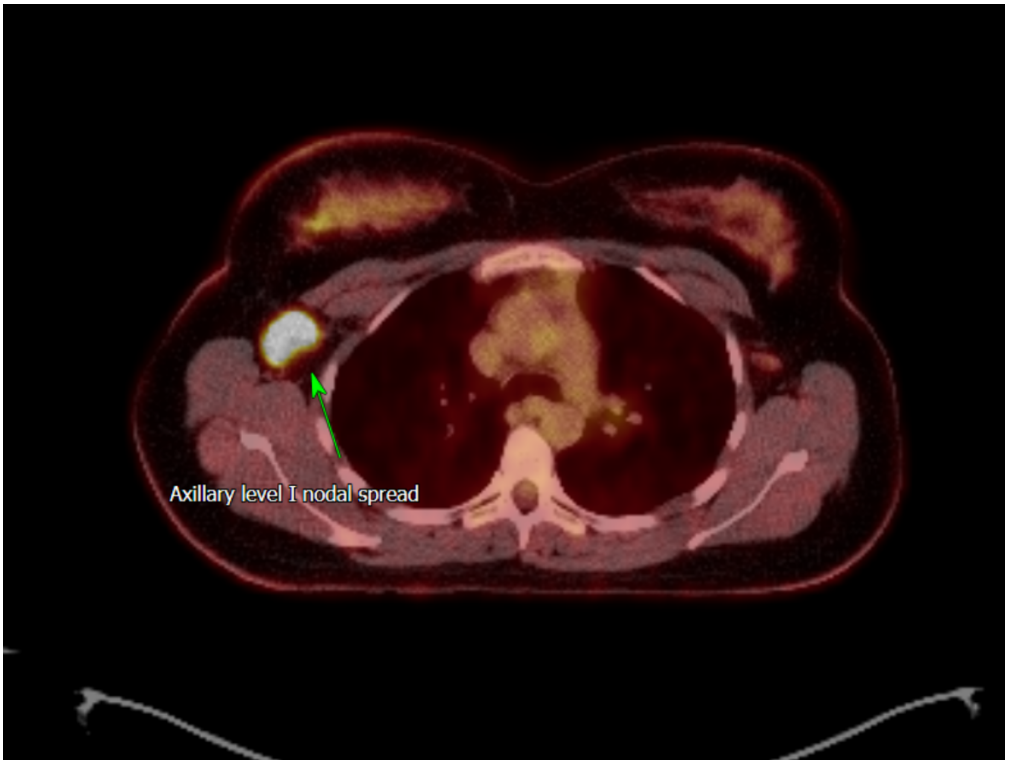
Description: PET CT appearances are supportive of a metabolically hyperactive right breast malignancy with right axillary lymph nodal spread. No evidence of FDG avid distant metastatic disease is identified. **Origin:** © Department of Radiology, Basildon & Thurrock University Hospital, Basildon, United Kingdom

b



Description: PET CT appearances are supportive of a metabolically hyperactive right breast malignancy with right axillary lymph nodal spread. No evidence of FDG avid distant metastatic disease is identified. **Origin:** © Department of Radiology, Basildon & Thurrock University Hospital, Basildon, United Kingdom

c



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