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Incidental Asymptomatic Breast Hemangioma in a 69-Year-Old Man: A Case Report

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Abstract: Breast hemangiomas are benign vascular tumors that are infrequently identified in male patients. Most of the reported cases of hemangiomas in male breasts have been identified in symptomatic patients who presented with a palpable lump in the breast. We present a case of an incidentally discovered hemangioma in an asymptomatic male patient, raising the possibility that male breast hemangiomas may be more prevalent than originally thought.

Keywords: *male breast imaging, hemangioma, mammography, ultrasound, core needle biopsy*

Introduction

Breast hemangiomas are benign vascular tumors that are rarely encountered in the male breast. At the time of publication, there have been fewer than 25 reported cases, with most of them presenting clinically as palpable lumps on physical examination.^{1,2} Less commonly, hemangiomas in the male breast have been discovered incidentally in asymptomatic patients.¹ Despite the infrequency of this finding, it is important for radiologists to be familiar with their imaging appearance to establish proper radiologic-pathologic correlation and to circumvent unnecessary invasive procedures. Often, definitive tissue diagnosis using core needle biopsy is indicated to exclude malignancy.²

Case Presentation

A 69-year-old man with no significant medical history presented for positron emission tomography/computed tomography (PET/CT) to evaluate unintentional weight loss. PET/CT images showed a nodular soft-tissue density measuring

Key Points

- Incidental discovery of hemangiomas in asymptomatic males suggests that hemangiomas may be more common in the male breast than originally thought and may be underrepresented due to the lack of routine imaging of the male breast.
- Given the nonspecific features of breast hemangiomas on imaging, definitive tissue diagnosis using core needle biopsy may be indicated.
- Establishing radiologic-pathologic concordance can help avoid unnecessary surgical intervention in cases of hemangioma in the male breast.

Abbreviations

PET/CT: positron emission tomography/computed tomography
FDG: f-fluorodeoxyglucose
SUV: standardized uptake value
CC: craniocaudal
MLO: mediolateral oblique
MRI: magnetic resonance imaging

9 x 9 x 8 mm³ with no significant f-fluorodeoxyglucose (FDG) uptake (standard

uptake value [SUV] = 0.7) in the periareolar region of the left breast (Figure 1). The patient was then referred to our breast imaging center for further evaluation, which included a diagnostic mammogram and ultrasound. The patient was asymptomatic at presentation but reported a family history of breast cancer in his mother. The diagnostic mammogram demonstrated an oval mass with microlobulated margins in the lower inner quadrant of the left breast at anterior depth (Figure 2), correlating to the soft tissue density seen on the PET/CT scan. Targeted ultrasound of the left breast demonstrated a correlative oval, hypoechoic mass with microlobulated margins and parallel orientation in the left breast that was located 2 cm from the nipple (Figure 3). No significant vascularity was seen within or around the mass, and there was no suspicious left axillary lymphadenopathy.

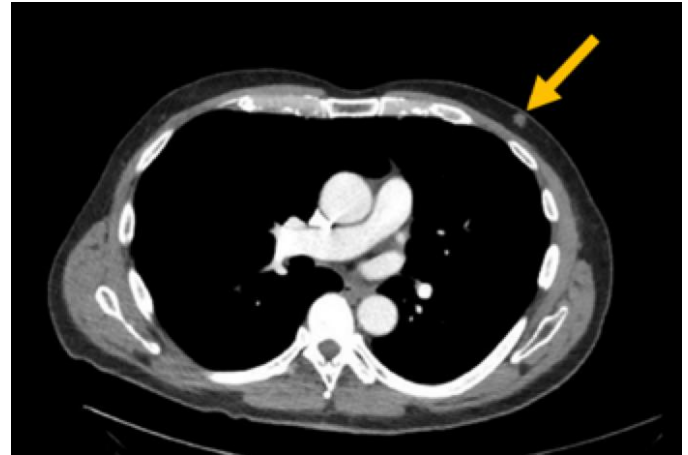
Gynecomastia was ruled out due to the location of the mass relative to the nipple. Because breast masses occur infrequently in male patients,¹ a definitive tissue diagnosis using ultrasound-guided core needle biopsy was recommended to rule out malignancy. Multiple tan-red-yellow, fibro-adipose tissue cores were obtained, some of which contained dark maroon material that resembled coagulated blood products. Histopathological examination demonstrated a hemangioma, for which the patient was referred to breast surgery for further management.

Discussion

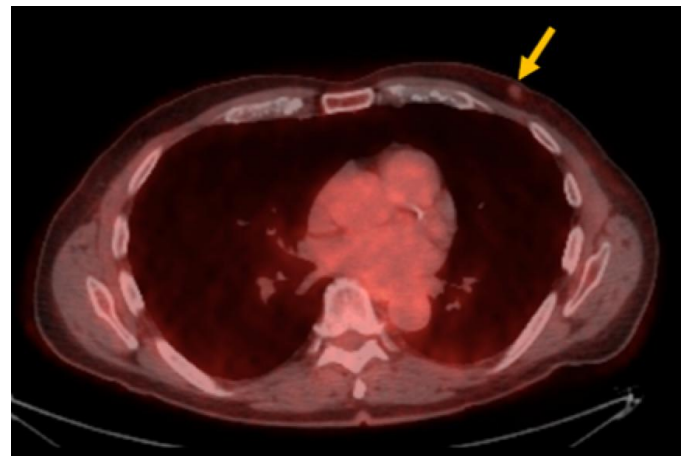
The histoanatomical variances between the male and female breast require distinct differential considerations of a breast mass.¹ At birth, the male and female breast are identical, however, increased testosterone levels in males during the peripubertal period results in involution and atrophy of the ductal system. As a result, terminal ductal lobular units—and associated fibroepithelial and lobular pathologies such as fibroadenoma, phyllodes tumor, fibrocystic changes, adenosis, and lobular carcinoma—are rare in the adult male breast.¹ Most male breast masses are benign and are accounted for by such pathologies as nodular gynecomastia, lipoma, angioliipoma,

Figure 1. Computer Tomography (CT) and PET/CT of the Chest of a 69-Year-Old Man.

A CT of the chest, axial view



B PET/CT of the chest, axial view



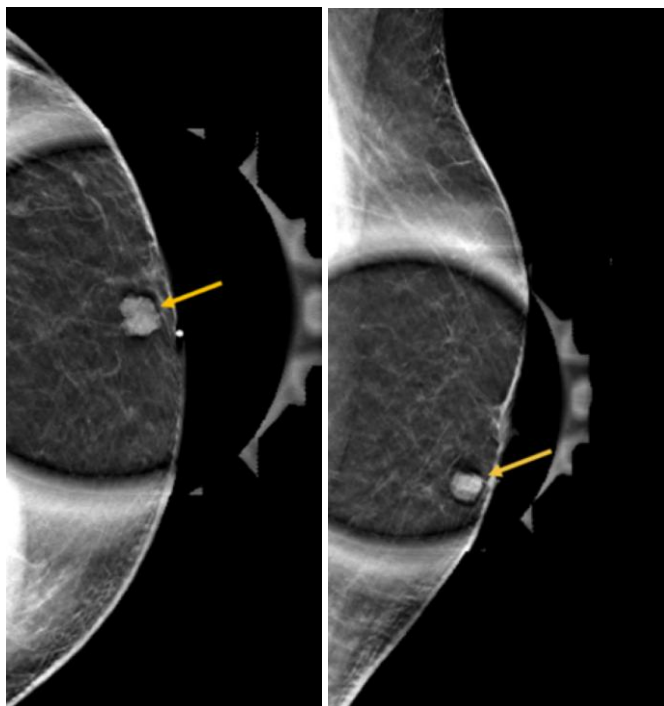
(A) Axial contrast-enhanced chest CT shows a nodular soft-tissue density (arrow) in the left periareolar breast. (B) Axial fused PET/CT image shows no significant uptake in the left breast mass (arrow).

pseudoangiomatous stromal hyperplasia, intraductal papilloma, fat necrosis, and hemangioma.^{1,3}

Hemangiomas are benign tumors caused by the proliferation of blood vessels lined by endothelial cells. Often, they are found in patients who present with a palpable mass.³ Other associated symptoms included focal pain and bluish skin discoloration.⁴ In our case, a hemangioma was found incidentally in an asymptomatic patient. This raises the possibility that hemangiomas may be more common in the male breast than

Figure 2. Diagnostic Digital Tomosynthesis of the Left Breast of a 69-Year-Old Man

A Spot compression, craniocaudal view **B** Spot compression, mediolateral oblique view



(A, B) Spot compression craniocaudal (CC) and mediolateral oblique (MLO) views of the left breast show an oval mass with microlobulated margins (arrows) in the lower inner quadrant at anterior depth. This mammographic mass corresponds to the mass seen on PET/CT (Figure 1).

previously known and are possibly underdiagnosed and underrepresented due to the lack of routine imaging of the male breast.⁴

The various types of breast hemangiomas are histologically categorized by the size of the vessels identified, as imaging characteristics are nonspecific.⁵ Cavernous is the most common type, but hemangiomas can otherwise be classified as perilobular, venous, or capillary.⁵

The most commonly seen mammographic appearance of a hemangioma is a round or oval mass with circumscribed margins. Coarse calcifications representing phleboliths may be present.^{2,6} On ultrasound, hemangiomas are commonly seen as hypoechoic and lobulated masses with or without vascular flow.⁷ Internal echotexture can be homogeneous or heterogeneous, depending on the presence of phleboliths or microcalcifications.⁵ On magnetic resonance imaging (MRI), a hemangioma presents

as an isointense mass on T1-weighted images and as a hyperintensity with cystic spaces on T2-weighted images.^{5,8} If there are associated phleboliths, low-signal foci may be seen within the mass. Similarly to hemangiomas of the liver, breast hemangiomas can show gradual centripetal contrast enhancement.⁹

Figure 3. Targeted Ultrasound Imaging of the Left Breast of a 69-Year-Old Man

A Grayscale Image



B Color Doppler Image



(A, B) Grayscale and color Doppler images show a hypoechoic oval mass (arrows) with indistinct margins and without significant internal vascularity.

Imaging features of hemangiomas, however, are nonspecific and can overlap with other benign and

malignant pathologies, such as angiosarcoma.^{1-3,10} To rule out angiosarcoma, especially in a large or growing mass, tissue sampling via core needle biopsy is often indicated to achieve a definitive diagnosis. Fine needle aspiration is insufficient for distinguishing malignant from benign vascular tumors, as it often yields indeterminate results.¹⁰ Historically, hemangiomas have been surgically excised due to their theoretical potential for malignant transformation to angiosarcoma.^{2,4} Some authors suggest that malignant transformation is very rare—if it occurs at all—and recommend imaging follow-up to avoid surgery if there is adequate tissue sampling and a strong concordance between radiologic and pathologic findings.^{3,5}

Conclusion

Breast hemangiomas are benign vascular tumors that are infrequently seen in the male breast. While many reported cases have been noted in symptomatic patients,¹⁻³ this incidental discovery of a hemangioma in an asymptomatic male breast suggests that the true prevalence of male breast hemangiomas may be higher than initially believed. Underrepresentation of hemangiomas in the male breast may be secondary to the fact that the male breast is not routinely imaged. Familiarity with the common imaging and clinical features of male breast hemangiomas can help establish radiologic-pathologic concordance and ensure proper clinical management.

Author Contributions

Conceptualization, I.S.T., H.W.C. and S.B.; Acquisition, analysis, and interpretation of data, I.S.T. and H.W.C.; Writing – original draft preparation, S.B.; Review and editing, I.S.T., H.W.C. and S.B.; Supervision, I.S.T. and H.W.C. All authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All authors had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Disclosures

None to report.

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