


Benign Breast Cyst without Associated Gynecomastia in a Male Patient: A Case Report

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ABSTRACT

Benign simple breast cysts are commonly seen in female breasts and can present as palpable masses. They are distinctly uncommon, however, in the male breast. We report a case of simple benign cyst of the breast in a 58-year-old man newly diagnosed with mantle cell lymphoma. The cyst was first identified incidentally on a staging contrast-enhanced chest computed tomography. Further evaluation with mammography and ultrasound revealed a mass that would be typically characterized as a benign simple cyst, but was biopsied since cysts are not known to occur in male breasts. Pathology results from ultrasound-guided core needle biopsy revealed benign cyst and focal fibrosis which was concordant with the imaging findings. In this case report, we will briefly discuss breast cysts in men and their imaging features including mammography and ultrasound.

CASE REPORT

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A 58-year-old Caucasian man, with recent diagnosis of mantle cell lymphoma underwent chest, abdomen, and pelvis computed tomography (CT) for staging purposes. As an incidental finding, a 13 × 12 mm soft tissue mass (30 Hounsfield units) was detected in the left breast on his staging chest CT scan [Fig1]. Further evaluation of this mass was performed in the breast imaging clinic. The patient denied symptoms including pain and nipple discharge and had no family history of breast cancer, but reported ovarian cancer in his mother and skin cancer in two of his siblings. He had experienced a 33 lb weight loss over 3 months. There was no history of local trauma or symptoms of infection. On physical exam there was a 1 cm palpable lump beneath the left areola of the left breast with no nipple retraction or discharge. The skin over the palpable mass was intact. Axillary lymph nodes were not palpable and physical exam of the right breast was unremarkable. Gynecomastia was not appreciated in either of the breasts.

Bilateral diagnostic digital mammogram revealed a 10 millimeter oval shaped equal density mass with partially circumscribed, partially obscured margins in the subareolar left breast, corresponding to the CT finding, without evidence of gynecomastia [Fig2]. Ultrasound examination demonstrated a 10 millimeter well-circumscribed anechoic mass with abrupt interface, posterior acoustic enhancement, and thin internal septations (<0.5 mm) at the site of the mammographic mass in the subareolar region [Fig3].

Although sonographically the finding met criteria for simple benign cyst, considering the rarity of cysts in male patients due to lack of lobular units, findings were categorized as suspicious (Breast Imaging Reporting and Data System Category 4) and pathology confirmation using core needle biopsy was recommended. The patient underwent ultrasound guided core needle biopsy. During biopsy, the lesion did not significantly decrease in size. Pathological examination of the core biopsy specimen demonstrated fragments of cyst wall, fibrosis, and proteinaceous material consistent with cyst contents. There was no evidence of lymphoma, atypical

hyperplasia, in-situ or invasive carcinoma [Fig 4]. Since the pathology result was benign and concordant with the imaging findings, only routine 6 month follow-up ultrasound examination was recommended to document stability or resolution. Follow up chest CT scan for restaging after 47 and 147 days demonstrated slight interval decrease in size of mass.

DISCUSSION

Breast cysts are the most common type of breast mass with peak incidence in premenopausal and perimenopausal women but can be seen in women of all ages. The etiology and general epidemiology of simple breast cysts are summarized in Table 1. Breast cysts can present as palpable masses and might be associated with tenderness or nipple discharge, but usually they are asymptomatic and are detected as masses on screening mammography (1, 2). Mammographically, cysts may be solitary or multiple (and often bilateral), low or equal density masses of variable sizes with round, oval, or occasionally lobulated shapes. Their margins are usually circumscribed but can also be partially obscured by the adjacent breast parenchyma. Only macrocysts containing milk of calcium can be mammographically distinguished from solid masses(3). Ultrasound is very helpful in diagnosis of cysts revealing a well circumscribed, anechoic mass with posterior acoustic enhancement(4). In early development of a cyst, clustered small hypoechoic or anechoic masses might be seen that are separated by echogenic septations (1). A sonographically simple cyst can be dismissed as benign (4, 5).

Despite similar anatomical boundaries, the male breast is distinctly different from female breast histologically. The normal male breast consists of predominantly subcutaneous fat with very few ducts and stroma, whereas the female breast tissue is constituted of predominantly ducts, stroma, and glandular tissue (6). Breast lesions can be categorized based on their tissue of origin: skin and subcutaneous tissues, stroma, glandular elements, or other structures, including the neurovascular and lymphatic tissues (7, 8). Although all breast pathology described in female patients can occur in men, the incidence of breast lesions in men is much lower in general and particularly lower for lobular derived lesions (e.g. cysts, fibroadenoma, sclerosing adenosis, lobular neoplasia, invasive lobular carcinoma) since men generally lack lobular development (1, 9).

The differential diagnosis of masses within the male breast are summarized in Table 2. The most common male breast mass is gynecomastia, followed by lipoma and epidermal inclusion cysts. However, the imaging features of the mass excluded these more common diagnostic considerations. While mammographically nodular gynecomastia was a diagnostic consideration given the subareolar location of the mass, its sonographic appearance of a well-circumscribed anechoic mass with thin septations ruled out this differential. Lipoma was excluded due to the absence of fat density within the mass on mammogram. Finally, while the lesion clearly contained sonographic features consistent with a cystic process such as an epidermal inclusion cyst, this lesion was not located in the

dermis or subcutaneous tissue and did not have the characteristic "tail" extending to the skin surface in ultrasound(10). Considering the patient's primary disease process, lymphoma was also a differential consideration since it can also present mammographically as a single circumscribed high density mass reflecting a morphologically abnormal lymph node. However, the sonographic features of the finding, such as anechoic internal echogenicity and lack of any vascularity argued strongly against a lymph tissue process.

The lesion described in this case report is similar to benign changes that can commonly be seen in the female breast due to the presence of lobular tissue, a component physiologically absent in male breast. Had similar imaging features been reported in a female patient there would have been no need for a biopsy based on the classic benign appearance of the cyst and the absence of typical sonographic features of breast malignancies (presence of a solid component with noncircumscribed, angulated or spiculated margins) (10). However, given the rarity of lobular lesions such as cysts in men and the fact that occasionally male breast malignancies (such as papillary carcinomas and invasive ductal carcinomas) can present with a cystic component representing an ectopic duct not originating from lobular tissue, a biopsy to rule out malignancy was indicated.

Although lesions of the lobule, such as cysts, fibroadenomas, and lobular neoplasia, are generally rare in men, a few reports of lobular-derived lesions can be found in the literature, all of which have been associated with underlying gynecomastia. In fact, gynecomastia has been reported to co-exist with those rare cases of lobular differentiation in the male breast (11-16). To our knowledge there is only one other radiologic report of a case of true benign cyst demonstrating classic imaging features of a cyst in male breast. That case, however, was also associated with 3-year history of intermittent bloody discharge and tenderness and had imaging features consistent with gynecomastia (17). In at least two studies reporting radiologic features of their consecutive cases of male breast disease, no case of breast cyst was reported (11, 18). Unlike previous case reports, our patient demonstrated no imaging features of gynecomastia. It has been previously proposed that, such cases of benign cyst in men might have started as gynecomastia and therefore correspond to an outlying morphological variation of the condition(15). The presented case of a benign cyst in a male breast without gynecomastia contradicts this assumption, however. To our knowledge, this is the first reported case of a cyst in the male breast without underlying gynecomastia.

TEACHING POINT

Pathology derived from lobular units, and specifically cysts are very rare in men, and they can present even in the absence of gynecomastia. The rarity of lobular units in male breast tissue, however, requires that management of classically benign lesions such as simple cysts still include pathological confirmation with biopsy due to very low prevalence of true cysts in the male breast.

REFERENCES

1. Cardenosa G. Breast imaging companion. 3rd ed. Philadelphia: Lippincott Williams & Wilkins, 2008; 314-367
2. Hughes LE, Mansel RE, Webster DJ. Aberrations of normal development and involution (ANDI): a new perspective on pathogenesis and nomenclature of benign breast disorders. *Lancet*. 1987;2(8571):1316-9.2890912
3. Berg WA, Sechtin AG, Marques H, Zhang Z. Cystic breast masses and the ACRIN 6666 experience. *Radiol Clin North Am*. 2010;48(5):931-87.20868895
4. Berg WA, Campassi CI, Ioffe OB. Cystic lesions of the breast: sonographic-pathologic correlation. *Radiology*. 2003;227(1):183-91. 12668745
5. Hilton SV, Leopold GR, Olson LK, Willson SA. Real-time breast sonography: application in 300 consecutive patients. *AJR Am J Roentgenol*.1986;147(3):479-86. 3526839
6. Johnson RE, Murad MH. Gynecomastia: pathophysiology, evaluation, and management. *Mayo Clin Proc*. 2009;84(11):1010-5.19880691
7. Iuanow E, Kettler M, Slanetz PJ. Spectrum of disease in the male breast. *AJR American journal of roentgenology*. 2011;196(3):W247-59. 21343472
8. Johnson RE, Murad MH. Gynecomastia: pathophysiology, evaluation, and management. *Mayo Clin Proc*. 2009;84(11):1010-5.19880691
9. Kopans DB. Breast imaging. 3rd ed. Baltimore, MD: Lippincott Williams & Wilkins, 2007.
10. Yitta S, Singer CI, Toth HB, Mercado CL. Image presentation. Sonographic appearances of benign and malignant male breast disease with mammographic and pathologic correlation. *J Ultrasound Med*. 2010;29(6):931-47.20498468
11. Adibelli ZH, Oztekin O, Gunhan-Bilgen I, Postaci H, Uslu A, Ilhan E. Imaging characteristics of male breast disease. *Breast J*. 2010;16(5):510-8. 20560973
12. Banik S, Hale R. Fibrocystic disease in the male breast. *Histopathology*. 1988;12(2):214-6. 3366438
13. Bigotti G, Kasznica J. Sclerosing adenosis in the breast of a man with pulmonary oat cell carcinoma: report of a case. *Hum Pathol*. 1986;17(8):861-3. 3015765
14. McClure J, Banerjee SS, Sandilands DG. Female type cystic hyperplasia in a male breast. *Postgrad Med J*. 1985;61(715):441-3.4022882
15. Robertson KE, Kazmi SA, Jordan LB. Female-type fibrocystic disease with papillary hyperplasia in a male breast. *J Clin Pathol*;63(1):88-9. 20026704
16. Shin SJ, Rosen PP. Bilateral presentation of fibroadenoma with digital fibroma-like inclusions in the male breast. *Arch Pathol Lab Med*. 2007;131(7):1126-9. 17617003
17. Chantra PK, So GJ, Wollman JS, Bassett LW. Mammography of the male breast. *AJR Am J Roentgenol*. 1995;164(4):853-8. 7726037
18. Munoz Carrasco R, Alvarez Benito M, Munoz Gomariz E, Raya Povedano JL, Martinez Paredes M. Mammography and ultrasound in the evaluation of male breast disease. *Eur Radiol*. 2010;20(12):2797-805. 20571799
19. Bhate RD, Chakravorty A, Ebbs SR. Management of breast cysts revisited. *Int J Clin Pract*. 2007;61(2):195-9. 17263706
20. Popli MB, Popli V, Bahl P, Solanki Y. Pictorial essay: Mammography of the male breast. *Indian J Radiol Imaging*. 2009;19(4):278-81.19881102
21. Stewart RA, Howlett DC, Hearn FJ. Pictorial review: the imaging features of male breast disease. *Clin Radiol*. 1997;52(10):739-44.9366531
22. Iuanow E, Kettler M, Slanetz PJ. Spectrum of disease in the male breast. *AJR Am J Roentgenol*. 2011;196(3):W247-59. 21343472
23. Chen L, Chantra PK, Larsen LH, et al. Imaging characteristics of malignant lesions of the male breast. *Radiographics*. 2006;26(4):993-1006.16844928
24. Yang WT, Lane DL, Le-Petross HT, Abruzzo LV, Macapinlac HA. Breast lymphoma: imaging findings of 32 tumors in 27 patients. *Radiology*. 2007;245(3):692-702. 17311538
25. Lyou CY, Yang SK, Choe DH, Lee BH, Kim KH. Mammographic and sonographic findings of primary breast lymphoma. *Clin Imaging*. 2007;31(4):234-8. 17599616

FIGURES

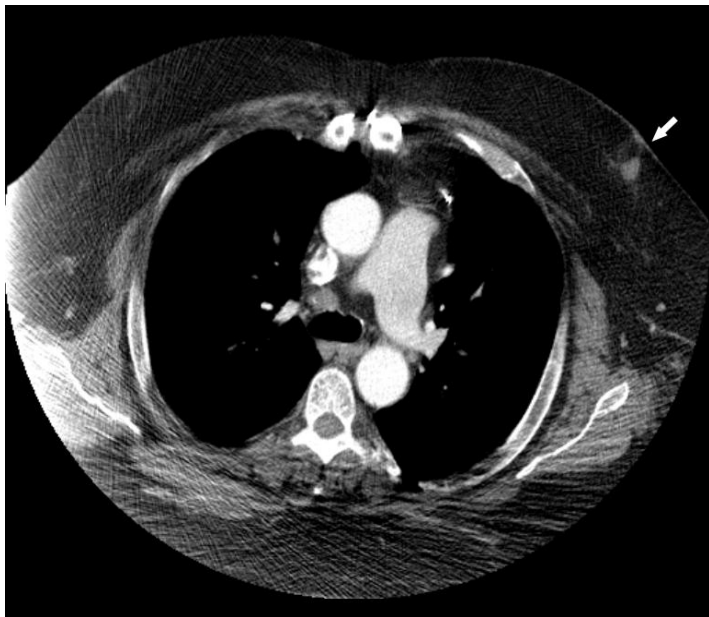


Figure 1 (left). 58-year-old man with benign simple breast cyst: Axial CT section through the chest after intravenous contrast, mediastinal window shows a 13 × 12 mm soft tissue mass (Hounsfield unit = 30) of indeterminate etiology in the left breast just posterior to the nipple. (GE Medical Systems LightSpeed 16, mAs=439, kVp=120, slice thickness=3.75mm, Intravenous contrast Omnipaque 350 was administered: 150 mLs, 2.5 ml/s, dose-length products =1217.03 mGy·cm.)

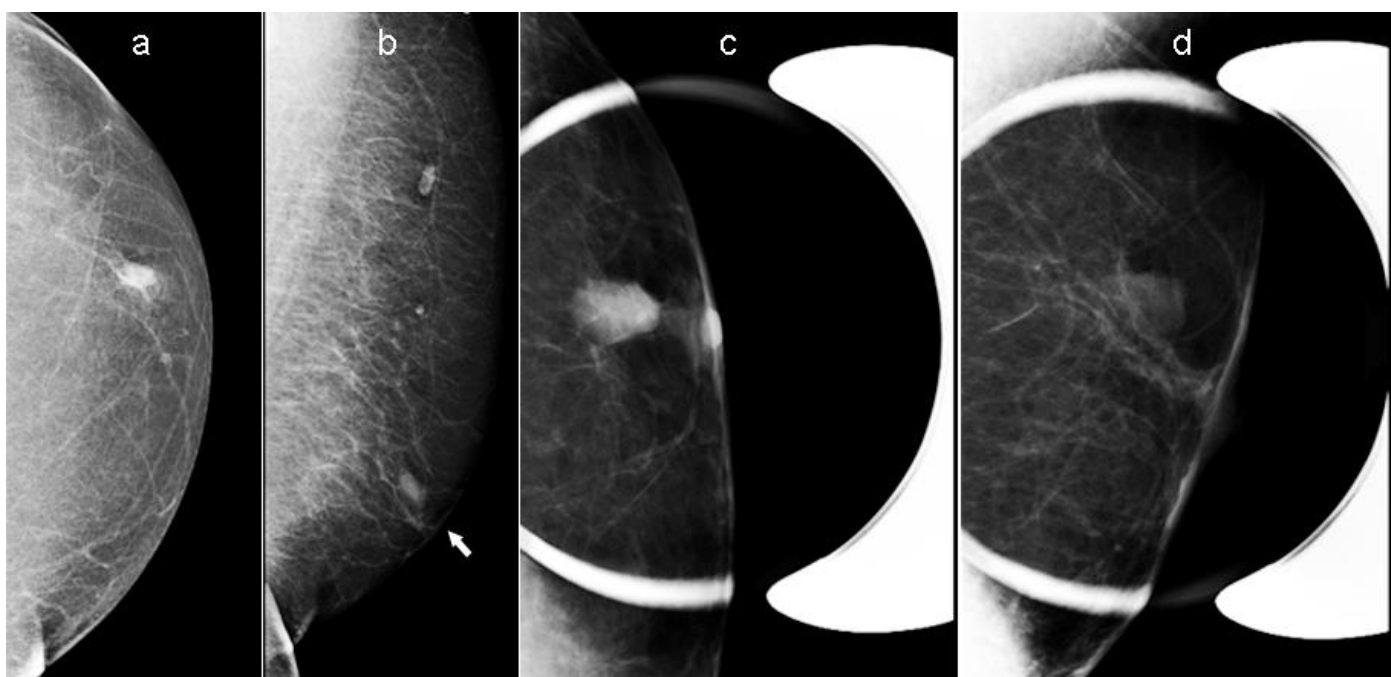


Figure 2. 58-year-old man with benign simple breast cyst: mammogram of left breast, CC (a), MLO (b), CC with spot magnification (c), and ML with spot magnification (d) views. His diagnostic mammogram demonstrate an oval shaped equal density mass with partially circumscribed margins measuring 10 mm in the subareolar region. Note the absence of flame-shaped subareolar fibroglandular densities that would be typical of gynecomastia.

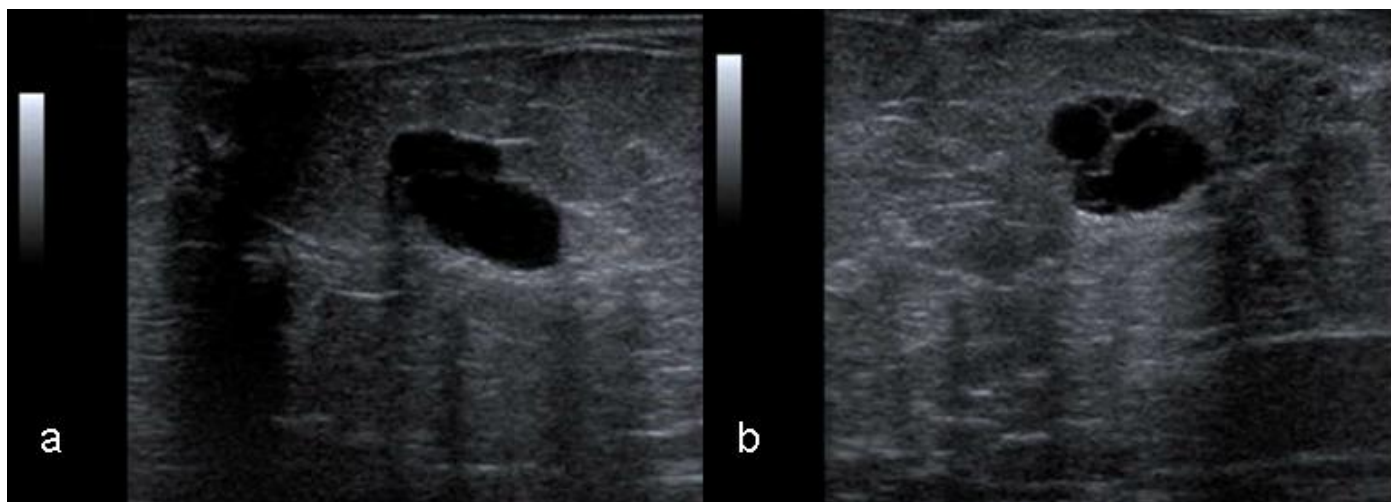


Figure 3. 58-year-old man with benign simple breast cyst: Left breast ultrasound (using 12 MHz linear transducer) images in transverse (a) and longitudinal (b) axis demonstrate an anechoic cystic lesion with thin internal septations (<0.5 mm) and posterior acoustic enhancement. The surrounding breast tissue was consistent with subcutaneous fat, and no sonographic evidence of fibroglandular tissue was noted.

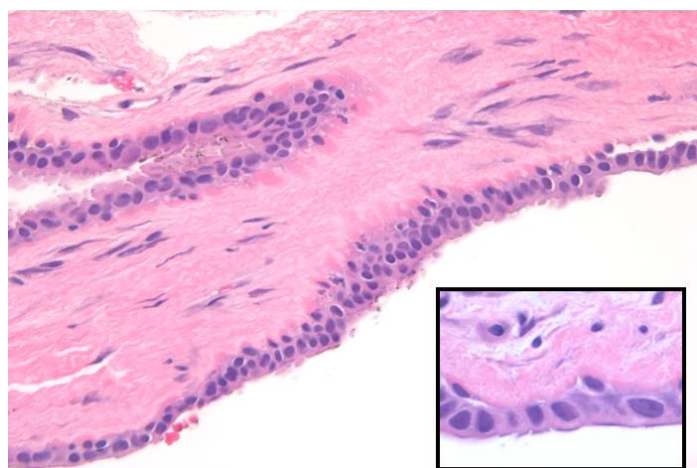


Figure 4 (left). 58-year-old man with benign simple breast cyst: Photomicrographs of the tissue samples from core needle biopsy show fragments of cyst wall with fibrosis (10×, hematoxylin and eosin). Inset: Note bland appearance of cyst epithelial lining (40×, hematoxylin and eosin).

Etiology	Unknown, possibly Estrogen stimulation or low androgen to estrogen ratio
Incidence	Up to 58.5% in reproductive women, 7% become symptomatic, Very rarely found in men
Gender ratio	Very common in women, very rare in men
Age Predilection	Usually perimenopausal (30-50) in women
Risk factor	Estrogen replacement therapy in women
Treatment	Aspiration if symptomatic or large in women, distinguish from malignant breast disease
Prognosis	Excellent

Table 1: Summary table of simple breast cysts (19)

	Mammographic appearance		Sonographic appearance
Gynecomastia	Nodular	Nodular subareolar density	Subareolar fan or disk shaped hypoechoic nodule, hypervascular
	Dendritic	Dendritic subareolar density with posterior linear projections	Subareolar hypoechoic lesion, anechoic star shaped posterior border(spider legs)
	Diffuse	Diffuse density with both dendritic and nodular features	Dendritic and nodular features, surrounded by diffuse hyperechoic fibrous breast tissue
Lipoma	Subtle encapsulated fatty mass		Single or multiple parallel, homogeneous, mildly hyperechoic mass, capsule occasionally observed
Abscess	Mass with indistinct margins with or without calcification, skin thickening		Heterogeneous irregular hypoechoic mass with increased vascularity in surrounding tissue, skin thickening and inflammatory changes
Skin cysts	Well defined, dense, superficial mass contiguous with the skin		Homogeneous or heterogeneous echo texture, usually hypoechoic, located within the dermis with a characteristic "tail" extending to the skin surface
Fat necrosis	Variable from a well-circumscribed mass with homogenous fat density to an irregular spiculated mass. Associated calcifications range from heterogeneous and coarse to characteristic rim calcifications.		Variable and non-specific, may look like malignancy
Male breast carcinoma	High density irregular mass with well-defined contours, margins usually spiculated, lobulated or microlobulated, mostly retroareolar, eccentric mass highly suspicious for carcinoma. Microcalcifications are less common in males		Nonparallel, discrete, hypoechoic mass with irregular, angulated margins, variable sound transmission from dense posterior acoustic shadowing to posterior acoustic enhancement
Lymphoma	Typically presents as an abnormal appearing lymph node with the following features: circumscribed lobular mass(es), isodense to high density, most commonly located in upper outer quadrant, with absence of a fatty hilum and/or thickened cortex		Features of an abnormal lymph node, including an irregularly thickened cortex, distorted or replaced fatty hilum, hypervascularity, and an irregular shape. Internal echogenicity may be hypoechoic or mixed, with no posterior acoustic features
Dermatofibrosarcoma	High density mass, ill defined margins		Lobulated hyperechoic mass with mixed echogenicity

Table 2: Differential table of male breast mass on imaging (20-25)**ABBREVIATIONS**

CC = Craniocaudal
 CT = Computed tomogram
 ML = Mediolateral
 MLO = Mediolateral Oblique

KEYWORDS

Male breast; Simple cyst

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