



Unusual Breast Malignancies—Going A Step Ahead of Breast Imaging Reporting and Data System

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Abstract

With the advent of the Breast Imaging Reporting and Data System (BIRADS), the categorization of the entire gamut of breast lesions has been simplified. However, there are many unusual breast lesions, both benign and malignant, which cannot be categorized accurately using the BIRADS descriptors due to the overlap of features. Carcinomas such as medullary, papillary, and mucinous (colloid) types, may be difficult to recognize as malignant because they may have relatively benign-appearing morphologic features. Well-circumscribed, small, and hyperechoic lesions may not be benign in all cases, and the presence of any microlobulations in margin, vascularity, heterogeneity, round shape, or interval change in size or appearance should raise suspicion of a sinister etiology. Therefore, it is important to be aware of the imaging features of such malignancies so that any mismanagement or undue delay in the diagnosis of any sinister etiology can be avoided.

Keywords

- ▶ unusual
- ▶ breast malignancies
- ▶ mucinous
- ▶ medullary
- ▶ tubular
- ▶ apocrine
- ▶ metaplastic
- ▶ sarcoma
- ▶ dermatofibrosarcoma protuberans
- ▶ lymphoma

Introduction

With the advent of the Breast Imaging Reporting and Data System (BIRADS),¹ the categorization of the entire gamut of breast lesions has been simplified. This is particularly useful for the residents in training, who can stratify risk of the breast lesions using BIRADS lexicon and advise appropriate management. However, there are many unusual breast lesions, both benign and malignant, which cannot be categorized accurately using the BIRADS descriptors due to the overlap of features. Radiologists should be aware of these conditions to avoid mismanagement or undue delay in the diagnosis. This would also be helpful to sample suspicious lesions.

Breast malignancies are usually invasive ductal carcinomas [IDC] and invasive lobular carcinomas [ILC], the latter being less common but not unusual. In this article, we will discuss the imaging findings of uncommon malignancies, some of which are akin to those of benign lesions.

Malignancies With Uncommon Histology

There is a plethora of uncommon histopathologies which may come up after sampling a suspicious breast lesion (► **Table 1**). Some of these have been discussed below.²

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Table 1 Malignancies with uncommon histology²

Rare epithelial breast cancer	Rare nonepithelial breast cancer
Mucinous carcinoma	Sarcomas
Medullary carcinoma	Dermatofibrosarcoma protuberans
Tubular carcinoma	Phyllodes tumor
Apocrine carcinoma	Lymphomas
Metaplastic carcinoma	Metastases from other sites
Papillary carcinoma of the breast	
Neuroendocrine tumors	
Invasive cribriform carcinoma	
Secretory breast carcinoma	
Adenoid cystic carcinoma	
Acinic cell carcinoma	
Invasive solid papillary carcinoma	
Sebaceous carcinoma	
Primary squamous cell carcinoma	

Colloid/Mucinous Carcinoma

These tumors are found in older women (60–70 years of age)³ and can be pure or mixed types. Clinically the pure types present as well circumscribed, small (~1.2 cm), smooth, lobulated, and firm to soft masses [► **Figure 1**]. The mixed type is firm on palpation [due to more fibrous stroma] and larger [~3.6 cm]. The most common nonmucinous component is IDC in the mixed type.⁴

On mammography, the lesions are well circumscribed or may have microlobulated, or indistinct margins (► **Fig. 2**). Calcification is rare in pure mucinous types. On US, the pure type has a distinct iso echoic appearance while the mixed type has heterogeneous echo texture resulting in ‘salt & pepper’ appearance.^{3,5} The shape is variable, margins usually being microlobulated and show posterior acoustic enhancement (► **Fig. 3**). Apart from this, a thin echogenic capsule may also be demonstrated.⁵ On magnetic resonance imaging (MRI), this is one of the few cancers that have very high signal intensity on T2-weighted images (related to mucin). When compared with other malignant breast tumors, they show lower signal intensity on diffusion-weighted imaging and increased apparent diffusion coefficient values. On dynamic contrast-enhanced images, these lesions have benign-appearing kinetics with gradual and persistent enhancement. Three types of enhancement can be seen—early rim enhancement followed by slow filling in of contrast, low enhancement, and heterogeneous enhancement⁶ (► **Fig. 4**). Various studies have found this carcinoma to contain ductal carcinoma in situ in as many as 75% of the cases, which usually lies in the periphery of the tumor and contributes to microlobulation, duct extension, and branch pattern of its margin⁷ (► **Fig. 5**).

Medullary Carcinoma

This tumor is usually seen in younger women, commonly in carriers of BRCA1 mutations who present with rapidly growing palpable masses.⁸ Mammograms reveal rounded or oval masses with indistinct or circumscribed margins. Calcification is usually not a feature of this tumor, and the presence of it should make one think of other differentials. On US, it can be either hyperechoic or hypoechoic with minimal heterogeneity and enhanced through transmission⁹ (► **Fig. 6**).

This tumor has been found to have a favorable clinical behavior. Another distinctive feature of this tumor is the presence of benign significant axillary lymphadenopathy.¹⁰ These are almost invariably of “triple negative” phenotype⁸ but still have a good prognosis.

Tubular Carcinoma

This is a very rare breast malignancy that is usually seen in young women with a median age of about 40 years. It is known to arise from the center of the radial scar or complex sclerosing lesion.¹¹

A routine screening mammogram shows a dense center, giving “white star” appearance unlike a radial scar that gives a “black star appearance”; however, at times, it may be difficult to distinguish the two.¹² What further confounds the differentiation is that in some cases, both may even coexist.¹¹ The usual appearance is of a small, fat-surrounded, spiculated, ill-defined nodule located in the periphery of the breast with long spicules. There is calcification associated in up to 24% of the cases. On US, small tubular carcinoma (<1.5 cm) is observed having typical malignant features, that is, a hypoechoic mass with indistinct or spiculated margins. It is taller than wider with posterior shadowing¹³ (► **Fig. 7**).

Apocrine Carcinoma

These are one of the cancers that may present clinically with bloody nipple discharge and seen as a superficial mass.¹⁴ The mass may be single or multiple, showing spiculations and microcalcifications on mammography. US shows complex solid cystic appearance or pure solid appearance (► **Fig. 8**). If unilateral multicentric disease is found, apocrine carcinoma has to be considered.¹⁵ A pure apocrine immunophenotype is estrogen receptor/progesterone receptor negative and androgen receptor positive. The prognosis, recurrence rate, and treatment are the same as those of IDC.¹⁶

Metaplastic Carcinoma

This tumor is characterized by the dedifferentiation of cells into squamous or mesenchymal elements. Usually seen in women over the age of 60 years, this is yet another tumor which simulates benign lesions and presents as a circumscribed high-density mass on mammography.

US does raise a suspicion of malignancy when it shows heterogenous echotexture or cystic elements within and posterior acoustic enhancement (► **Fig. 9**). Breast sarcoma, phyllodes tumor, mucinous carcinoma, and IDC are its differentials.¹⁷

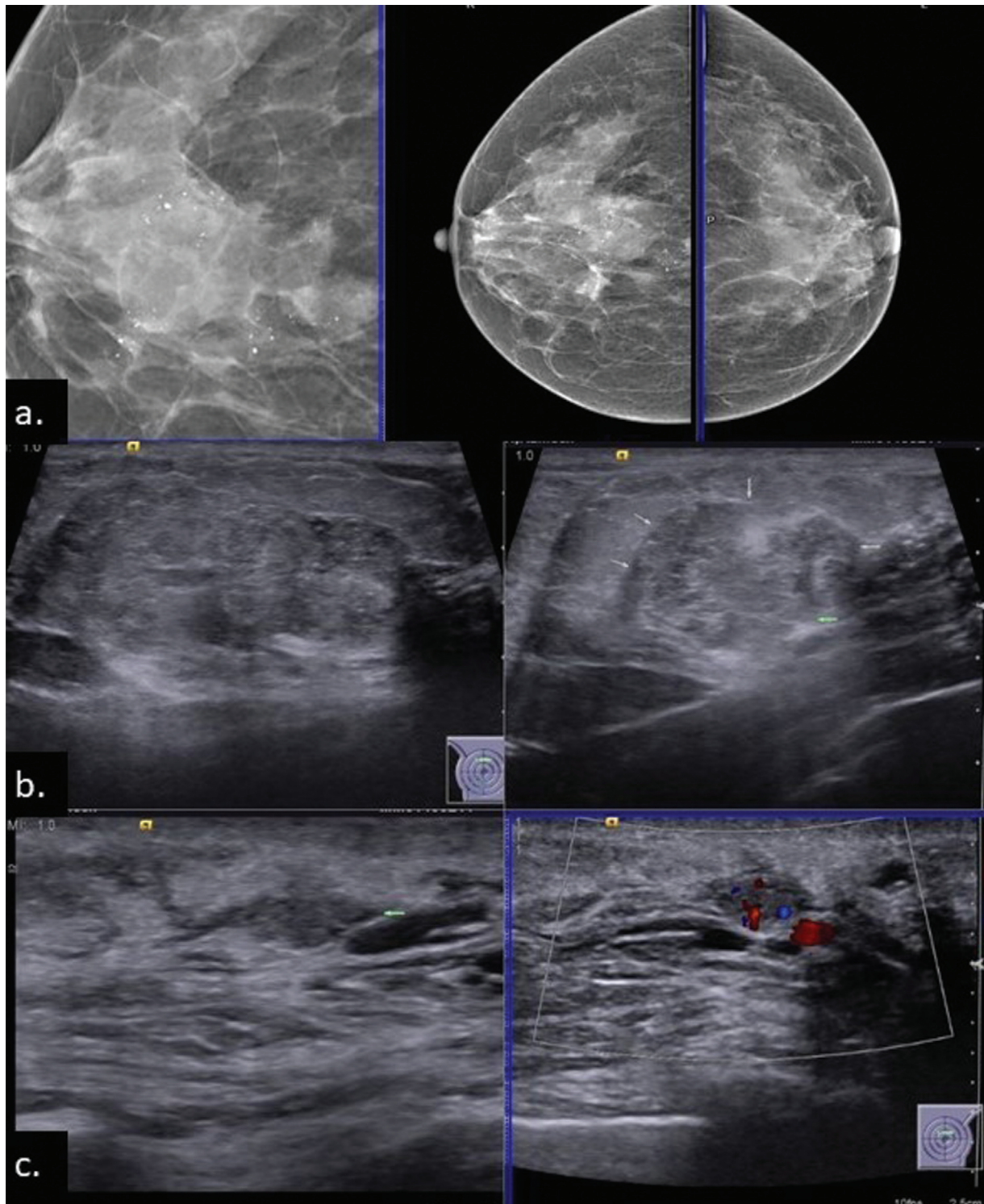


Fig. 1 A 50-year-old female presented with right breast lump. Mammography (a) shows an irregular mass with indistinct margins seen in the upper central right breast associated with internal pleomorphic microcalcification which are extending beyond the mass. Ultrasound (b and c) shows an irregular isoechoic mass in the area of mammographic concern at 12 o'clock position. Adjacent tubular thickening and intraductal nodules were also seen increasing the overall area of abnormality. Final histopathology revealed mucinous carcinoma with papillary DCIS. DCIS, ductal carcinoma in situ.

Papillary Carcinoma

Accounting for less than 2% of the breast carcinomas, these tumors are usually seen in the retroareolar location of postmenopausal women.^{18,19} On mammography, these are

usually round, oval, or irregular in shape with indistinct margins in the area of invasion. Pleomorphic microcalcifications may be seen within these tumors.^{18–20} On US, complex cyst with papilliform nodularity along the septae

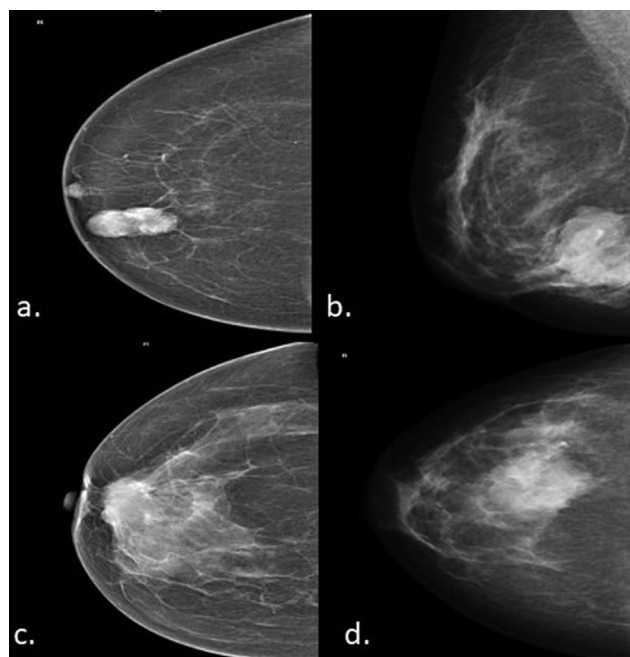


Fig. 2 On mammography, mucinous carcinoma can be well-circumscribed (a), microlobulated (b), or with indistinct margins (c and d).

or wall may be seen, with the Doppler showing internal vascularity in the solid component. Sometimes, they may also appear as hypoechoic solid masses on US¹⁸⁻²⁰ (→ Fig. 10). On MRI, irregular enhancing nodules or complex enhancing cysts are observed in papillary carcinomas. However, there exists an overlap between the features of papillary carcinomas and benign papillomas, and hence, MRI is not the modality to diagnose papillary carcinomas; its role is restricted to preoperative mapping of multiple papillary lesions.¹⁸

Nonepithelial Malignancies

Myeloid Sarcoma

Myeloid sarcoma is an extramedullary tumor, also called chloroma/granulocytic sarcoma. It can occur in subcutaneous tissue, orbit, lymph nodes, small intestine, pelvic organs, brain, testis, and the breast.²¹

Although it is most commonly seen associated with chronic myeloid leukemia or myelodysplastic syndromes,

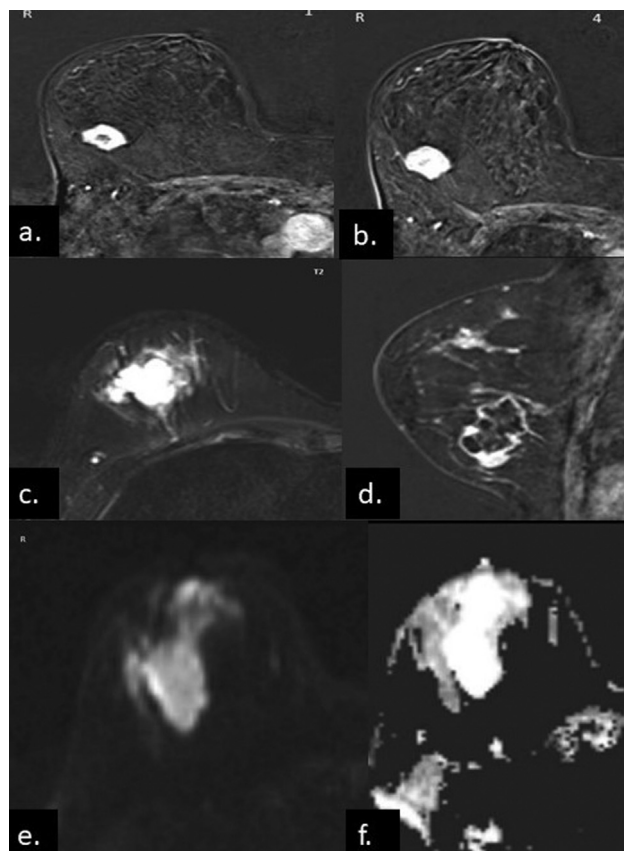


Fig. 4 Various patterns of enhancement can be encountered in mucinous carcinomas (a–b) early rim enhancement followed by slow filling in of contrast or (c and d) heterogeneous enhancement. On diffusion weighted imaging (e and f) high ADC value is seen, which is same like that of any cystic lesion, due to its high mucin content. ADC, apparent diffusion coefficient.

it can be found in 2 to 14% of acute myeloid leukemia (AML) patients also. Breast involvement without a leukemic or myeloproliferative disorder is extremely rare. However, rarely, myeloid sarcoma can present with isolated extramedullary mass without any previous or coexisting myeloproliferative disorder. These isolated cases may subsequently develop AML.²¹

On mammography, a myeloid sarcoma may present as either a mass or architectural distortion. On a few occasions,

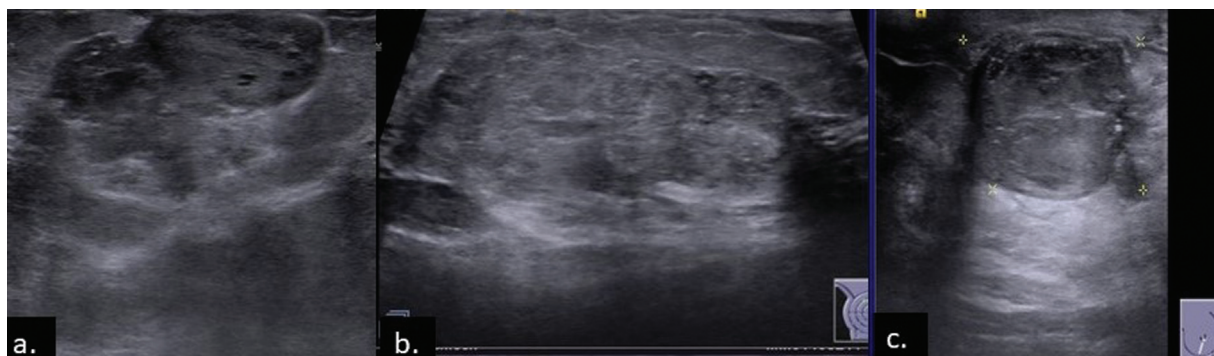


Fig. 3 On ultrasound, colloid carcinoma shows heterogenous echotexture with surface microlobulation (a), thin echogenic capsule (b), or enhanced through transmission (c).

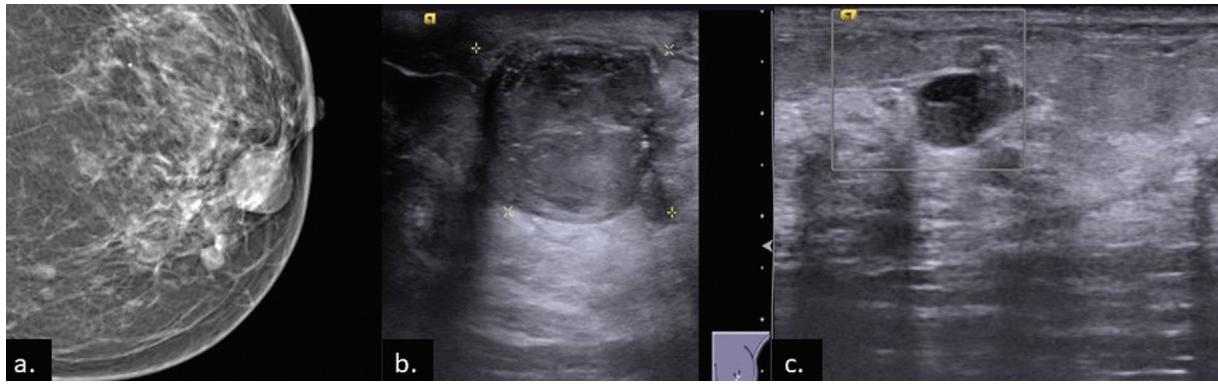


Fig. 5 A 62-year-old female presented with left nipple discharge (a). Mammogram revealed a well-circumscribed mass in the left retroareolar region with few partially obscured nodules seen posterior to the mass (b and c). US revealed a heterochoic mass with predominantly cystic component, posterior acoustic enhancement with microlobulated margin, and few similar smaller nodules posterior to it as seen on mammography. Left mastectomy with sentinel node biopsy was done, and it revealed mucinous carcinoma with extensive intraductal papillary carcinoma. US, ultrasound.

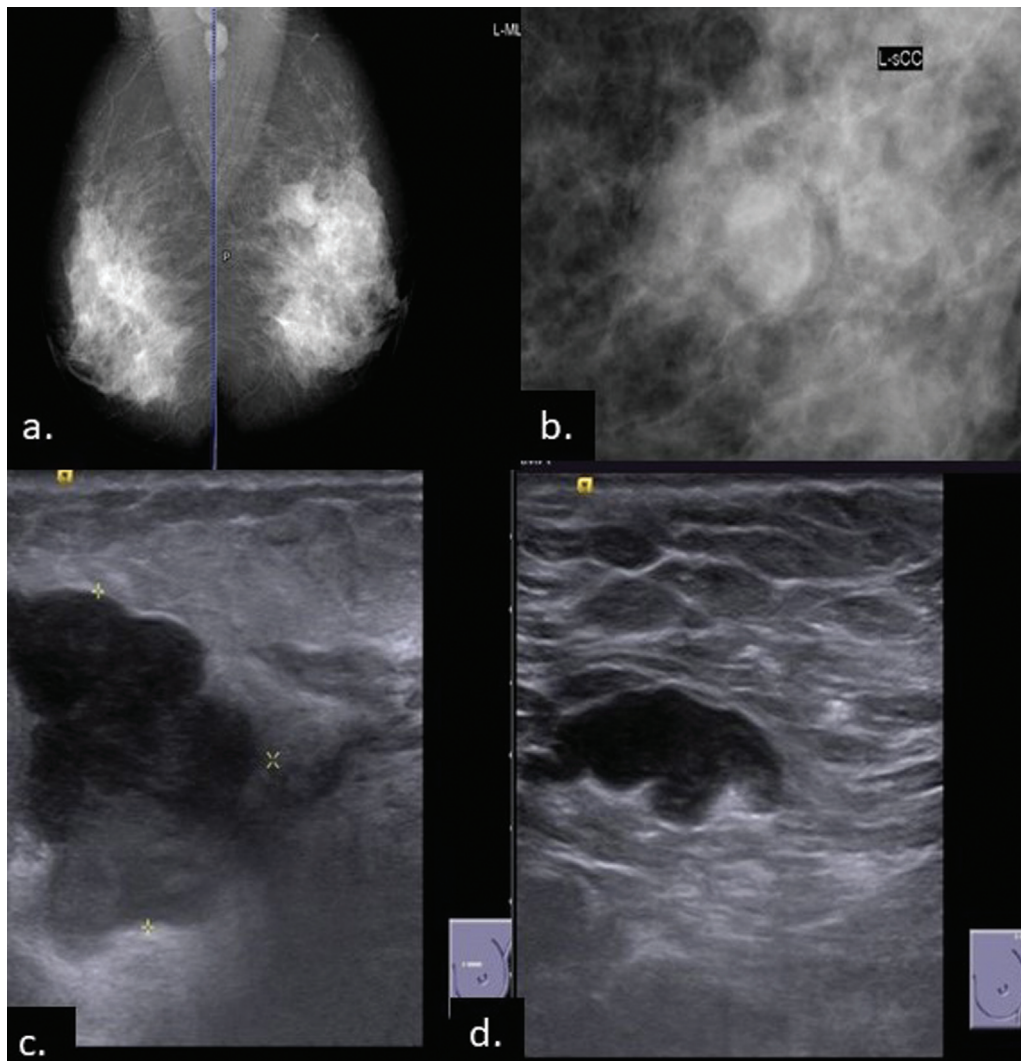


Fig. 6 A 53-year-old female presented with left breast lump of 3 to 4 months duration, which was biopsy proven as medullary carcinoma. (a and b) On mammography, there is an ill-defined irregular mass in the upper inner quadrant of the left breast, and on ultrasound (c), irregular, heterochoic mass is seen. Left axilla shows a lymph node with lost fatty hilum (d).

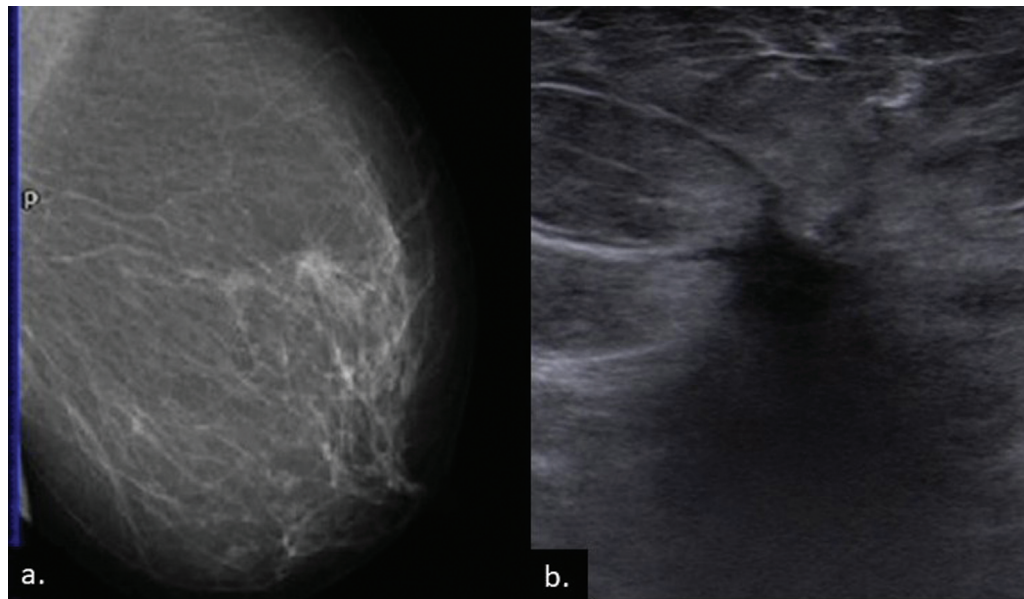


Fig. 7 A small, fat-surrounded, spiculated, ill-defined, peripherally located nodule is seen on mammogram (a). Ultrasound (b) shows a small tubular carcinoma, iso- to hypoechoic with spiculated/angular margin surrounded by thick echogenic halo. The lesion is taller than wider with intense posterior shadowing.

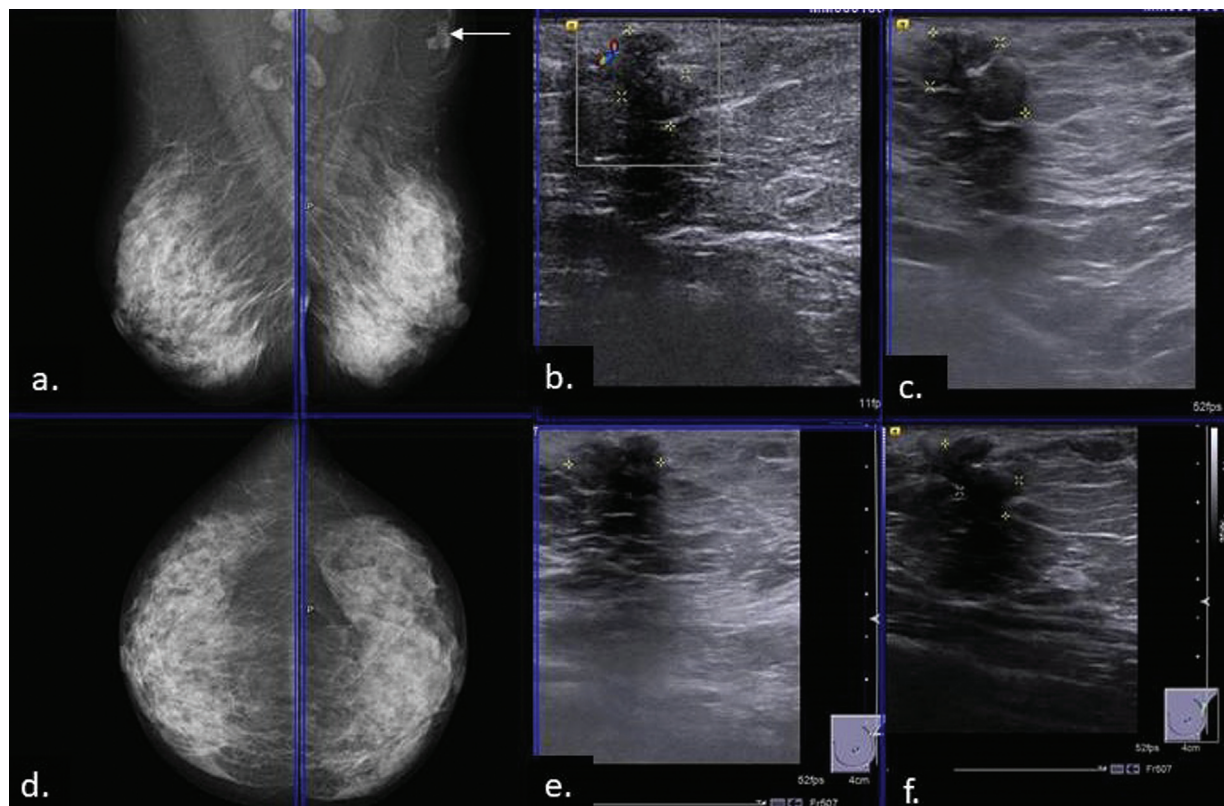


Fig. 8 There is an isodense mass seen in the left accessory breast tissue measuring 14 × 8 mm on mammogram (a and d). In the area of palpable abnormality in the left axilla, there is an irregular low echogenic mass measuring 13 × 9 mm extending from the skin into the underlying tissue (b, c, e, and f). Final histology revealed apocrine malignancy.

there may be no abnormality on a mammogram. Contrast-enhanced magnetic resonance imaging demonstrates variably enhancing masses, while nonmass enhancements have also been reported²¹ (→Fig. 11).

Angiosarcoma

Angiosarcoma of the breast is a rare malignancy which may arise de-novo in young women or after breast conservation surgery with radiation therapy. Bluish skin discoloration is

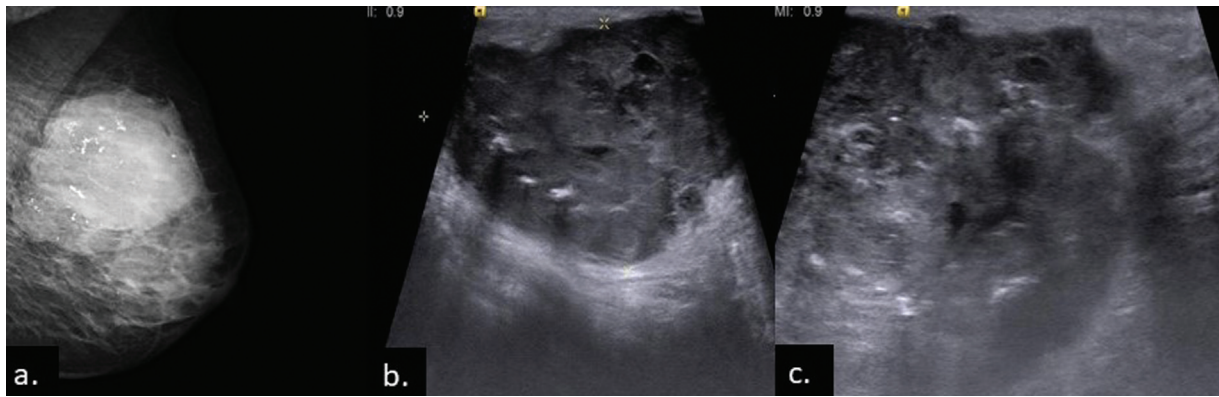


Fig. 9 A 50-year-old female patient presented with left breast lump. On mammogram (a), there is a large dense mass with internal coarse and punctate microcalcifications in the upper outer quadrant. On ultrasound (b and c), there is a relatively large heterogeneous hypoechoic mass with specks of calcifications within. It reveals microlobulations. The mass is reaching up till the overlying skin causing contour bulge. Final histology revealed metastatic tumor.

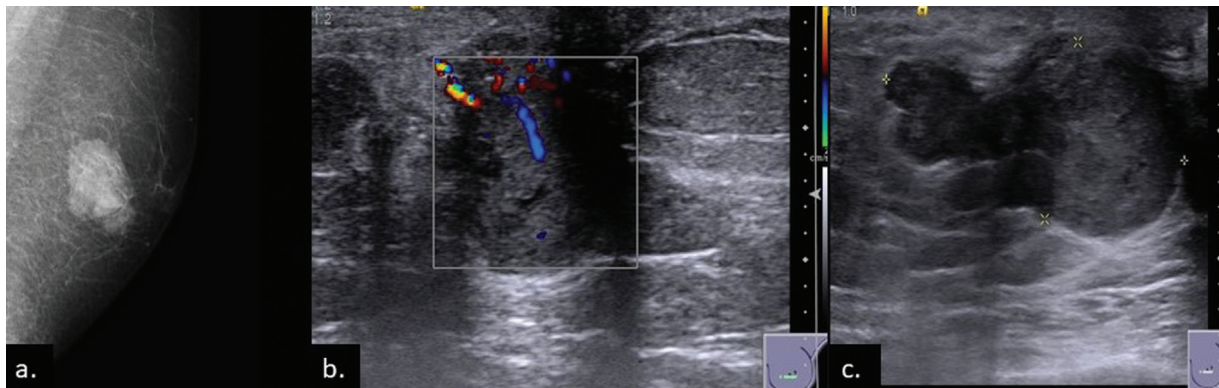


Fig. 10 A 63-year-old male patient presented with left sided blood stained nipple discharge. (a) Mammogram showed a dense irregular mass in the left retroareolar region. (b and c) Ultrasound showed a hypoechoic mass, with cystic areas within, posterior enhancement with predominantly circumscribed margins, along with angular margins at few sites and internal vascularity. The lesion was suspected to be of papilliferous etiology and categorized as BIRADS 4B. Postoperative histopathology revealed an invasive papillary carcinoma. BIRADS, Breast Imaging and Reporting Data System.

the hallmark of these tumors clinically. Angiosarcoma on mammography appears as a noncalcified, ill-defined mass or focal asymmetry and on US as a heterogeneous, hyperechoic, or mixed echoic hypervascular mass (►Fig. 12). There may just be diffuse skin thickening in secondary cases, making differentiation from postradiation changes difficult.¹⁷

Extraskelatal Ewing's Sarcoma

Extraskelatal Ewing's sarcoma of the breast is a rare, aggressive, malignant soft tissue tumor with a high recurrence rate and mainly occurs in adolescents and young adults between 10 and 30 years of age. The breast is uncommonly involved.²² Mammography reveals a dense irregular mass, and ultrasonography reveals solid cystic heterogenous or a hypoechoic mass with marked vascularity (►Fig. 13). As with its skeletal variant, there is a high risk of local recurrence as well as of distant metastases, predominantly to lungs.

Primary Breast Sarcoma

An extremely rare tumor, primary breast sarcoma is another malignant mass which mimics a benign lesion. Typical

appearance is that of a round or oval mass with indistinct margins and calcifications may or may not be seen on mammography.²³ In addition, ultrasonography demonstrates complex internal echogenicity with solid and cystic components (►Fig. 14). On MRI, the lesion shows low signal on the T1-weighted sequences, high signal on the T2-weighted sequences, and type 2 (plateau) or type 3 (washout) postcontrast kinetics. Local recurrence is common.^{23,24} Distant metastases are also common, with up to 25% developing lesions in lungs, pleura, and bone via hematogenous spread. It is important to be aware that local lymph node sampling or routine excision is not recommended for these tumors.²³

Phyllodes Tumor/Malignant Cystosarcoma

Malignant phyllodes tumors are rare. They can be difficult to differentiate from fibroadenomas. However, larger tumors frequently contain clefts or cystic cavities, vascularity, irregular shape, and/or microlobulated margins, which are not commonly seen in fibroadenomas. On MRI, these tumors have low signal intensity on both T1 and T2 weighted sequences with heterogeneous appearance. After contrast

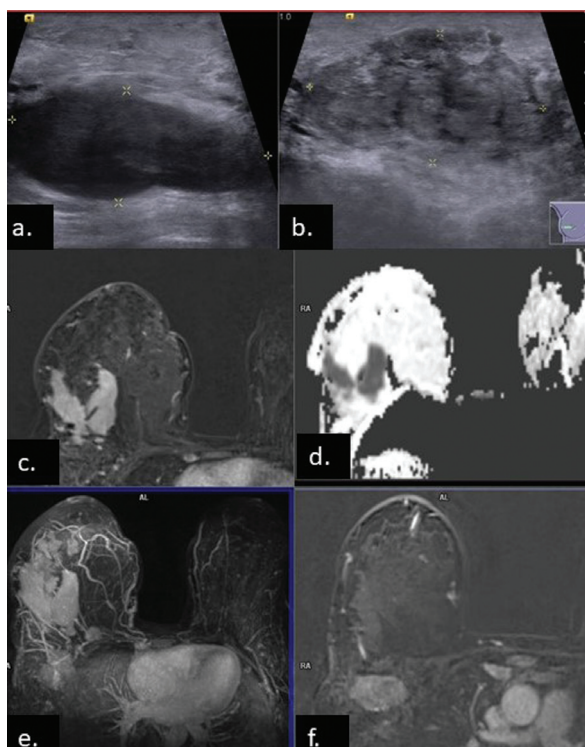


Fig. 11 A 27-year-old lactating female presented with complaints of firm, immobile lumps in right breast. She was a recently diagnosed with AML and had been admitted with fever. US showed a well-circumscribed hypoechoic slightly heterogenous lesion of size 52 × 22 mm at 10 o'clock position (a) in the right breast with another smaller lesion of similar echo pattern at 9 o'clock position (b) measuring 42 × 21 mm. Internal vascularity was noted. Few other similar lesions were noted in the upper outer quadrant of the right breast. Enlarged discrete and conglomerated nodes with attenuated and effaced hila were seen in the right axillary region. (c–f) CEMRI revealed a heterogenous enhancing mass with restricted diffusion. Final histopathology revealed myeloid sarcoma. AML, acute myeloid leukemia; CEMRI, contrast-enhanced magnetic resonance imaging.

administration, phyllodes tumors are more likely to demonstrate non enhancing septations and suspicious kinetics compared to fibroadenomas. In addition, lower ADC values and slightly higher signal on T1 are more commonly encountered in malignant phyllodes tumor than their benign counterparts (– Fig. 15).^{25,26}

Dermatofibrosarcoma Protuberans

This is a rare tumor, involving the dermis and subcutaneous tissues of the trunk and the extremities seen in age group of 20–50yrs. Local recurrence is common with this malignancy. On mammography, the lesion appears as dermal/intraparenchymal oval circumscribed lesion without calcification.^{27–29} On US, the lesion is hypoechoic or heterogenous in echotexture with a thick echogenic rim and intense internal vascularity involving the skin and subcutaneous region (– Fig. 16). A breast abscess or an infected epidermal inclusion cyst are close differentials. However, clinical history of absence of pain, or fever and physical appearance of the lesion eliminate any dilemma.²⁹ MRI shows intermediate signal intensity on T1 and T2 weighted sequences with variable enhancement kinetics.^{29,30}

Lymphoma

Breast involvement is more common in non-Hodgkin's lymphoma than Hodgkin's lymphoma. Primary lymphoma is less common than secondary.³¹ Secondary lymphomas occur in any age and patients present with large palpable masses. There are two types—nodular and diffuse.³² Almost all lymphomas with breast involvement are B cell type.³¹

On mammogram, the nodular variety presents as a circumscribed/partly circumscribed mass with spherical/elliptical appearance. Calcifications and spiculated margins are not a feature, and hence, this is another malignancy which may mimic benign lesions. In diffuse variety, there is

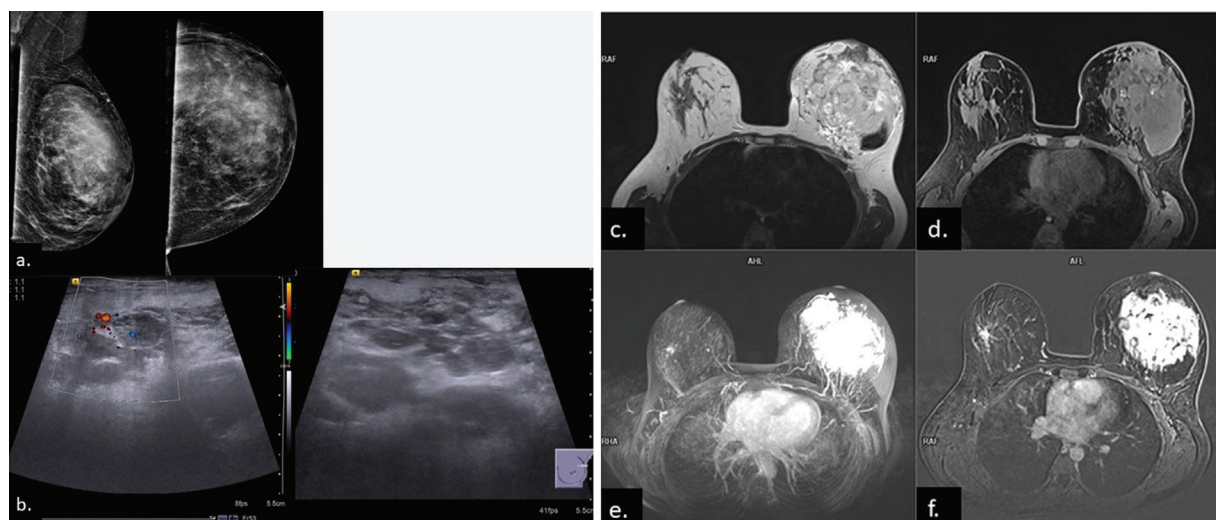


Fig. 12 . (a) Left sided mammogram shows a mass in the upper outer quadrant of the left breast. On ultrasound, there is a large markedly hyperechoic lesion nearly occupying the whole of the upper and outer half of the breast with multiple ill-defined variable sized hypoechoic nodular and tubular areas (b) Which show internal vascularity. (c) T2 MRI sequence reveals marked T2 hyperintensity within the mass. (d) T1 weighted sequence shows hypointense mass. (e and f.) Contrast-enhanced sequence shows intense enhancement in the mass. Biopsy confirmed the diagnosis of angiosarcoma. BIRADS, Breast Imaging and Reporting Data System; MRI, magnetic resonance imaging.

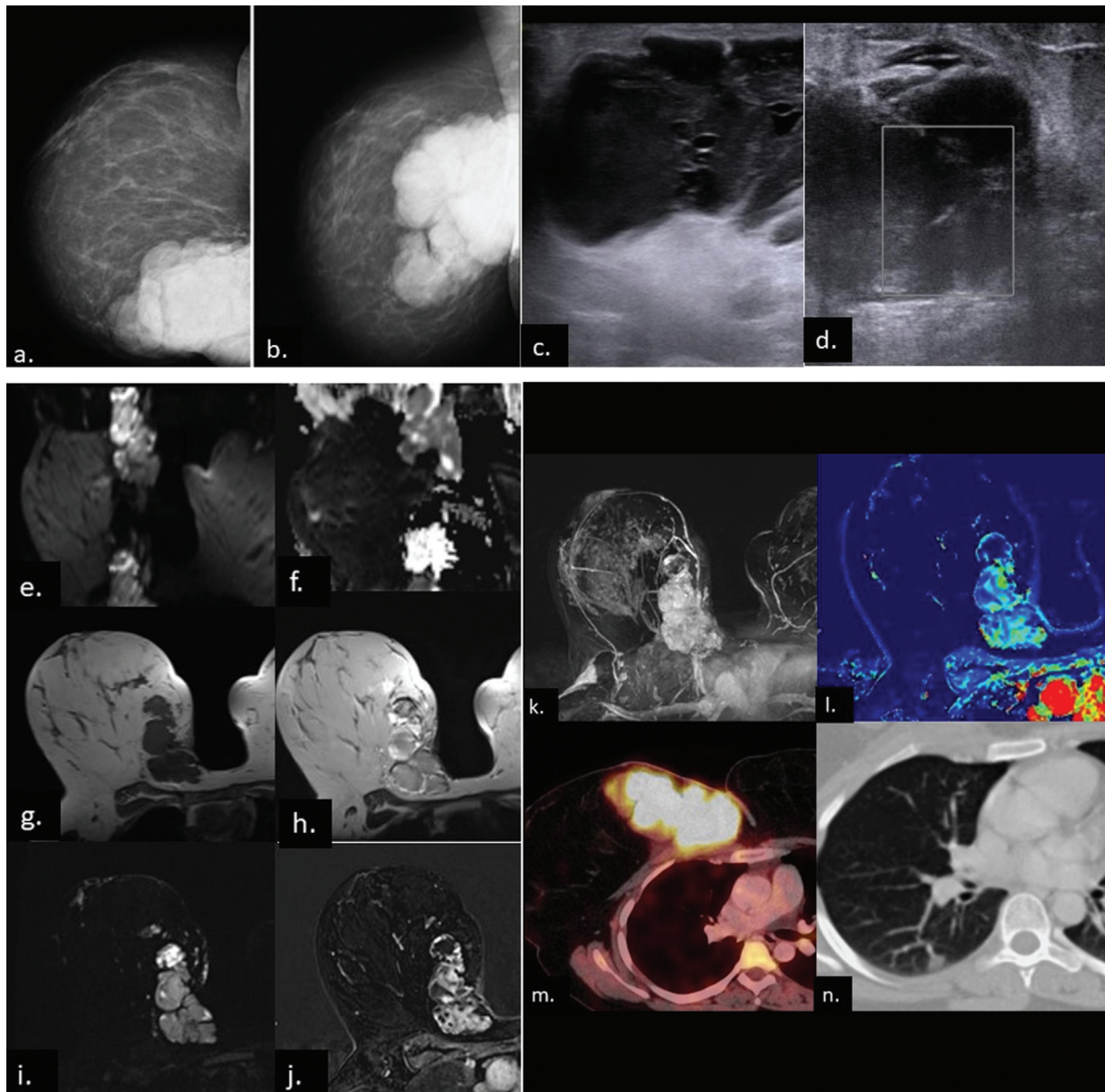


Fig. 13 A young girl presented with right breast mass. (a and b) Mammogram shows a large irregular dense mass. (c and d) Ultrasound shows a hypoechoic mass with few cystic areas within and lack of vascularity within the cystic component. CEMRI diffusion weighted sequence (e and f) shows that the lesion is bright on DWI and dark on ADC suggesting restricted diffusion. (g) T1 weighted image shows T1 hypointensity and T2 weighted sequence (h) shows heterogenous hyperintensity within the mass. (i and j) Postcontrast subtracted images show marked enhancement. (k) 3D MIP postcontrast sequence and (l) Color coded map again demonstrating contrast enhancement of the mass. (m) PET CT image shows marked Fluoro deoxy glucose (FDG) uptake. (n) Chest CT shows a lung nodule suspicious for metastases. Final diagnosis was extra skeletal ewing's sarcoma on histopathology. ADC, apparent diffusion coefficient; CEMRI, contrast-enhanced magnetic resonance imaging; CT, computed tomography; MIP, maximum intensity projection; PET, positron emission tomography.

diffuse trabecular and skin thickening secondary to inflammatory edema or lymphedema due to lymphatic obstruction, with or without any mammographic mass. In some patients, mammographic evidence of axillary lymphadenopathy may also be detected.³² Ultrasonography shows lymphomatous nodules as well circumscribed with thin echogenic capsule and enhanced through transmission.³² Due to extensive central liquefactive necrosis, the lesions are anechoic to hypoechoic with pseudocystic appearance³³ (►Fig. 17). Due to their hypervascular nature, color Doppler can be used to differentiate true anechoic lymphomatous nodules

from the cysts. Metastatic disease is another close differential, and history may be the only clue.³²

Metastases

Metastases to the breast are usually from primary tumors like melanoma, lung carcinoma, ovarian carcinoma, and gastrointestinal carcinoids. In children round cell tumors like rhabdomyosarcoma, neuroblastoma, Ewing sarcoma, and medulloblastoma are the usual causes.³⁴ Multiple small nodules or masses, less than 2 cm in size, unilateral or bilateral, or diffuse skin thickening are the usual presenting

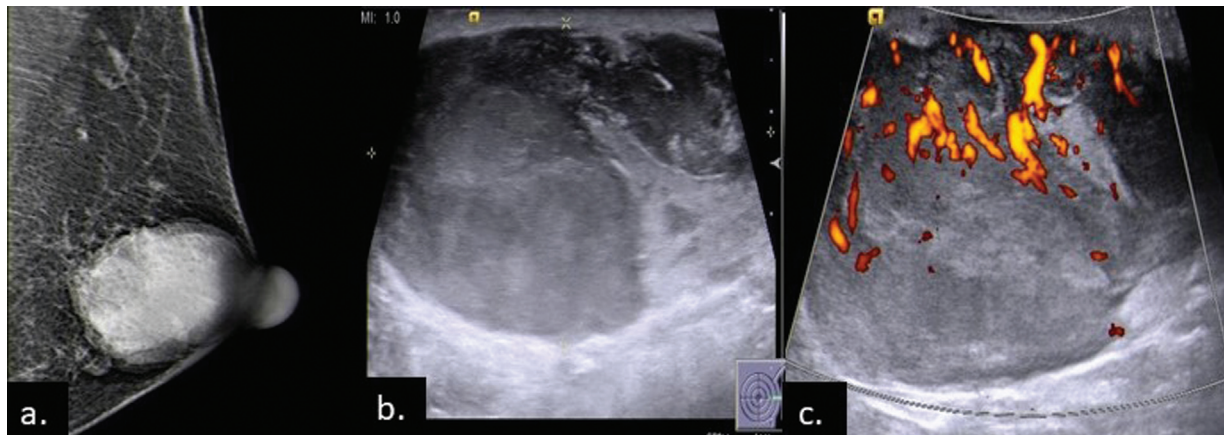


Fig. 14 A male patient presented with a large round dense mass on mammogram (a), which was thought to be a phyllodes tumor. Ultrasound revealed a large mixed echogenic mass with intense vascularity (b and c), which was assigned BIRADS 4C category. Left mastectomy revealed high-grade primary sarcoma of breast. BIRADS, Breast Imaging and Reporting Data System.



Fig. 15 A 29-year-old female with the history of left breast lumpectomy for malignant phyllodes again presented with a left breast lump. Ultrasound (a and b) showed an irregular hypoechoic mass with microlobulated margins and internal vascularity at 12 o’clock position of left breast. (c) In addition, there was also another area of altered echo pattern with clustered tubular branching low echogenicity with mild internal vascularity at the previous scar site. (d) DWI sequence showed marked restriction within the tumor. (e and g) T1 and T2 weighted sequences showed hypointense signal on T1 and hyperintense on T2. (f) Postcontrast sequence showed intense enhancement in the mass as well as the nonmass enhancement posteromedial to the main mass with type I curve on kinetics analysis. These findings were suspicious for recurrence and histopathology confirmed malignant phyllodes tumor. DWI, diffusion-weighted imaging.

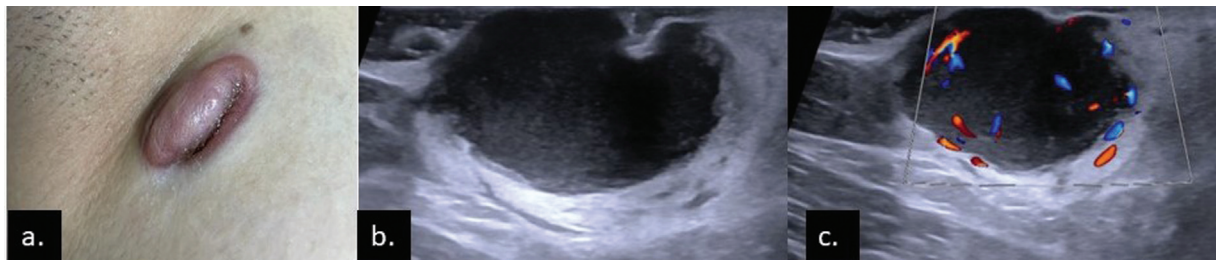


Fig. 16 A 17-year-old girl presented with a right breast reddish dermal lesion (a), which was progressively increasing in size. (b and c) Ultrasound showed a necrotic mass with hyperechoic rim in the skin and subcutaneous tissue with marked internal vascularity. Normal looking nodes were seen in the right axilla (not shown). Biopsy revealed dermatofibrosarcoma protuberans and the patient subsequently underwent surgery.

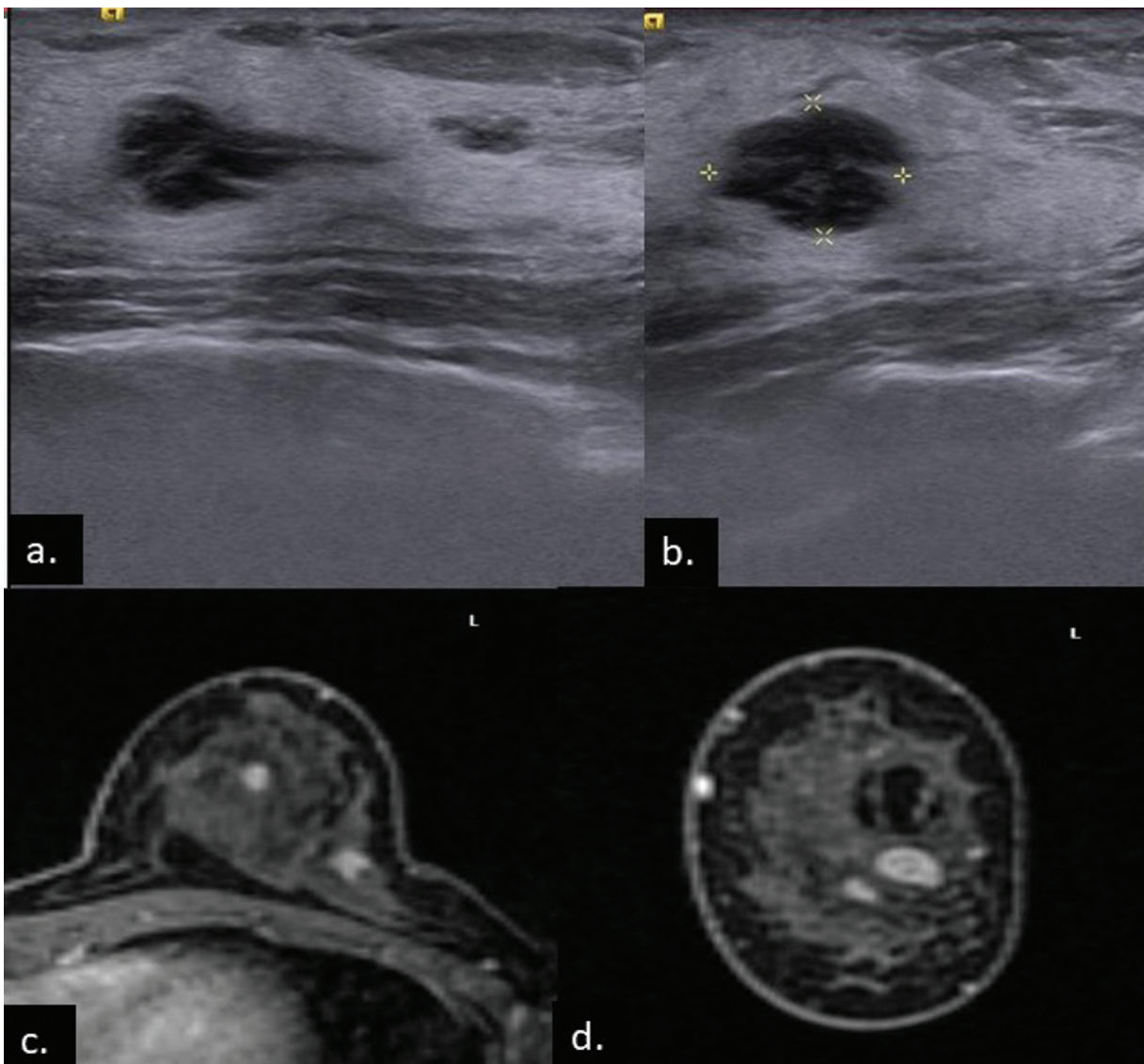


Fig. 17 A 52-year-old female patient presented with left breast lump. On US (a and b) at approximately, 3 to 4 o'clock A position, there is an inhomogeneous area of low echogenicity, with few smaller adjacent nodules seen in this region. (c and d) CEMRI revealed nodular lesion showing inhomogeneous enhancement in the lower outer quadrant, revealing type I curves on further interrogation. Biopsy from the largest area of abnormality at 3–4 o'clock position revealed lymphoma. CEMRI, contrast-enhanced magnetic resonance imaging.

feature adding it to the list of malignancies which mimic benign lesions. The presence of calcification is atypical (except for ovarian, thyroid, and mucin producing cancers) and should prompt consideration of other differentials.¹⁷

Unlike breast primaries, metastatic nodules elicit intense inflammatory response which can explain the thick echogenic rim surrounding a small central hypoechoic nidus that most of the metastatic nodules present with³⁴ (→ Fig. 18).

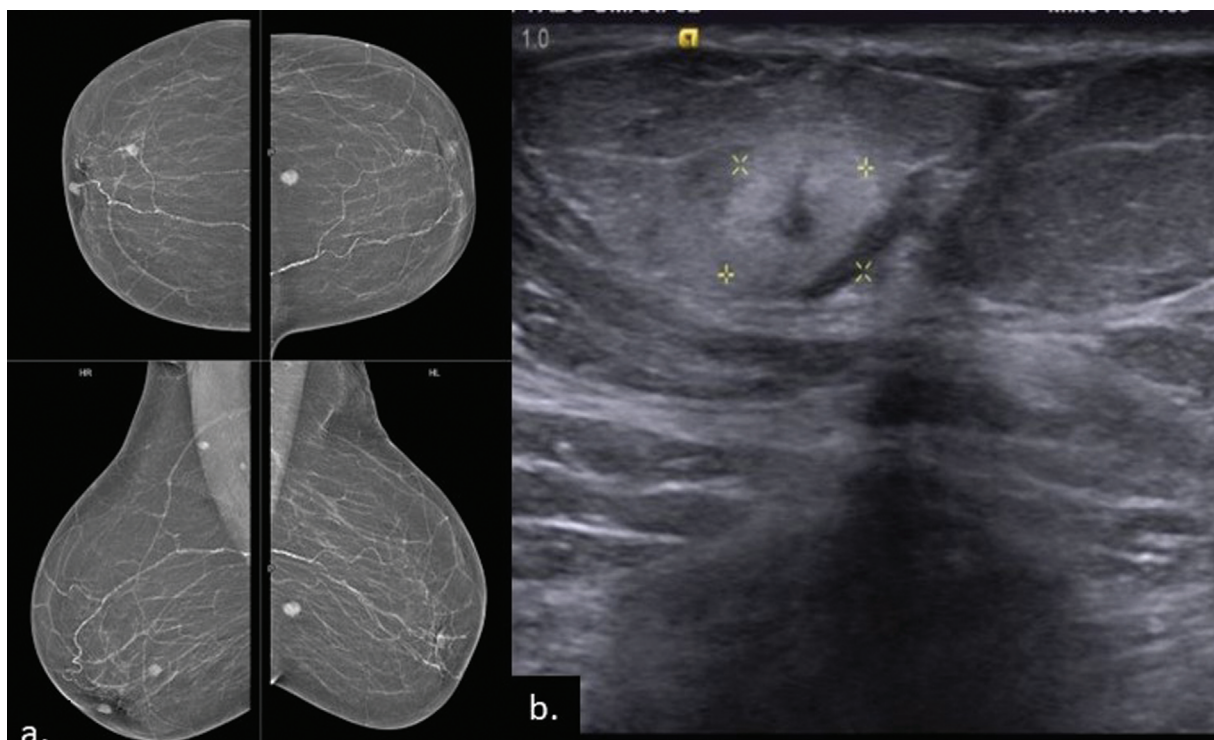


Fig. 18 A patient with known pancreatic adenocarcinoma presented with breast lumps, which were incidentally detected on CT. (a) Mammogram reveals multiple round nodules in the outer half of the right breast and lower half of the left breast. (b) Ultrasound reveals small hypoechoic lesion with thick echogenic rim Left breast biopsy result revealed metastatic adenocarcinoma. CT, computed tomography.

Summary

Although there is a considerable overlap in the imaging features of breast tumours, the hall mark features of colloid carcinomas is isoechogenicity on ultrasound, very high signal on T2 on MRI and benign kinetics on post contrast sequences. Medullary carcinoma shows relatively circumscribed margins with benign significant lymphadenopathy. Small masses with long spicules is a hallmark of tubular carcinomas. Superficial lesion in a patient with bloody nipple discharge points toward apocrine carcinoma. Primary breast sarcoma, phyllodes tumors, metaplastic and papillary carcinomas may all present as complex solid cystic lesions on ultrasound. Background history of myeloid leukemia is an indicator of myeloid sarcoma in the breast in a patient presenting with lump, while bluish skin discoloration is a clinical hallmark of angiosarcoma, which manifests as a hypervascular ill-defined mass on imaging. Malignant phyllodes tumors are difficult to be distinguished from their benign counterparts, with presence of irregular shape, microlobulated margins and hypervascularity being more common in the former. Dermatofibrosarcoma protuberans is a dermal /superficial intraparenchymal lesion with circumscribed margins and marked internal color flow. Lymphoma and metastases both present as multifocal disease with history of a primary malignancy sometimes being the only clue in favor of the latter. Both manifest as multiple round nodules or masses with pseudocystic appearance in

lymphoma and thick echogenic peripheral rim, representing intense inflammatory reaction in metastases with a small hypoechoic nidus in center.

Conclusion

Unusual breast tumors impose a challenge in image diagnosis. The knowledge of radiologic features of such uncommon tumors helps to make an early presumptive diagnosis which is confirmed by pathology later. This can have implications for staging and surgical outcomes. Carcinomas such as medullary, papillary, and mucinous (colloid) types, may be difficult to be recognized as malignant because of their propensity for relatively benign-appearing morphologic features. The cases discussed in this article have shown that well-circumscribed, small, and hyperechoic lesions may not be benign in all cases and the presence of any microlobulations in margin, vascularity, heterogeneity, round shape, or interval change in size or appearance should be considered suspicious for malignancy. Prompt histopathology in such cases will help in avoiding delay in the diagnosis. In addition, it goes without saying that a good mammography technique, adequate exposure factors, sonographic and mammographic correlation, along with a comparison with previous mammograms are imperative in reaching at the correct diagnosis.

Conflict of Interest

None declared.

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