Case 15424

Eurorad

Mammographic and sonographic characteristics of male breast carcinoma

Published on 20.02.2018

DOI: 10.1594/EURORAD/CASE.15424
ISSN: 1563-4086
Section: Breast imaging
Area of Interest: Breast
Procedure: Imaging sequences
Procedure: Biopsy
Imaging Technique: Mammography
Imaging Technique: Ultrasound
Imaging Technique: Ultrasound-Colour Doppler
Imaging Technique: Elastography
Special Focus: Neoplasia Case Type: Clinical Cases
Authors: Dr. George Skountzos
Patient: 53 years, male

Clinical History:

A 53-year-old male patient, was referred to the breast unit of our hospital, with a palpable lump on his right breast. In physical examination, there was a painless, fixed, unilateral lump of the upper outer quadrant of the right breast. There was no history of malignancy.

Imaging Findings:

Digital mammogram: A high density mass of the right breast, with irregular shape and microlobulated margin, was located eccentrically from the nipple, on both projections (RMLO and RCC). A flame-shaped density under the nipple of the left breast was apparent, implying gynaecomastia.
Ultrasound: A relatively hypoechoic, solid mass with irregular shape, not circumscribed (microlobulated) margin, a mild posterior enhancement and a not-parallel orientation to the skin, was obvious on the axis of the 10th hour of the right breast, measuring (1, 69X1, 2)cm.
Colour Doppler revealed a predominantly central vascularisation and B-Flow analysis depicted a marked central vascular branch with lower peripheral segments.
In both strain and shear wave elastography, the lesion was of a high stiffness.
Finally, a core biopsy was performed under sonographic guidance, the histological diagnosis was infiltrating ductal carcinoma and the patient has undergone a right mastectomy.

Discussion:

Breast cancer in men is extremely rare: fewer than 1% of breast cancer cases diagnosed each year occur in men [1, 2]. As in women, its cause remains to be elucidated. Gynaecomastia does not appear to increase the risk, although significant exposure to radiation does and there is an increased incidence in those with Klinefelter's syndrome, BRCA1 or BRCA2 mutation, a family history of breast cancer and a history of estrogen treatment for feminisation purposes [2].
Most male breast cancers are infiltrating ductal tumours. Perhaps because lobule formation is rare in men, infiltrating lobular cancers are uncommon. Histologically, male breast cancers are indistinguishable from female ones and all ductal subtypes have been described in men [1, 2].
In most cases, breast cancer in men appears as a unilateral, non-tender, fixed, non-compressible mass.

Development of such a mass is the usual reason for referral for imaging the male breast. This is almost invariably caused by asymmetric gynaecomastia [1, 2]. Standard mammographic projections can be obtained in males. In the normal male breast, the nipple is small and there is only subcutaneous fat visible in the subareolar region [4]. Unlike gynaecomastia, most male breast cancers are eccentrically located and occur away from the subareolar area, whereas gynaecomastia produces density fanning back from the nipple [4].
Palpable masses that are occult or incompletely imaged at mammography require targeted Ultrasound. Colour Doppler usually describes an increased vascularity and B-Flow analysis offers further details concerning the angiogenesis, even though they are not of a high positive predictive value [5]. Elastography provides information about the stiffness of the lesion which can be indicative of its nature and can indicate from which part of the mass we should obtain an histological specimen [3]. Finally, ultrasound will determine whether a lesion is amenable for ultrasound-guided biopsy which is necessary for the preoperative histological diagnosis. [1, 3]
Any suspicious masses seen at either or both imaging modalities require a biopsy [1].
Just as MRI is being used increasingly to evaluate the female breast, there will likely be instances where it will be used in the male breast. Because male breast cancer is so uncommon, there have been no large series of the MRI in the male with which to evaluate its efficacy [6].
Since most cases of breast cancer in men are estrogen receptor positive, hormonal interventions are common in the treatment of these malignancies. The prognosis is worse in comparison with the female breast cancer, as in men breast cancers present at an advanced stage, when they become palpable [1, 2].
Differential Diagnosis List: Infiltrating ductal carcinoma of the right breast, Other malignancies (e.g.liposarcoma, lymphoblastic lymphoma, metastasis), Rare benign conditions (e.g. myofibroblastoma, leiomyoma, adenoma, diabetic mastopathy), Gynaecomastia (nodular pattern)

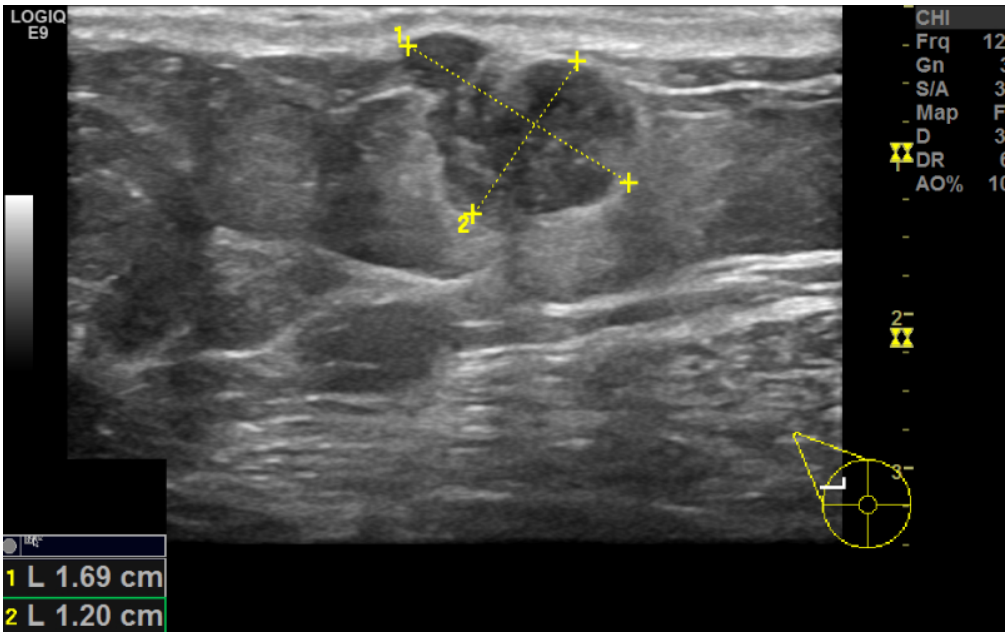
Final Diagnosis: Infiltrating ductal carcinoma of the right breast

References:

A. Sanguinetti, A. Polistena, R. Lucchini, M. Monacelli, S. Galasse, S. Avenia, R. Triola, W. Bugiantella, R. Cirocchi, F. Rondelli and N. Avenia (2016) Male breast cancer, clinical presentation, diagnosis and treatment: Twenty years of experience in our Breast Unit. Int J Surg Case Rep 2016; 20(Suppl): 8–11. (PMID: 26994487)
Serdy KM, Leone JP, Dabbs DJ, Bhargava R (2017) Male breast cancer. Am J Clin Pathol 2017 Jan 1;147(1):110-119 (PMID: 28171879)
A. Goddi,M. Bonardi and S. Alessi (2012) Breast elastography: A literature review. J Ultrasound 2012 Sep; 15(3): 192–198. (PMID: 23449849)
Manju Bala Popli, V Popli, P Bahl, and Y Solanki (2009) Pictorial essay: Mammography of the male breast. Indian J Radiol Imaging 2009 Nov; 19(4): 278–281 (PMID: 19881102)
Paolo Busilacchi, Ferdinando Draghi, Lorenzo Preda, and Claudio Ferranti (2012) Has color Doppler a role in the evaluation of mammary lesions?. J Ultrasound 2012 Jun; 15(2): 93–98 (PMID: 23396684)
Aidan Shaw, Ben Smith and David Howlett (2015) Male breast carcinoma and the use of MRI. Radiol Case Rep 2015 Nov 6;6(3):455 (PMID: 27307904)

Figure 1

a

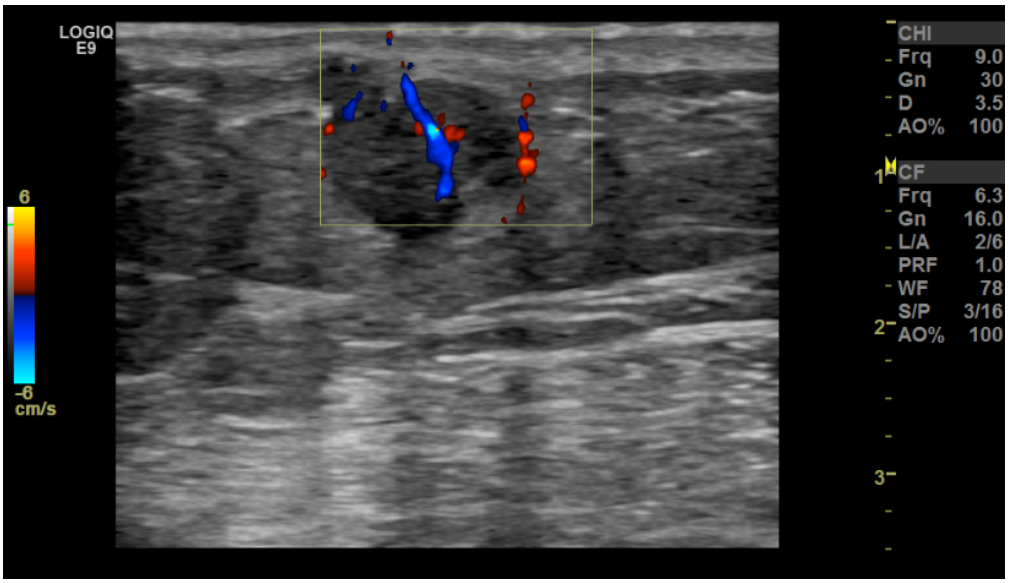


Description: An hypoechoic, lobulated mass is visible on the axis of the 10th hour of the right breast.

Origin: Dr Skountzos G.,Breast Unit,Athens General Hospital Hippocration,Athens,Greece

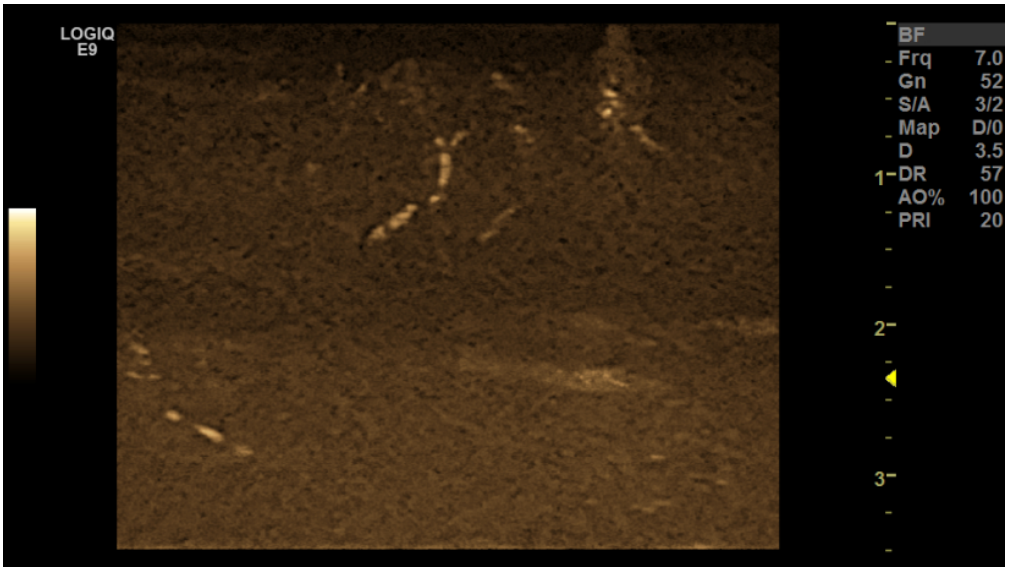
Figure 2

a



Description: Colour Doppler ultrasound revealed a predominantly central vascularisation of the mass.
Origin: Dr Skountzos G.,Breast Unit,Athens General Hospital Hippocration,Athens,Greece

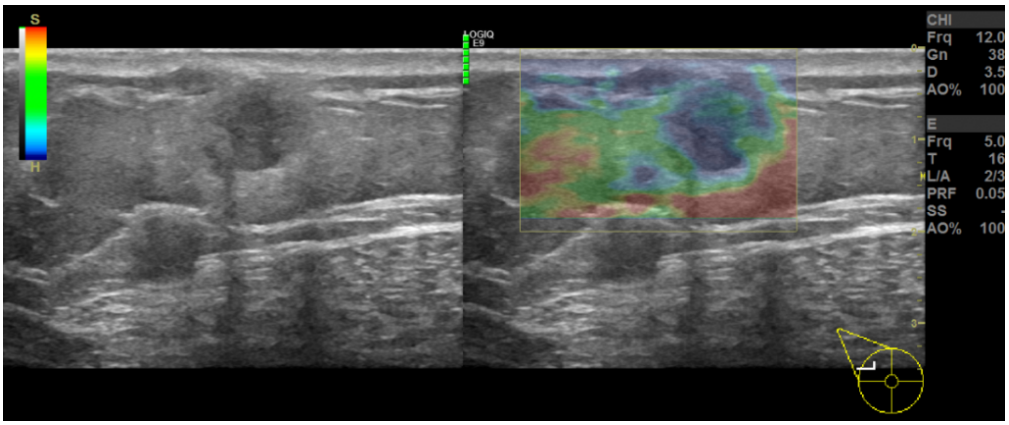
b



Description: B-Flow analysis depicted a marked central vascular branch with lower peripheral segments. **Origin:** Dr Skountzos G.,Breast Unit,Athens General Hospital Hippocration,Athens,Greece

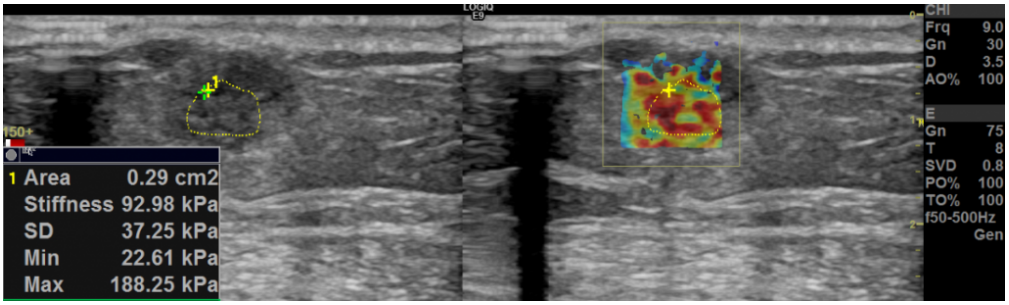
Figure 3

a



Description: Strain elastography: The mass shows high stiffness (blue area) in comparison to the surrounding normal breast parenchyma. **Origin:** Dr Skountzos G.,Breast Unit,Athens General Hospital Hippocration,Athens,Greece

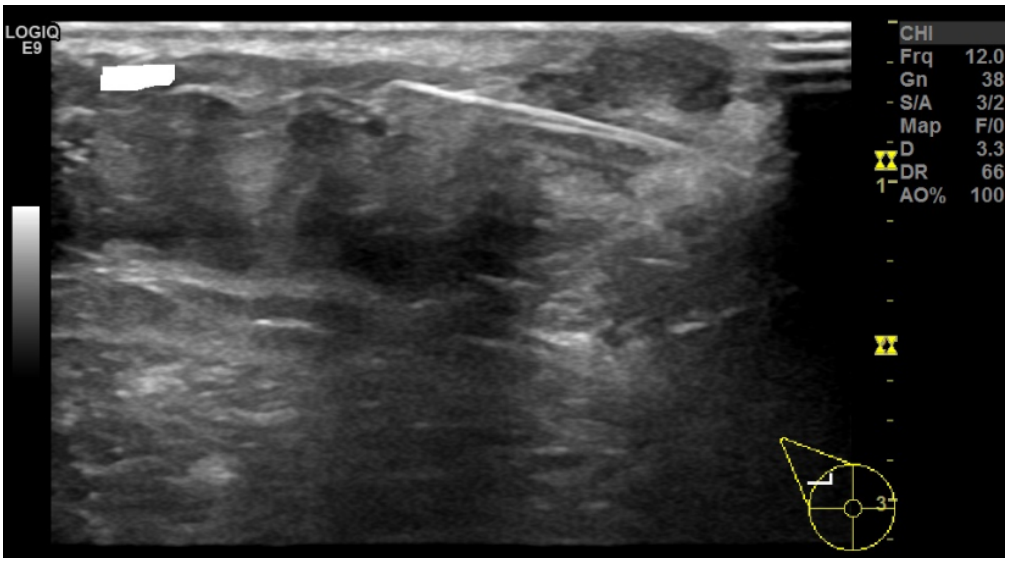
b



Description: Shear wave elastography: The stiffness of the lesion was measured up to 92,98kPa, implying a malignant condition. **Origin:** Dr Skountzos G.,Breast Unit,Athens General Hospital Hippocration,Athens,Greece

Figure 4

a



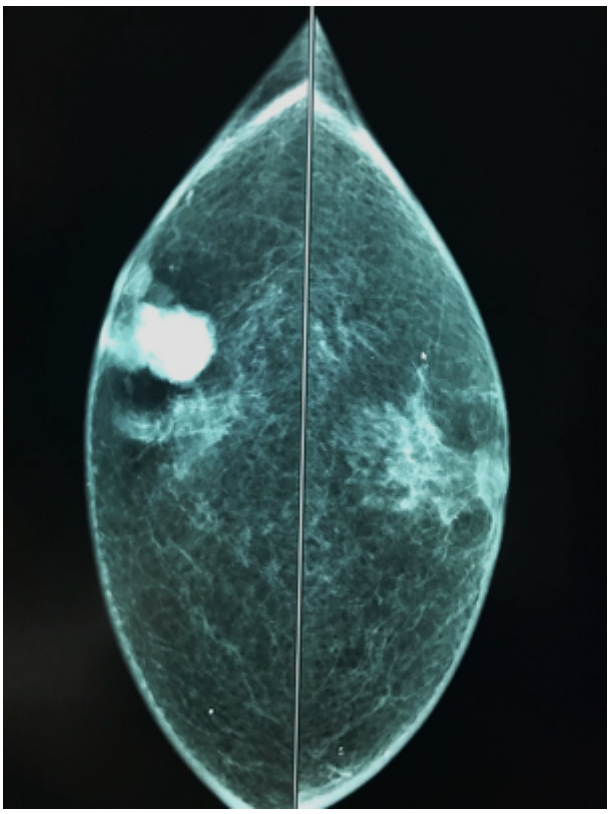
Description: Ultrasound guided core biopsy confirmed an infiltrating ductal carcinoma of the right breast. **Origin:** Dr Skountzos G.,Breast Unit,Athens General Hospital Hippocration,Athens,Greece

Figure 5

a

Description: A lobulated mass is shown on the upper part of the right breast, eccentrically located from the nipple. Evidence of gynaecomastia on the controlateral breast. **Origin:** Dr Skountzos G.,Breast Unit,Athens General Hospital Hippocration,Athens,Greece.

b



Description: A lobulated, irregular, high-density mass is obvious on the outer part of the right breast.
Origin: Dr Skountzos G.,Breast Unit,Athens General Hospital Hippocration,Athens,Greece.