

An entity mimicking inflammatory breast carcinoma: Granulomatous mastitis

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ABSTRACT

Granulomatous mastitis (GM) is a chronic inflammatory breast disease. This pathology was first described by Kersler and Wolloch in 1972 [1]. It is an uncommon cause of a breast mass [2-5]. Awareness of this entity is crucial, because it can clinically and radiologically mimic breast carcinoma, fibroadenoma or fibrocystic changes [3]. It has several appearances radiologically also; biopsy still remains the only way for final diagnoses. Here we present a woman with a breast mass. Our aim is to show ultrasound, mammography and magnetic resonance imaging findings of GM by reviewing the literature.

Keywords: Granulomatous Mastitis; Ultrasound; Mammography; Magnetic Resonance

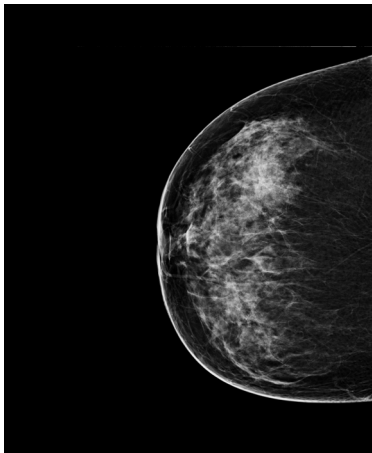
1. CASE REPORT

A 50-year-old woman was presented to the department of general surgery with a lump in her right breast. She didn't have pain but she felt like her breast had swollen. She had 2 children and she didn't have a family history of breast carcinoma. On her physical examination there was the skin was thick due to the edema in the lower outer quadrant of the right breast. Here was also a hard mass in the same region with obscured margins. On her mammography (Selenia, HOLOGIC) there was an asymmetrically increased parenchymal density in the lower outer quadrant of the right breast (**Figures 1(a) and (b)**). Then ultrasound (US) imaging was performed with a high solution scanner (Siemens S2000, Germany) with 9.4 MHz and 18 MHz linear transducers (**Figure 2**). On US, she has three different masses all related with each other between 5 o'clock and 7 o'clock positions, which were measured 30 × 26 mm, 11 × 8 mm and 25 × 20 mm in sizes. All three masses were heterogeneous and hy-

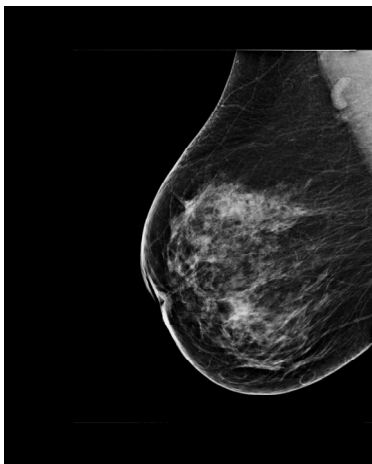
poechoic and they had both cystic and tubular components thought to be consistent with dilated ducts. There was also pericyclic inflammation. On sonoelastography, the masses were soft, compared with the surrounding parenchyma. Granulomatous mastitis was thought for the differential diagnosis and magnetic resonance (MR) imaging of the breast was recommended before biopsy to see the contrast dynamics of the masses. MR imaging was performed on a 1.5 MHz closed magnet (Siemens, Symphony, Germany) using a 4-channel breast coil. On MR, there was a heterogeneous mass like lesion approximately 60 mm in diameter with lobulated contours in the lower outer quadrant of the right breast. It had cystic and tubular areas in it (**Figures 3 and 4**). After intravenous Gadolinium (Gd) injection, it showed heterogeneous contrast enhancement which was prominent in the periductal areas (**Figure 5**). The dynamic pattern of the contrast enhancement was Type 2 (**Figures 6(a) and (b)**). A trucut biopsy was done to exclude breast carcinoma and the final diagnosis was granulomatous mastitis with chronic granulomatous inflammation.

2. DISCUSSION

GM is a rare inflammatory disease of the breast to represent between 0.025% and 3% [2-8]. It is characterized by granulomas and abscess formation [2-4]. Though it can be seen bilaterally, it is mostly unilaterally occurring in young woman < 50 years of age, who usually present during lactation or within 6 years of pregnancy [2]. The importance of this entity is not only because it mimics inflammatory breast carcinoma (IBC), but it may also be indistinguishable from IBC at mammography and MR [2,3,5]. These patients may present with findings like breast lump with or without skin changes like "peau d'orange" skin, ulceration and nipple inversion. Regional lymphadenopathy is reported in more than 50% of the cases [2,3]. Our patient had a breast lump as well, with skin edema. Mammography may show the mass with definable margins in a fatty breast but it may not be very



(a)



(b)

Figure 1. Mammography. CC (a) and MLO (b). A slight asymmetrical density in the lower outer quadrant.

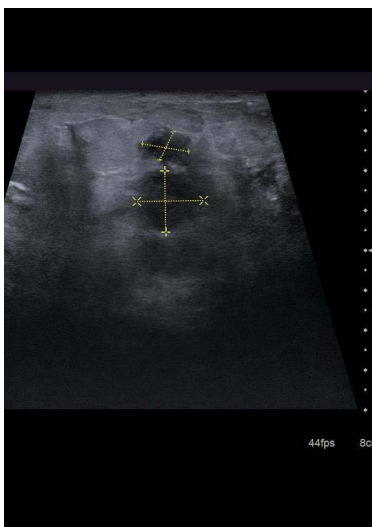


Figure 2. Ultrasound images showing hypoechoic, heterogeneous solid masses and edema.

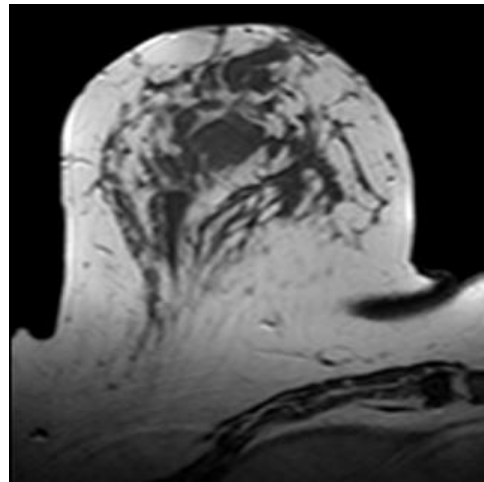


Figure 3. Axial se T1W image showing a hypointense mass with irregular margins.

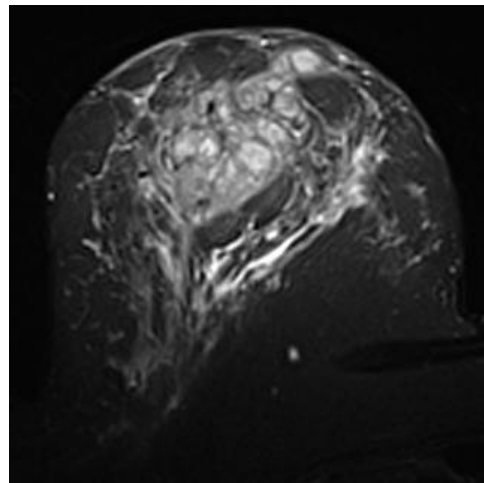


Figure 4. Axial trim image shows minimally hyperintense mass with cystic areas in it.

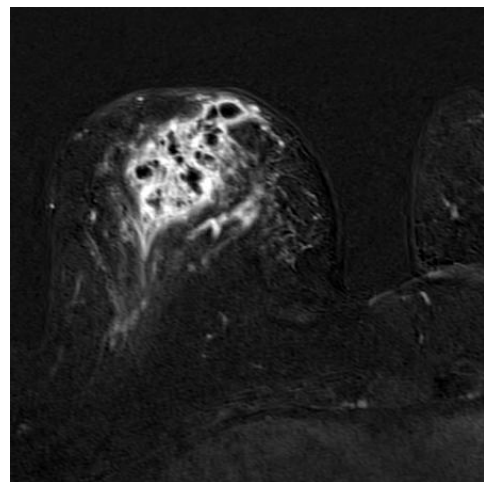
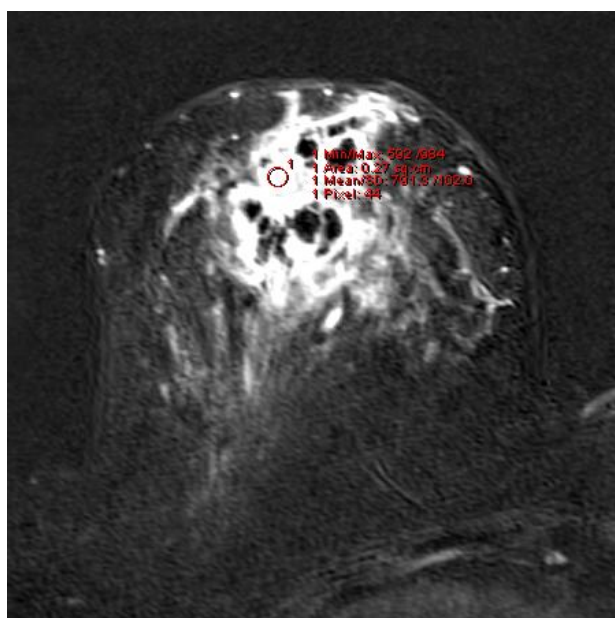
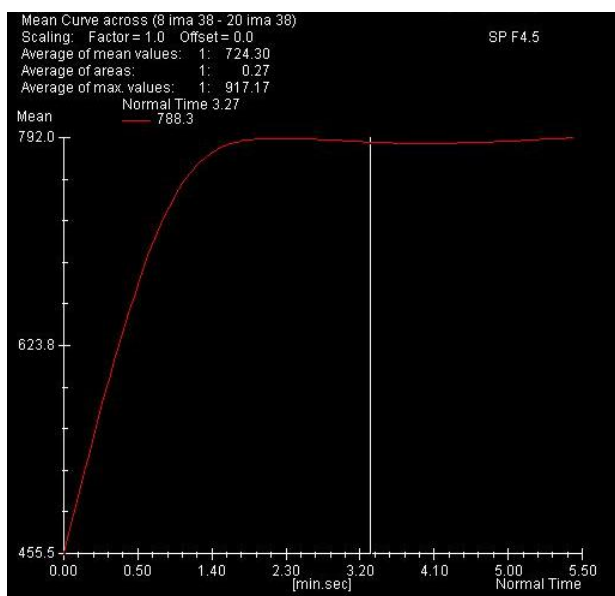


Figure 5. After IV Gd, the mass shows heterogeneous enhancement which is most prominent in the pericystic areas.



(a)



(b)

Figure 6. On dynamic imaging Type 2 contrast enhancement pattern is seen which is suspicious for breast carcinoma.

useful in a dense parenchyma. Ultrasound will show heterogeneous breast mass with ill defined margins. The Doppler ultrasound examination is shown to reveal increased vascularity of the lesions and the surrounding tissue [2-5]. Ultrasound may also show abscess formation [2,3]. On MR, the most frequent finding is local or

diffuse signal intensity changes that are hypointensity on T1W images and hyperintensity on T2W images without a significant mass effect. A nodular lesion may also be seen. On dynamic contrast imaging, mass-like enhancement, ring-like enhancement, and nodular enhancement may be seen [3,4]. In our patient, we saw both mass-like and ring-like enhancements. The time-intensity curves differ from lesion to lesion [3,4]. In our patient there was Type 2 enhancement pattern.

Finally, GM is a rare breast pathology that should be kept in mind in the differential diagnosis of breast masses. It can easily be misdiagnosed as inflammatory breast carcinoma due to both clinical and radiological findings. As it has a number of appearances of ultrasound, mammography and MR images, biopsy still remains the only method for definitive diagnosis.

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