Idiopathic Granulomatous Mastitis Mimicking Breast Cancer

Abeer Moustafa, MB, BCh, MSc, EDiR* Noora Jamsheer, MD, BSc, SSCR**

Granulomatous mastitis is a rare disease which has a similar appearance to breast cancer on imaging. Definite diagnosis is essential because of the management difference to breast cancer.

We report a case of a fifty-eight-year-old female who presented with a 1-month history of left breast periareolar mass. Ultrasound guided core biopsy and aspiration were performed. The pathology result showed features of idiopathic granulomatous mastitis. The patient was treated conservatively and to repeat imaging in 2-month time and biopsy if indicated.

Bahrain Med Bull 2019; 41(3): 174 - 176

Granulomatous mastitis (GM) may mimic breast carcinoma in clinical characteristics and radiologic imaging findings; however, it is a rare inflammatory breast disease[1]. The diagnosis of idiopathic granulomatous mastitis (IGM) is based on the exclusion of other causes of GM including tuberculosis, sarcoidosis, granulomatosis with polyangiitis, fungal infections and other benign inflammatory disorders found in association with carcinomas[2,3,4]. The exact etiology is not well-known; however, factors related to autoimmunity, hormonal imbalance, smoking, microbiological agents, and alfa-1 antitrypsin deficiency have been reported as causative factors[5,6]. Specific GM refers to conditions for which the etiological factor can be identified[5].

IGM affects parous premenopausal women with a history of lactation. It has also been associated with hyperprolactinemia[7].

IGM commonly presents with a palpable tender mass. Targeted ultrasonography, mammography, and less commonly, magnetic resonance imaging are the primary imaging techniques[7]. Usually, core biopsy and histology would yield the diagnosis[1]. Awareness of this condition is essential to prevent delayed or unnecessary treatment[8]. Usually, patients have excellent prognosis to steroid and other immunosuppressive therapy and prolactin-lowering medications, surgical excision is reserved for those with recurrent disease and unresponsive to medical treatment[1,7].

The aim of this presentation is to report a case of GM mimicking breast cancer.

THE CASE

A fifty-eight-year-old female presented with a 1-month history of left breast periareolar mass. The mass in the left breast was at 3 o'clock position, measured approximately 3.0 x 3.0 cm. No skin changes were found, no nipple retraction, and unremarkable examination of the axilla. No significant past medical history as there was no specific history of tuberculosis. No history of oral contraceptive pill. She had no history of breast trauma, and there was no family history of breast cancer. The patient's last child was born 18 years prior to her breast condition.

Standard mammography revealed bilateral mild to moderately dense fibroglandular breast parenchyma (ACR B category) with left periareolar upper outer quadrant (UOQ), around 2-3 o'clock, partially obscured elongated dense lesion; one border clearly seen with well-defined outline and regular contour with macro-lobulation, no overlying suspicious micro-calcification, no skin thickening or edema (no acute inflammation), see figure 1.

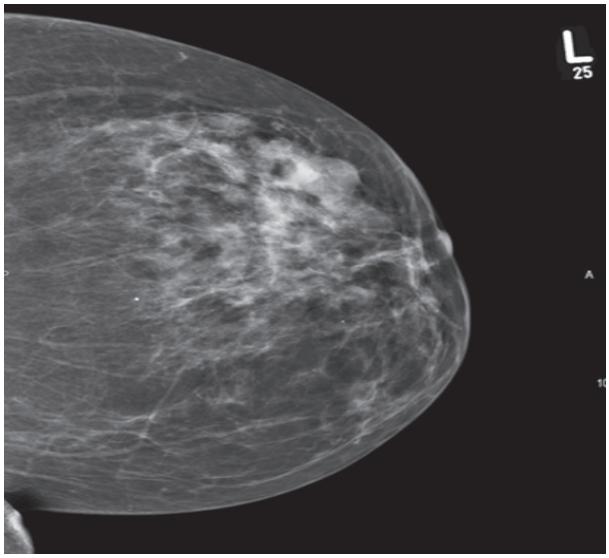

Figure 1: Left Cranio-Caudal Mammogram Revealing Few Lobulated Elongated Dense Lesion in the Upper Outer Quadrant

Ultrasound revealed a mildly irregular outlined macrolobulated, hypoechoic tubular-like elongated mass measuring 19.0 mm x 17.0 mm x 20 mm. Partial posterior shadowing was found. Color Doppler imaging revealed increased vascularity at the periphery and in the surrounding tissue, see figure 2.

* Senior Registrar
** Registrar
Radiology Department
King Hamad University Hospital
Kingdom of Bahrain
E-mail: noora.jamsheer@khuh.org.bh, Abeer.Moustafa@khuh.org.bh

No associated suspicious axillary lymph nodes, the imaging features raised the suspicion of atypical fibroadenoma or carcinoma, and ultrasound-guided core biopsy of the mass was performed.

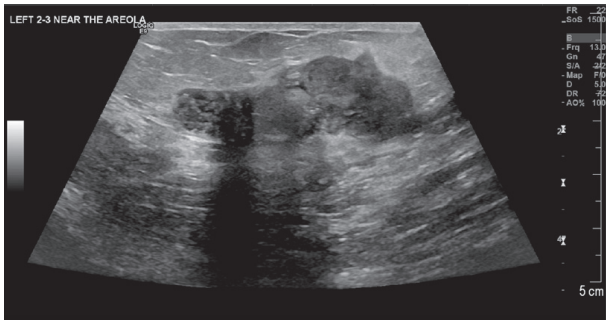

Figure 2A: Ultrasound Image of the Left Breast Showing a Well-Defined Elongated Lobulated Hypoechoic Lesion Located at 2-3 O'clock Position with Partial Posterior Shadowing

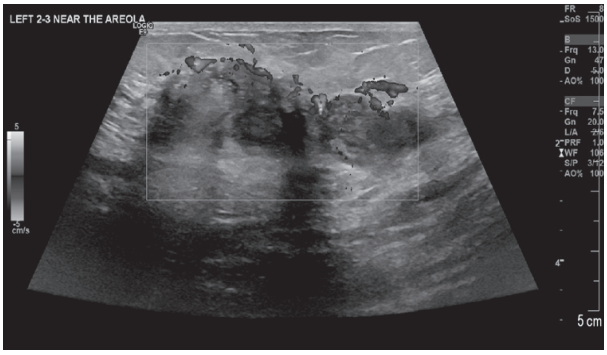

Figure 2 B: Color Coated Doppler Imaging Showing Increased Vascularity

The core biopsy revealed idiopathic granulomatous mastitis with lobulocentric granuloma containing polymorph neutrophils, lymphocytes, epithelioid cells, macrophages and occasional giant cells. One of the cores showed a dilated duct lined by histiocytes and periductal lymphoplasmacytic infiltrates, with the lumen containing foamy macrophages. Neither in-situ nor invasive malignancy found. Special stain and immunohistochemistry investigation revealed AFB: Negative and CD68: Positive.

The patient was treated conservatively and to repeat imaging in 2-months time and biopsy if indicated.

DISCUSSION

Granulomatous inflammation is known as idiopathic granulomatous mastitis (IGM)[9,4]. It was first described by Kessler and Wolloch in 1972[1,2,3]. It is important to make a correct diagnosis with careful clinical and radiologic evaluations and to prevent delayed or unnecessary treatment[10,2]. Because it has non-specific manifestations, varied demographic features, and different radiological findings, it poses diagnostic challenges.

Clinically, IGM is usually described as non-tender/tender, fixed and immobile breast mass in parous women, which is often confused with carcinoma of the breast. In some studies, no skin and nipple changes were reported; others reported erythema and draining sinus tracts to the skin[1,7,11].

Mammographic findings are usually in-between focal asymmetric, ill-defined nodular, diffusely increased densities or even normal imaging[11]. US finding usually presented as heterogeneous hypoechoic mass or masses with tubular extensions, well-demarcated heterogeneous hypoechoic lesions, parenchymal heterogeneous appearance, and a heterogeneous hypoechoic lesion with irregular margins; normal US findings were reported[7]. Increased vascularity with and without sinus tracts were reported[6]. MRI findings could reveal irregular lesions consistent with solitary or multiple separate or confluent abscesses with marked peripheral ring enhancement, as well as non-mass-like heterogeneous segmental and regional contrast enhancement with micro-abscesses. Mixed progressive and plateau kinetics were reported[8,6].

Core-needle biopsy, with or without fine-needle aspiration for cytopathologic examination, and culture analysis are usually required to exclude IBC and other benign inflammatory breast conditions[7]. The main differential diagnosis of IGM is carcinoma of the breast, or infective mastitis, such as tuberculosis and fungal infections, especially when the mass is associated with sinus tracts to the skin. Other considerations include sarcoidosis, fat necrosis, Wegener's granulomatosis, plasma cell mastitis and a ruptured breast cyst[10,7].

The treatment of IGM has been conservative. Patients had an excellent prognosis to steroid and other immunosuppressive therapy and prolactin-lowering medications; surgical excision is reserved for recurrent disease and unresponsive to medical treatment[1,7].

CONCLUSION

IGM is a rare inflammatory breast condition that mimics breast carcinoma in clinical and radiological appearance; definitive diagnosis requires histopathological confirmation.

Author Contribution: All authors share equal effort contribution towards (1) substantial contributions to conception and design, analysis and interpretation of data; (2) drafting the article and revising it critically for important intellectual content; and (3) final approval of the manuscript version to be published. Yes.

Potential Conflicts of Interest: None.

Competing Interest: None.

Sponsorship: None.

Acceptance Date: 8 June 2019.

Ethical Approval: Approved by the Research and Ethics Committee, King Hamad University Hospital, Bahrain.

REFERENCES

1. Rubin G, Meerkotter DA. Idiopathic Granulomatous Mastitis. SA Journal of Radiology 2011; 15(1).
2. Larsen LJ, Peyvandi B, Klipfel N, et al. Granulomatous lobular Mastitis: Imaging, Diagnosis, and Treatment.

American Journal of Roentgenology 2009; 193(2):574-81.
3. Lee JH, Oh KK, Kim EK, et al. Radiologic and Clinical Features of Idiopathic Granulomatous Lobular Mastitis Mimicking Advanced Breast Cancer. Yonsei Medical Journal 2006; 47(1):78-84.
4. Fletcher A, Magrath IM, Riddell RH, et al. Granulomatous Mastitis: A Report of Seven Cases. Journal of Clinical Pathology 1982; 35(9):941-5.
5. Eyselbergs M, Verslegers I, Van Goethem M, et al. A Rare Cause of Mastitis: Idiopathic Granulomatous Mastitis. Journal of the Belgian Society of Radiology 2017; 101(1).
6. Sabaté JM, Clotet M, Gómez A, et al. Radiologic Evaluation of Uncommon Inflammatory and Reactive Breast Disorders. Radiographics 2005; 25(2):411-24.
7. Pluguez-Turull CW, Nanyes JE, Quintero CJ, et al. Idiopathic Granulomatous Mastitis: Manifestations at Multimodality Imaging and Pitfalls. RadioGraphics 2018; 38(2):330-56.
8. Fazzio RT, Shah SS, Sandhu NP, et al. Idiopathic Granulomatous Mastitis: Imaging Update and Review. Insights into Imaging 2016; 7(4):531-9.
9. Oztekin PS, Durhan G, Kosar PN, et al. Imaging Findings in Patients with Granulomatous Mastitis. Iranian Journal of Radiology 2016; 13(3).
10. Larsen LJ, Peyvandi B, Klipfel N, et al. Granulomatous Lobular Mastitis: Imaging, Diagnosis, and Treatment. American Journal of Roentgenology 2009; 193(2):574-81.
11. Hasbahceci M, Kadioglu H. Use of Imaging for the Diagnosis of Idiopathic Granulomatous Mastitis: A Clinician's Perspective. Journal of the College of Physicians and Surgeons--Pakistan 2018; 28(11):862-7.