Idiopathic granulomatous mastitis - the great mimic

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OBJECTIVE

To describe the clinical presentation, radiological findings and management of idiopathic granulomatous mastitis (IGM).

METHODS

All patients diagnosed with IGM between July 2012 and June 2019 were identified from the Radiological information system (RIS). Clinical presentation, radiological, pathological and microbiological results, and management were reviewed.

RESULTS

Clinical manifestations

A total of 29 women (31 breasts) were diagnosed with IGM, with a median age of 42 (range, 25-58). 82.8% (n=24) of patients was of child-bearing age, 17.2% (n=5) were post- partum, 31% (n=9) with history of breastfed within 1 year and 31% (n=9) with history of hyperprolactinemia. They presented with breast mass, swelling, mastalgia and skin erythema. 2 and 22 patients were initially given the diagnosis of breast cancer and breast abscess respectively.

Radiological findings

31 ultrasound examinations and 16 mammograms were performed. Findings are summarized in Table 1.

Table I: Ultrasound and mammographic findings of IGM

Findings	Number	%
Ultrasound (n= 31 breasts)		
Irregular hypoechoic mass	17	54.8
Abscess	13	41.9
Circumscribed hypoechoic mass	1	3.2
Parenchymal distortion with no discrete mass	1	3.2
Skin thickening	11	35.5
Axillary lymphadenopathy	4	12.9
Sinus tract formation	4	12.9
Nipple retraction	2	6.5
Increased vascularity	9	29
Mammography (n= 16 breasts)		
Focal assymmetric density	6	37.5
Irregular mass	4	25
Skin thickening	4	25
Normal finding	2	12.5

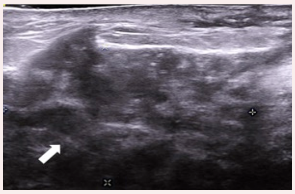

Fig 1: A 34-year-old female presented with a right breast mass. US image demonstrated a 4.4cm ill- defined heterogenous mass.

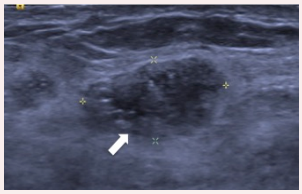

Fig 2: A 32-year-old female presented with a left breast lump. US image demonstrated a well-circumscribed hypoechoic mass.

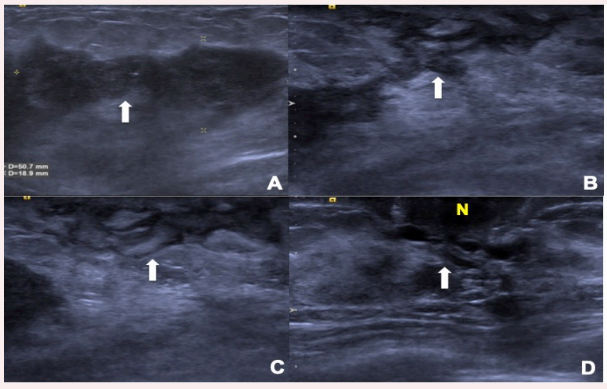

Fig 3: US images showing left breast abscess with sinus tract extending to the nipple in a 43-year-old patient confirmed with IGM.

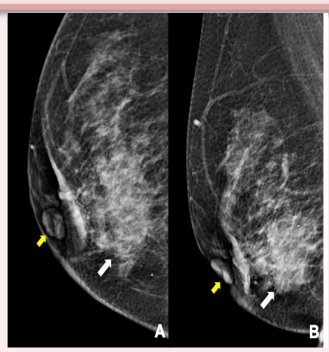

Fig 4. MMG images demonstrated a large breast mass in a 52-year-old female, with an initial radiological diagnosis of breast malignancy. CC view (A) and MLO view (B) MMG of the right breast showing a high-density irregular mass (white arrows) at the retroareolar region. It was associated with skin thickening and nipple retraction (yellow arrows). It was given a BI-RADS 5.

Pathological diagnosis and evaluation

Among all the lesions, 17 FNA (23.5% sensitivity), 24 US- guided core biopsy (100% sensitivity) and 2 surgical biopsy were performed (100% sensitivity). Corynebacterium was found in 4 samples (12.9%).

Treatment and follow up

Most patients were treated with a combination of steroid and antibiotics (n=16, 55.2%), 3 (10.3%) were treated with steroid. Drainage (n=18, 58.1%) and surgical excision (n=1, 3.2%) were performed in some patients. Recurrence was 44.8% (n=13) with a median FU of 21 months.

DISCUSSIONS

IGM is a rare benign inflammatory breast disease. It is an idiopathic condition and is a **diagnosis of exclusion**. It is characterized histologically by non- caseous chronic granulomatous inflammation by core biopsy. Other causes of granulomatous breast disease have to be excluded.

Imaging features of IGM are non-specific which often **mimic breast abscess and malignancy**. There were no pathognomonic US features, with most reported finding being **an irregular hypoechoic mass associated with multiple tubular extensions** (1-3). Less reported findings included **abscesses**, with prevalence ranging from 6.6% to 54% (4); and **parenchymal distortion without a discrete mass** (5). Associated findings included skin thickening, edema, axillary adenopathy and sinus tract formation (1,6). It is not uncommon that the MMG is negative, especially when the breast is heterogeneously dense, such as in Asian populations. The more commonly reported MMG appearances were **focal asymmetry and irregularly shaped or obscured mass** (6). Other findings included **axillary lymphadenopathy, skin thickening or edema**.

There was no established etiology for IGM. However, association with pregnancy, lactation and autoimmune reaction was described. Some researchers also reported association with hyperprolactinemia and Corynebacterium species as a risk factor for IGM (7).

As IGM is a rare disease, there is no well-documented standardized management. Conservative, antibiotics and drainage, steroid and immunomodulatory drugs, and surgical excision had all been described.

CONCLUSION

In conclusion, IGM is a rare benign inflammatory breast disease diagnosed by exclusion. There is no pathognomonic imaging finding and it always mimics breast abscess or malignancy.

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