CASE IN POINT

Idiopathic Granulomatous Lobular Mastitis: A Mimicker of Inflammatory Breast Cancer

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Background: Idiopathic granulomatous lobular mastitis (IGLM) is a rare, chronic inflammatory breast disease without a known etiology. Even though the current literature proposes several treatment strategies, there is no universal consensus for long-term management.

Case Presentation: A 43-year-old White woman (gravida 5, para 4) presented with a 2-week history of right lower outer quadrant breast tenderness, heaviness, warmth, and redness. Mammography and ultrasound were concerning for inflammatory breast cancer. Biopsies returned as granulomatous mastitis without malignancy. After 8 months of unsuccessful therapy with prednisone and methotrexate, surgeons excised the breast tissue. Cultures and special stains were negative for other organisms. At the 7-month follow-up, no evidence of recurrence was seen.

Conclusions: As there remains no consensus behind the etiology or management of IGLM, our case demonstrates a reasonable and successful stepwise treatment beginning with medical therapy before proceeding to surgical cure. Because of possible malignancy risk with chronic IGLM, patients should not delay surgical excision if their condition remains refractory to medical therapy alone.

Idiopathic granulomatous lobular mastitis (IGLM) is a rare, chronic inflammatory breast disease first described in 1972.[1] IGLM usually affects women during reproductive years and has similar clinical features to breast cancer.[2] Ultrasonography and mammography yield nonspecific results and cannot adequately differentiate between malignancy and inflammation.[3] Magnetic resonance imaging (MRI) is known to be more sensitive in detecting lesions in dense breasts; however, it does not differentiate between granulomatous lesions and other disorders.[4,5] Histopathology is the gold standard for diagnosis.[1-12]

Infectious and autoimmune causes of granulomatous mastitis must be excluded before establishing an IGLM diagnosis. The clinical quandary that remains is how to adequately manage the disease. Although there are no defined treatment guidelines, current literature has proposed a multimodal strategy.[6,9] In this report, we describe a case of IGLM successfully treated with surgical excision after failed medical therapy.

CASE PRESENTATION

A 43-year-old gravida 5, para 4 White woman presented with a 2-week history of right breast tenderness, heaviness, warmth, and redness that was refractory to cephalexin and dicloxacillin. She had no personal or family history of breast cancer; never had breast surgery and breastfed all 4 children.

An examination of the right breast demonstrated erythema and an 8-cm tender mass in the right lower outer quadrant but no skin retraction or dimpling (Figure 1). The mammography, concerning for inflammatory breast cancer, was category BI-RADS 4 and demonstrated a suspicious right axillary lymph node (Figure 2).

A core needle breast biopsy revealed granulomatous mastitis (Figure 3A), without evidence of malignancy. Rheumatology and endocrinology excluded secondary causes of granulomatous mastitis (ie, sarcoidosis, tuberculosis, granulomatosis with polyangiitis, and other autoimmune conditions). A pituitary MRI to assess an elevated serum prolactin level showed no evidence of microadenoma.

After a prolonged course of 8 months of unsuccessful therapy with prednisone and methotrexate, the patient was referred for surgical excision. Culture and special stains (Gram stain, periodic acid-Schiff stain, acid-fast *Bacillus* culture, Fite stain, and Brown and Benn stain) of the breast tissue were negative for organisms (Figure 3B). Seven months after excision the patient was doing well and had no evidence of recurrence.

DISCUSSION

IGLM is a rare, chronic benign inflammatory breast disease of unknown etiology and more commonly reported in individuals of Mediterranean descent.[13] It is believed that hyperprolactinemia causing extravasation of fat and protein during milk letdown leads to

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FIGURE 1 Breast Erythematous and Ulcerated Skin Associated With Granulomatous Mastitis

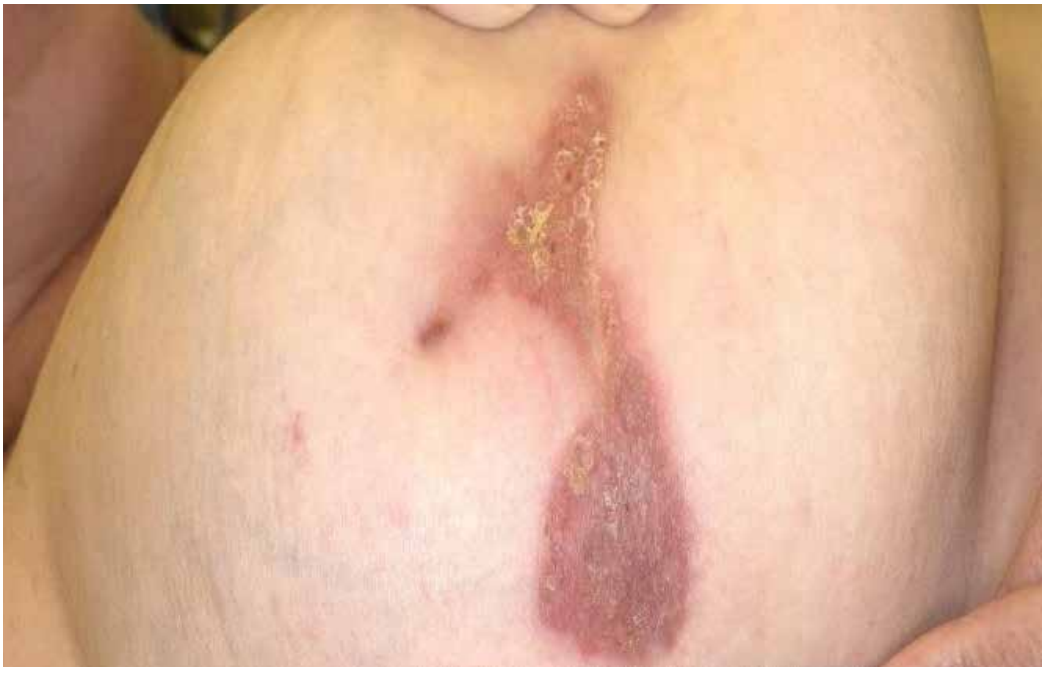
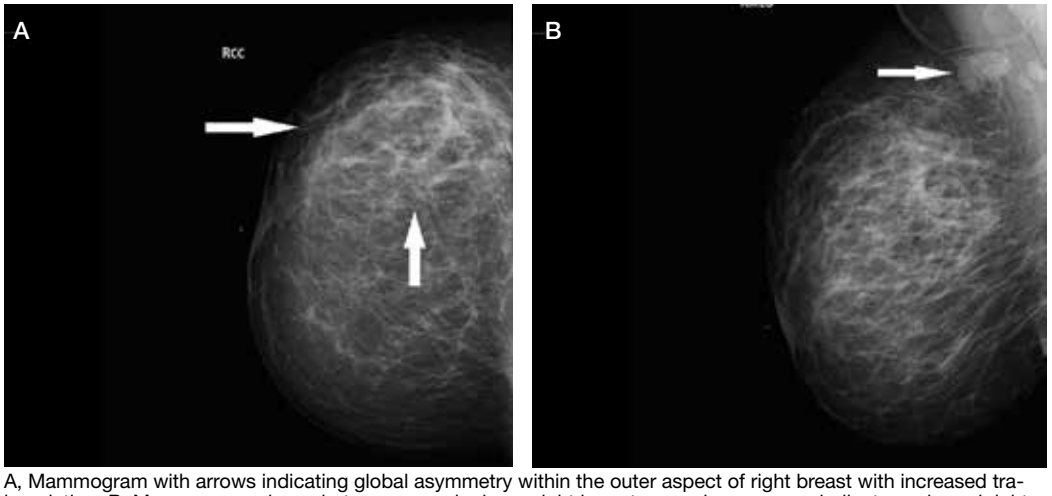


FIGURE 2 Mammogram Images

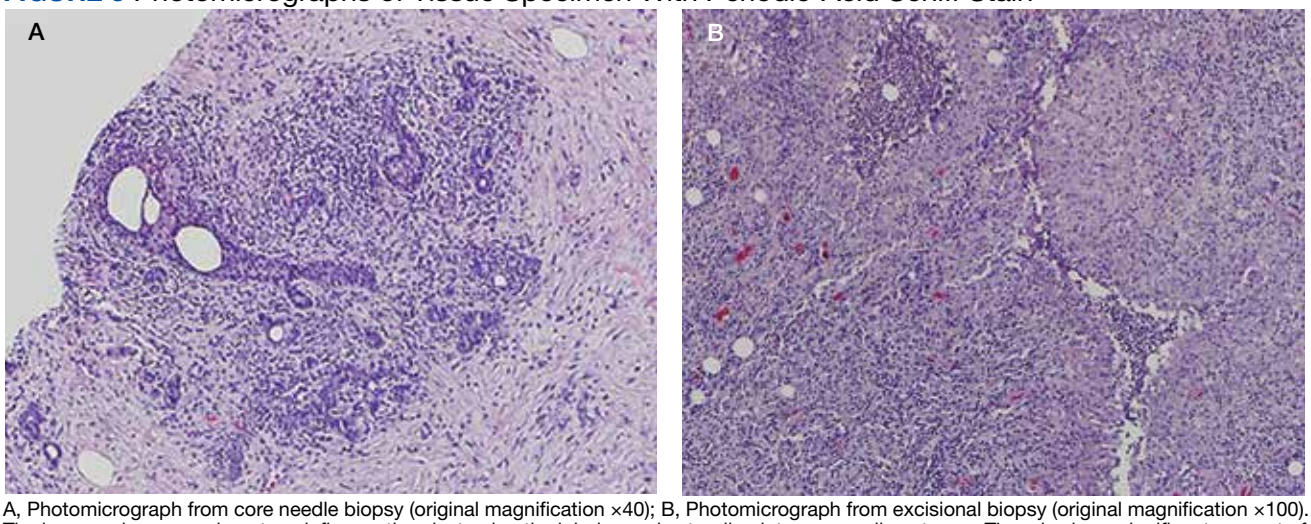


A, Mammogram with arrows indicating global asymmetry within the outer aspect of right breast with increased trabeculation; B, Mammogram shows heterogeneously dense right breast parenchyma, arrow indicates enlarged right axillary lymph node.

lymphocyte and macrophage migration, resulting in a localized autoimmune response in the breast ducts.[10,14]

There are 2 types of granulomatous mastitis: idiopathic and specific. Infectious, autoimmune, and malignant causes of granulomatous mastitis (ie, tuberculosis, sarcoidosis, *Corynebacterium* spp, granulomatosis with polyangiitis, systemic lupus erythematosus, Behçet disease, ductal ectasia, or granulomatous reaction in a carcinoma) must be excluded prior to establishing an IGLM diagnosis, as these can be fatal if left untreated.[15] The most frequent findings on ultrasound and mammography are hypoechoic masses and focal asymmetric densities, respectively.[3,5] MRI has been proposed more for surveillance in patients with chronic IGLM.[4,5] Histopathology—featuring lobular noncaseating granulomas with epithelioid

FIGURE 3 Photomicrographs of Tissue Specimen With Periodic-Acid Schiff Stain



A, Photomicrograph from core needle biopsy (original magnification ×40); B, Photomicrograph from excisional biopsy (original magnification ×100). The images show granulomatous inflammation destroying the lobules and extending into surrounding stroma. There is also a significant amount of neutrophilic inflammation and microabscess formation along with lymphocytes, plasma cells, and eosinophils.

histiocytes; and multinucleated giant cells in a background of neutrophils, lymphocytes, plasma cells, and eosinophils—is the gold standard for diagnosing IGLM.[1-12]

There are currently no universal treatment guidelines and management usually consists of observation, systemic and topical steroids, or surgery.[3,13] Topical and injectable steroids have been effective in treating both initial and recurrent IGLM in patients who are unable to be treated with systemic steroids.[16-18] Due to reported high recurrence rates with steroid tapers, adjunctive therapy with methotrexate, azathioprine, colchicine, and hydroxychloroquine have been proposed.[1,3-6,10-12]

Additionally, antibiotics are recommended only in the management of IGLM when microbial co-infection is concerning, such as with *Corynebacterium* spp.[9,11,19-22] Histologically, this bacterium is distinct from IGLM and demonstrates granulomatous, neutrophilic inflammation within cystic spaces.[19-21] Wide surgical excision with negative margins is the only definitive treatment to reduce recurrence and expedite recovery time.[2,3,7-10] Notably, surgical excision has been associated with poor wound healing and occasional recurrence compared with medication alone.[5,11]

Although IGLM is normally a benign process, chronic disease has been related (without causality) to infiltrating breast carcinoma.[4] A proposed theory for the development of malignancy suggests that chronic inflammation leading to free radical formation can result in cellular dysplasia and cancer.[23]

CONCLUSIONS

Fifty years after its first description, IGLM is still a poorly understood disease. There remains no consensus behind its etiology or management. In our case, we demonstrated a stepwise treatment progression, beginning with medical therapy before proceeding to surgical cure. Given concerns for poor wound healing and postsurgical infections, monitoring the response and recurrence to an initial trial of conservative medical treatment is not unreasonable. Because of possible risk for malignancy with chronic IGLM, patients should not delay surgical excision if their condition remains refractory to medical therapy alone.

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the complete prescribing information for specific drugs or drug combinations—including indications, contraindications, warnings, and adverse effects—before administering pharmacologic therapy to patients.

Ethics and consent

No informed consent was obtained from the patient; patient identifiers were removed to protect the patient's identity.

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