A case of idiopathic granulomatous mastitis associated with erythema nodosum, arthritis, and reactive cough

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INTRODUCTION

Idiopathic granulomatous mastitis (IGM) is a rare, chronic inflammatory disease of the breast.[1-5] IGM most commonly affects young, healthy parous women and usually presents as an ill-defined breast lump simulating malignancy.[1-5] On histopathology, noncaseating granulomas confined to the breast lobules are typically seen.[1-5] We present a unique case of IGM that may be of interest to dermatologists who are not readily familiar with this condition.

Abbreviation used:

IGM: idiopathic granulomatous mastitis

CASE REPORT

A 43-year-old previously healthy Hispanic woman presented to the dermatology clinic complaining of a 2-month history of a gradually enlarging, tender left breast mass. This was accompanied by a 2-week history of fevers, chills, nonproductive cough, joint swelling, and pain involving both knees and ankles. She denied any preceding breast trauma or history of breast implantation and had no known sick contacts. Of note, she had previously breastfed all of her children, having last done so 2 years before the onset of her symptoms. She had a remote history of Bacillus Calmette-Guerin vaccination. By the time she presented to the dermatology department, she had already failed multiple courses of antibiotics for her condition. A 5-day course of oral corticosteroids prescribed during one of her emergency room visits resulted in temporary improvement of all of her symptoms.

On physical examination, the patient was febrile (38.6°C) and in mild respiratory distress with a readily apparent frequent dry cough. Involving the lateral and upper quadrants of the left breast, there was an area of ill-defined, marked induration and tenderness with no associated nipple discharge or retraction (Fig 1, *A*). The right breast appeared normal. Multiple tender, erythematous nodules were evident on the arms and legs (Fig 1, *B*). The remainder of her physical examination revealed edema and tenderness of the bilateral knees and ankles. There was no appreciable cervical or axillary lymphadenopathy.

A comprehensive laboratory and radiologic workup was subsequently undertaken. Significant laboratory findings included a leukocytosis of 16.7 K/μL with neutrophilia (80%) and an elevated C-reactive protein level of 17.2 mg/dL. A chest radiograph showed no hilar adenopathy or pulmonary infiltrates. An ultrasound scan of the left breast mass revealed mildly dilated inframammary ducts without any intraductal mass. Three ultrasound-guided core needle biopsies of the affected area revealed a lobular proliferation of predominantly histiocytes admixed with neutrophils. Multinucleate giant cells were also observed (Fig 2). Special stains including Grocott methenamine silver and Ziehl-Neelsen were negative for fungal and mycobacterial organisms.

Given the above findings, a diagnosis of IGM associated with erythema nodosum, arthritis, and reactive cough was made. Tuberculosis infection was ruled out based on a normal chest radiograph and an absence of caseation and acid-fast staining on breast biopsy. Sarcoidosis was considered unlikely given the normal chest radiograph and absence of the more typical diffuse noncaseating granuloma pattern on breast biopsy.

The patient was started on prednisone, 80 mg daily, which led to prompt resolution of her fever, cough, and

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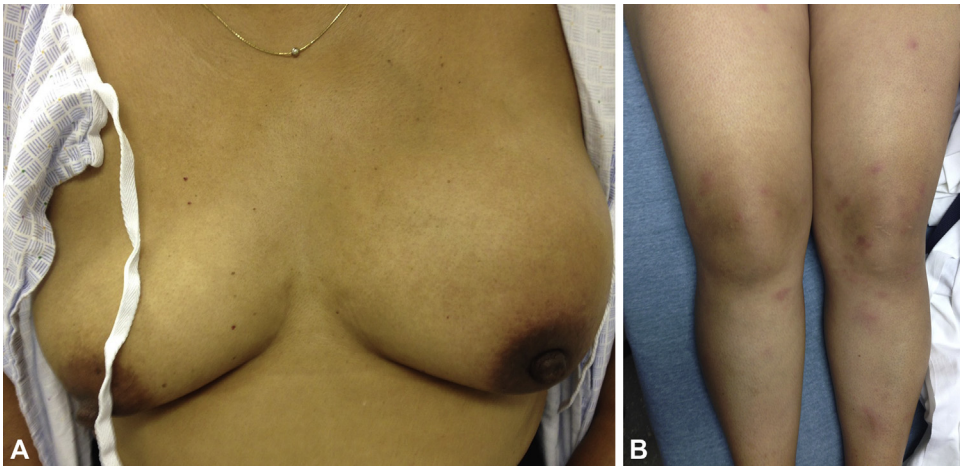

Fig 1. A, Markedly firm, indurated, and swollen left breast mass. **B**, Tender erythematous nodules on the lower extremities.

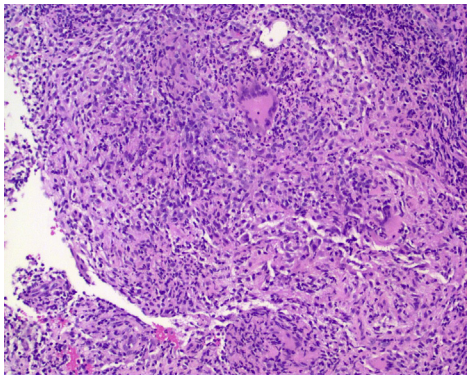

Fig 2. Photomicrograph shows a lobular proliferation of histiocytes along with multinucleate giant cells admixed with an acute inflammatory infiltrate. (Hematoxylin-eosin stain.).

arthritis. Within a few weeks, her left breast mass showed significant softening and symptomatic improvement. After a 3-month course of tapering prednisone, she was transitioned to azathioprine, 100 mg daily, which she continues to take to maintain the improvement and control over her disease.

DISCUSSION

Kessler and Wolloch first described IGM in 1972 as a rare benign chronic inflammatory disease of the breast, characterized by presence of noncaseating granulomas confined to the breast lobules.[1-5] The exact pathogenesis of IGM is unknown, although it is thought to be immunologically mediated.[1-7] IGM affects young healthy parous women and is often associated with pregnancy and lactation.[1-5] IGM is a diagnosis of exclusion once infection, malignancy, foreign body reaction, and other autoimmune disorders have been ruled out.[1-5] Although fever, chills, and weight loss may be commonly associated with IGM, erythema nodosum and arthritis have only rarely been described.[1-5]

IGM often has a chronic, relapsing course without an established standard treatment approach.[1-5] The principle treatment options include surgery, immunosuppressive agents, or a combination of both.[2,7-9] Some investigators suggest that systemic corticosteroid therapy may be the initial treatment of choice in IGM, whereas surgical resection should be reserved for recalcitrant lesions.[6,7,10] The thought process behind this approach is that systemic corticosteroids usually shrink the breast mass, allowing for a more conservative surgical resection should the disease persist.[6,8,10] Nonsteroidal immunosuppressive drugs including azathioprine and methotrexate have been used successfully in managing IGM.[2,5,6,10] Immunosuppressive therapy should be continued until a complete remission is reached, as recurrence rates as high as 50% have been reported.[9] A recent prospective cohort study of 49 women with IGM found that the treatment period required to achieve a full remission varied from 3 to18 months.[7]

Alternatively, some investigators propose that IGM should be treated with wide local excision at the onset of disease, citing a lesser chance of recurrence with surgical therapy.[7,8] However, review of the literature finds that relapses can still occur despite surgical resection, and it may require repeated, potentially deformative surgeries to cure the condition.[4,7]

Dermatologists should be aware that erythema nodosum can be one of the presenting signs of IGM.[1-5] Prompt diagnosis and medical treatment of this rare condition is important, as it may prevent patients from undergoing potentially disfiguring surgery. We advocate for an initial trial of immunosuppressive therapy, as it proved to be very successful in our patient.

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