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Case Report

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Idiopathic Granulomatous Mastitis Presented with Reactive Arthritis

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Abstract

Idiopathic Granulomatous Mastitis (IGM) is a rare chronic inflammatory disease that involves the development of an inflammatory mass in the breast, which may be difficult to differentiate from malignancy. Few patients have been reported in the literature presenting with arthritis accompanying IGM of the breast. Here we report a case of an Iraqi patient who presented as IGM with reactive arthritis and erythema nodosum.

Keywords: granulomatous mastitis, erythema nodosum, reactive arthritis, autoimmune mastitis

التهاب الضرع الحبيبي مجهول السبب المصاحب لالتهاب المفاصل الفعال

الخلاصة

التهاب الضرع الحبيبي مجهول السبب (IGM) هو مرض التهابي مزمن نادر ينطوي على تطور كتلة التهابية في الثدي، والتي قد يكون من الصعب تمييزها عن الورم الخبيث. وقد تم الإبلاغ عن عدد قليل من المرضى في النشرات الطبية مصابين بالتهاب الضرع الحبيبي مجهول السبب بالتزامن مع مع التهاب المفاصل الفعال. هنا نبلغ عن حالة لمريض عراقي تم تشخيصه على أنه مصاب بالتهاب المفاصل التفاعلي المصحوب بالتهاب الرع الحبيبي مجهول السبب.

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INTRODUCTION

Idiopathic Granulomatous mastitis is a rare benign chronic inflammatory disease that mainly affects women of childbearing age, usually in their early thirties [1]. Typically, it presents as a unilateral tender extra-areola lump, although bilateral disease has been described. Regional lymphadenopathy may be present in up to 15% of cases [2]. The selection of a standard method for diagnosing IGM is sophisticated. It's difficult to differentiate from breast cancer as it shares similar clinical and radiologic findings [3]. Diagnosis is based mainly on the combination of demonstrating a characteristic histological pattern with the exclusion of other possible causes of granulomatous breast lesions [2,3].

Case presentation

A 33-year-old multiparous woman was referred to the Rheumatology unit at Baghdad teaching hospital as a consultation case from a breast clinic. The condition started with a two-month history of a palpable painful mass in the left breast that increased in size gradually with no overlying skin changes. She attended the breast clinic for evaluation. A breast ultrasound revealed mastitis for which multiple courses of antibiotics had been prescribed without improvement. A week later, she developed multiple tender red nodules on her lower extremities with both ankle joints swelling and a low grade fever (Figure 1).

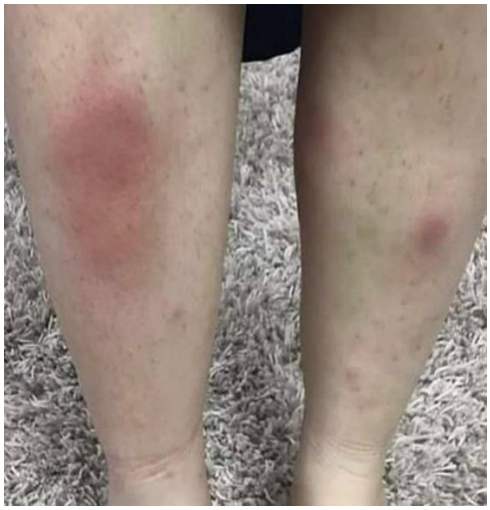

Figure 1: Erythema nodosum on the extensor surface of both legs.

Several types of analgesia and low dose prednisolone were started by her physician with no benefit. Past medical history was insignificant. There was no history of recent parturition, breastfeeding, or oral contraceptive pill use in the past three years. Informed consent was obtained from the patient. On examining the patient at the time of presentation, a tender mass was noted (3x2 cm) in the upper lateral quadrant of the left breast that was firm and mobile with a smooth surface and normal overlying skin. Two lymph nodes in the left axillary region were palpable. Multiple erythematous tender nodules were observed on the extensor surface on both legs, consistent with Erythema Nodosum (EN). The patient had obvious arthritis in both ankles. Vital signs examination was normal. Acute phase reactants were elevated [erythrocyte sedimentation rate: 70 mm/hour (normal, 0-20), C-reactive protein levels: 15 *mg*/*L* (normal, 0-3)]. The leukocyte count was normal as well as the rest of the biochemistry blood tests. The Tuberculin skin test (TST) was anergic (0 mm). The IGRA test was also negative. Extra pulmonary tuberculosis of the breast was excluded with negative tuberculosis gene expert study of the aspirated fluid (repeated twice), and negative acid fast bacilli staining from aspiration material of the lesion. The Chest X ray was normal. The Angiotensin converting enzyme (ACE) as well as serum calcium levels were within the normal range. Sarcoidosis and tuberculosis were excluded with these findings. Bacterial and fungal cultures were negative. The autoimmune markers (antinuclear antibody, extractable nuclear antibodies, and anti-neutrophil cytoplasmic antibody) were negative using the immunofluorescence method. Rheumatoid factor and anticitrullinated antibody levels were within the normal range. Serum IGG4 level was normal. Upon repeating the ultrasound examination, mastitis with granuloma was seen in the left breast. Diagnostic fine needle aspiration (FNA) was performed. The cytological examination was nonspecific with granulomatous inflammation consisting of neutrophils, lymphocytes, and multinucleated histiocytic giant cells. An excisional biopsy was performed with the results demonstrating numerous non necrotizing granulomas with multinucleated giant cells with no significant atypia, malignancy, or fibrosis. Through biopsy and exclusion of other possible diseases leading to granulomatous inflammation mentioned above, the patient was diagnosed as IGM accompanied by EN and reactive arthritis. The initial treatment was meloxicam 7.5 *mg* daily, prednisolone 20 *mg* daily, azathioprine tab 50 *mg* twice daily and colchicine tab 0.5 *mg* per day. On follow-up, EN and arthritis regressed completely. The patient was free of symptoms throughout the duration of follow up.

DISCUSSION

Idiopathic granulomatous mastitis (IGM) is a subtype of panniculitis with granulomatous inflammation. Kessler and Wolloch first described it as an uncommon disease of females of child bearing age which can mimic various malignant and inflammatory disorders [4]. The initial differential diagnosis in more than 50% of reported cases is malignancy or suspicion of breast carcinoma, with 15% of patients presenting with regional lymphadenopathy [5]. IGM is a diagnosis of exclusion requiring careful histopathology review of biopsy specimens and microbiological analysis [6]. To exclude other causes of granulomatous inflammation of the breast (box 1) [2]. In our case, underlying causes were excluded through medical history, laboratory tests, radiology, and pathology. Histopathology is the corner stone in the diagnosis as FNA won't differentiate it confidently from malignancy [7].

Because IGM mimics bacterial mastitis, commonly seen in young breastfeeding patients, early treatment with antibiotics is often employed, without success, leading to further workup [6,8].

Infectious
- Mycobacterium tuberculosis
- Blastomycosis
- Cryptococcosis
- Histoplasmosis
- Actinomycosis
- Filarial infection
- Corynebacterium

Autoimmune process
- Wegener granulomatosis
- Giant cell arteritis
- Foreign body reaction

Duct ectasis
- Plasma cell mastitis
- Subareolar granuloma
- Periductal mastitis

Diabetes mellitus

Sarcoidosis

Fat necrosis

Idiopathic

Box 1: Etiologic differential diagnosis of granulomatous lesion of the breast [2].

The coincidence of granulomatous mastitis, EN and arthritis is a rare feature [4,9]. The exact pathogenesis of IGM is unknown, although it is thought to be immunologically mediated. This association of IGM with EN supports the

theory that there is an autoimmune component in the pathogenesis of IGM [10]. Considering the literature reports, erythema nodosum occurs relatively early in the disease and is associated with more rapid progression and a greater degree of inflammation of IGM [8]. A chest x-ray should be performed on all patients to rule out pulmonary diseases as the cause of cutaneous and breast diseases. Tuberculosis is an important cause of EN and granulomatous mastitis, especially in endemic regions like in our country. In the case of our patient, no organisms were seen on Gram or Ziehl-Neelsen staining. Bacterial, fungal and mycobacterium cultures of the aspiration specimen were negative. The chest x-ray was normal and the IGRA test was negative, so TB was excluded. There is no definite accepted treatment for IGM [9]. It has been proposed that steroids are an effective treatment for IGM. In the current case, treatment with corticosteroid produced a rapid resolution of the fever, EN, breast symptoms, and arthritis.

Conclusion

IGM may rarely be associated with EN. Tissue biopsy or cytological examination remains the gold standard for diagnosis. We advocate an initial trial of immunosuppressive therapy, as it was very successful for our patients.

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Conflicting interests

The authors declared no conflicts of interest.

Data sharing statement

N/A

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