Eosinophilic Mastitis: A Rare Case Report

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Abtract

Eosinophilic mastitis is a rare benign condition characterized by eosinophilic infiltrate around the duct and lobules of the mammary gland leading to inflammation. Although eosinophilic mastitis is a benign condition, it presents similarly to and is often mistaken for breast cancer. We report the case of a 35 years old female presenting with a short history of mastitis with mild fever and swelling of her left breast. A breast imaging with ultrasonography revealed ill-defined mixed echogenic area in the left breast at 5-7 o'clock position along with features of duct ectasia. Histopathological procedure with core needle biopsy demonstrated inflammatory infiltrate predominantly eosinophils without evidence of malignancy. The patient was diagnosed as eosinophilic mastitis.

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Introduction

Eosinophilic mastitis is a rare benign condition characterized by eosinophilic infiltrate around the duct and lobules of the mammary gland leading to inflammation.[1] This condition is sometimes presented with similar features of malignant breast neoplasm posing a diagnostic dilemma for the clinicians. Eosinophilic infiltration can be associated with other diseases such as hypereosinophilic syndrome, parasitic and other infections, idiopathic granulomatous mastitis, Churg-Strauss syndrome, urticaria, asthma and peripheral eosinophilia.[2,3] It is difficult to clinically distinguish eosinophilic mastitis from other benign and malignant breast conditions. At times, mammography and magnetic resonance imaging (MRI) can also be misleading and may not help in the diagnosis. Histopathology remains the mainstay in the diagnosis of this condition. To the best of our knowledge, this is the first reported case of eosinophilic mastitis in Bangladesh.

Case Report

A 35 years old woman was presented to us with the complaints of mild pain and swelling

of left breast with a very short history. Patient had no history of surgical interventions. Her family history was unclear because she was unable to provide reliable information regarding breast disease, autoimmune disorders, or malignancies among her first-degree relatives. She denied any atopic sensitivites or allergies and was a nonsmoker. Patient also informed that she was a diagnosed as diabetic about seven years ago for which she had been taking metformin. But recently her local physician has prescribed her with Glimepiride. Patient is normotensive. The age of her last child was 7 years. A physical examination on june, 2024 revealed a 4x3 cm ill-defined swelling in her left breast which was mildly tender and firm on palpation. Breast ultrasonography was performed in the department of Radiology and Imaging, BMU. on the same date and it revealed an ill defined mixed echogenic area in the left breast (Figure 3), left axillary lymphadenopathy and a mixed echogenic area in the right breast indicating possible features of lipoma. To ensure accurate diagnosis and exclude malignacy, core needle biopsy was performed under local anaesthesia. Histological analysis showed predominat eosinophilic infiltrate (Figure 1, 2). No evidence of granuloma or malignancy was seen. A peripheral blood examination revealed a total leukocyte count revealed of 6500/mm^3 (normal range 4000-10000/$mm^{3)}$ with 1% eosinophils (normal range 1-5%).

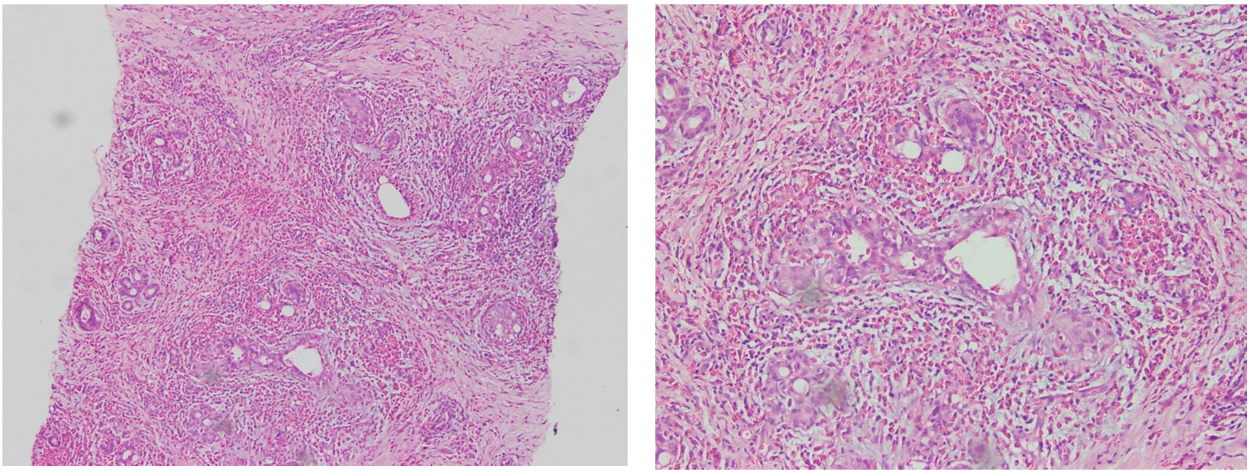

Figure 1. A histological examination showed infiltartion of predominant eosinophils (Haematoxyline and Eosin stain, x10, x20)

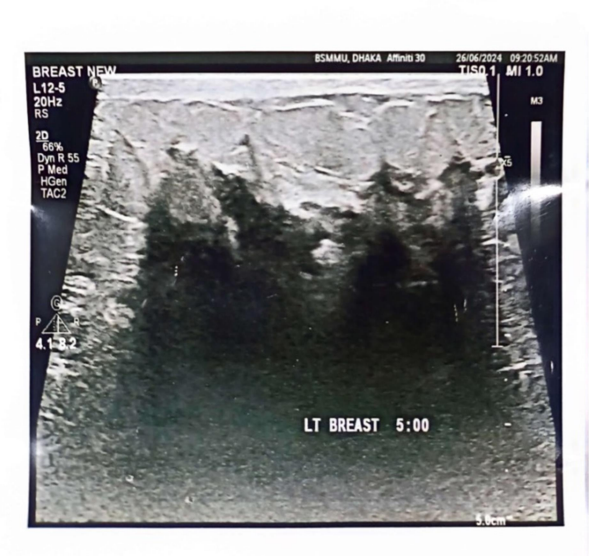

Figure 2: USG of left breast showing ill defined mixed echogenic area with features of dilated ducts.**Discussion**

Eosinophilic mastitis is a very rare phenomenon in which eosinophils cause mammary gland inflammation. The classic clinical features of eosinophilic mastitis include a breast lump often associated with pain, erythema and skin thickening. The principle investigations should inlclude imaging with ultrasound, mammography, MRI and histopathological studies. USG findings commonly demonstrate heterogenous mass, duct dilatation associated with skin thickening.

The presence of pain and skin changes on clinical examination may be found in infective, granulomatous and lactational mastitis. On ultrasound, granulomatous mastitis commonly shows asymmetrical hypoechoic mass. As eosinophilic mastitis commonly presents with breast mass, initial examination should raise suspicion of malignancy. Moreover, localized vascular and ductal changes seen in ultrasound in eosinophilic mastitis mimic breast carcinoma.[4] Histological findings of eosinophilic mastitis is characterized by periductal, interlobular and interstitial infiltration of inflammatory cells predominantly eosinophils often associated with ductal dilatation and accompanying fibrosis.[5] Though the underlying pathogenesis of eosinophilic mastitis is not well understood, studies have hypothesized that eosinophilic infiltration of breast may be associated with allergy to intraluminal substances like the pathogenesis of gastroenteritis especially in the absence of any infective aetiology.[6] However, peripheral eosinophilia is observed in clinical conditions such as asthma, hypereosinophilic sydrome (HES), parasitic infection,[7-9] Churg-Strauss syndrome, collagen vascular diseas[10-12] and hematological malignancies. The mainstay of treatment for eosinophilic mastitis is steroid therapy with serial review.[13] In addition, effective treatment with anti-histamines have been reported.[14] Several published case reports have demonstrated clinicopathological findings comparable to those observed in our patient. In one of the earliest reports, Khanna et al. described eosinophilic mastitis presenting as a palpable breast lump that clinically mimicked carcinoma, with histopathology revealing dense eosinophilic infiltration of the breast stroma without evidence of malignancy.[15] Similarly, Aroni et al. reported diffuse eosinophilic infiltration involving the periductal and interlobular breast tissue in association with peripheral eosinophilia and bronchial asthma, suggesting that eosinophilic mastitis may occasionally represent a manifestation of systemic eosinophilic disorders.[16] In contrast, our patient had no history of asthma, allergic disease, or peripheral eosinophilia, indicating that eosinophilic mastitis can also occur as an isolated localized inflammatory process.

Conclusion

Eosinophilic mastitis is a benign inflammatory condition characterized by marked infiltration of eosinophils around lobules and ducts of mammary gland. This

may be due to intraluminal secretory material in the absence of microbial growth. Despite the disease mimics breast cancer clinically, the main focus of treatment is non-surgical and conservative steroid therapy. A sound understanding of the benign nature of the disease can help us to deliver a proper systemic approach to the patient rather than surgical interventions.

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