Rong Ge¹, Hongfei Fang¹, Xiangang Yin¹,
Chuangfeng Liu¹, Yuqing Chang²

¹Department of Diagnosis, Ningbo Diagnostic Pathology Center, Ningbo, China; ²Department of Pathology, Shibei Hospital, Shanghai, China

Contact Dr Yuqing Chang.
E-mail: 18518827@qq.com

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Eosinophilic mastitis in a lactating breast

Sir,

Eosinophilic mastitis is rare and has mainly been reported in the context of sporadic case reports. Knowledge of the lesion and early diagnosis can avoid unnecessary surgical intervention.¹ Herein reported is a case of eosinophilic mastitis presenting 4 months post-partum, in a breast feeding individual. To our knowledge this is the first case of eosinophilic mastitis described in a lactating breast.

A 35-year-old female presented with a new lump in the upper right breast. She was 4 months post-partum following her first term pregnancy and was breast feeding. There was no significant past medical history, specifically no history of asthma or allergies. No family history of breast cancer was reported. On examination there was a non-tender, 2 cm firm mobile lump in the upper central right breast, clinically suggestive of a cyst or fibroadenoma. No increased warmth, or redness was noted. The left breast and both axillae were palpably normal. Ultrasound examination revealed a 1.2 cm cystic solid ovoid lesion, horizontally orientated and with a moderate degree vascularity, positioned immediately deep to the skin surface. No overlying skin thickening or inflammatory change was noted clinically at the time. It was reported

as Bi-RADS 3. There was a single small cyst in the upper inner aspect of the left breast but no other solid or cystic abnormality. Bilateral axillae contained normal lymph nodes. Three 14-gauge core biopsies were taken through the mass.

Core biopsy material received comprised two intact cores, 6×1 mm and 10×1 mm, and fragments. Histologically, there was lactational change with some lobularity and slight ductal dilatation, and a vague fibroadenomatoid appearance, but the latter considered attributable to the current lactation. There was a prominent stromal inflammatory cell infiltrate comprising predominantly eosinophils accompanied by a few histiocytes and plasma cells. (Fig. 1 and 2). No parasites were seen. No fungi were demonstrated with periodic acid-Schiff-diastase and Grocott stains. Immunohistochemical markers were performed. No epithelial infiltrate was seen with pancytokeratin MNF116. A few non-Langerhan histiocytes were shown to accompany the eosinophils (CD68 positive, S100 negative, CD1a negative). Only a few mast cells were demonstrated by CD117. No active treatment was administered and, clinically, the lesion slowly reduced in size over time. Follow-up ultrasound 3 months following presentation showed a slight reduction in size of the mass to 1 cm, regarded as benign (Bi-RADS 2). A markedly glandular echo pattern was otherwise evident bilaterally in keeping with breast feeding. The left breast was reported as Bi-RADS 1. There was no axillary lymphadenopathy. The eosinophil count 5 months after presentation was $0.2 \times 10^9/L$ (laboratory normal range $0.10\text{--}0.40 \times 10^9/L$). Unfortunately, the eosinophil count was not recorded prior to this. At 9 months following presentation the individual reported a persistent small palpable area. Follow-up by ultrasound at 12 months was planned.

Eosinophils are often portrayed as being non-specific, destructive and cytotoxic cells that are a ubiquitous component of the inflammatory infiltrate of the asthmatic lung and are a necessary and omnipresent host defence against helminthic parasite infections, by releasing various cytotoxic granule proteins. However, more recently they are seen not just as destructive end-stage effector cells, but as also important regulators of local immunity and remodelling/repair that play an important function in both health and disease. They are involved in mammary development such as terminal end budding and morphogenesis, extracellular matrix and vascular remodelling, and in reproductive homeostasis. In animal models, pregnancy associated eosinophil infiltration of the placenta and uterus is observed, and in humans, eosinophil infiltration and degranulation in the cervix is observed. They may be important in cervical dilatation and post-partum

Fig. 1 Lactational change and stromal eosinophil infiltrate.

Fig. 2 Florid stromal eosinophil infiltrate.

remodelling. The influence of eosinophils is direct and also indirect via recruitment and manipulation of macrophage function.² Animal models show that macrophages accumulate in breast tissue in pregnancy, somewhat diminishing during lactation. In colony stimulating factor 1 (CSF-1) depleted mice, macrophage depletion results in a loss of ductal outgrowth during pregnancy, supporting the concept that macrophages have an important role in branching morphogenesis in the mammary gland.³ Whilst there is an absolute leukocytosis in pregnancy, mainly of neutrophils due to reduced apoptosis, and there is a markedly increased monocyte:lymphocyte ratio, eosinophil and basophil counts do not change significantly in pregnancy.⁴

Eosinophilic mastitis is not a well defined entity, but is characterised by eosinophilic infiltration of the breast in the absence of other causes, e.g., fungal infection or parasitic infestation. It has been most often, but not exclusively, reported in association with blood eosinophilia, allergic conditions such as asthma, urticarial skin rashes, in Churg–Strauss syndrome and hypereosinophilic syndrome. Age at presentation has been between 27 and 60 years. Imaging is non-specific but may suggest malignancy, with indistinguishable features including axillary lymphadenopathy. Treatment is typically by prednisolone with or without antihistamines but it may recur.^{5–11} Successful treatment with antihistamines alone has been reported.¹⁰ It may rarely be bilateral;^{8,11} eosinophilic mastitis has previously been reported in association with a normal absolute eosinophil count and no history of allergies, asthma, other associated organ involvement, in a diabetic individual, who presented with breast tenderness and redness.⁹ Bilateral mastectomy was previously reported in a male with hypereosinophilic syndrome to control gynaecomastia and ‘abnormal lactation’ prior to management of other complications, including joint inflammation, gastrointestinal symptoms, nephrotic syndrome and interstitial pneumonia, by prednisolone. Breast histology showed ductal dilatation and marked eosinophil infiltration.¹¹ Eosinophilic mastitis may potentially represent a localised inflammatory reaction to luminal secretory material, which may explain cases without associated blood eosinophilia.⁸ Prominent eosinophil infiltration of the breast has also rarely been reported in the context of idiopathic granulomatous mastitis associated with ductal carcinoma, and in gynaecomastia in the absence of apparent blood eosinophilia.⁶

As in this case, a diagnosis of eosinophilic mastitis should be considered when tissue infiltration by eosinophils is the predominant histological feature, i.e., it is not related to Langerhan cell or mast cell infiltration, is not a secondary feature in granulomatous mastitis, does not accompany a

neoplastic process, and fungal or parasitic infection has been excluded.

Our case is unique in that it occurred in a lactating breast. The rarity of the phenomenon implies that the occurrence in lactation is coincidental. It expands the clinical context in which eosinophilic mastitis may present.

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Mark James Wilsher¹, Dibyesh Banerjee²

¹Unilabs IHS, London, UK; ²Breast Unit, Rose Centre, St George’s University Hospital, London, UK

Contact Dr Mark James Wilsher.

E-mail: markwilsher@gmail.com

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Surfer’s bursa: a recurrent chest wall mass in dedicated surfers that may mimic a sarcoma

Sir,

During our clinical practice, we have encountered a hitherto unrecognised recurrent, large soft tissue mass on the chest wall, which we believe is a reactive and reparative response to repetitive, long term local injury in serious surfers. Since the size, location and history of recurrence may cause concern for a neoplastic process, we wish to bring this lesion to the attention of our peers.

A 50-year-old male presented for investigation and management of a unilateral mass protruding from his left subcostal region. At the time of this presentation, the mass had been present for several years but had grown. The lesion had been biopsied 4 years previously and had recurred locally. The prior histological findings were fat necrosis and fibrosis.