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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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.

Detailed history established that the patient surfed at least twice a week for 2 hours at a time. The size of the mass fluctuated directly with the amount of time spent surfing, frequency of the sessions and the nature of protective clothing: wearing a wetsuit resulted in reduction of the mass.

On examination, a broad-based 7 cm soft tissue mass protruded from the left subcostal margin, just below the 9th–10th costal cartilages, near the mid-clavicular line. A healed surgical scar from the prior biopsy was evident. On palpation, a firm, non-tender and non-mobile 7 cm ovoid mass was confirmed.

Based on the finding of a large, clinically obvious mass, a history of local recurrence and the patient's concern, a decision for surgical excision was made. No imaging studies were performed due to limited access to radiology services in the rural location of this patient. The lesion was excised under general anaesthetic and submitted for histopathological analysis.

A soft, brown, irregular shaped piece of soft tissue measuring 50×25×20 mm was received. On histology the nodule showed the collapsed, elongated walls of a multi-loculated cystic structure, lined partially by a monolayer of synoviocytes (Fig. 1). Hyalinised, paucicellular fibrous tissue, including areas showing fibrinoid change, protruded into the cyst lumen. Focal myxoid change of the stroma was evident. In some areas, the synovial lined spaces showed a layer of fibroblastic and myofibroblastic cells that merged with an area of fat necrosis and hyalinisation. Vessels with thick, hyalinised walls were incorporated in this process. Wider afield, the lesion blended with the surrounding fat.

The PAS-D stain was negative for mucin. The elastin stain highlighted fragmented elastin fibres as components of this lesion, but the typical beaded structures associated with elastofibroma were not identified. Immunohistochemistry for ERG and CD34 highlighted the vasculature of the lesion. A number of mesenchymal cells within the stroma displayed a histiocytic phenotype, demonstrated by CD68 positivity.

The appearances were consistent with those of a bursa, surrounded by fibrous tissue, demonstrating features of chronic soft tissue injury, including fat necrosis, fibrosis and associated vascular changes.

The prior biopsy showed fibrosis, fibrinoid change and nodular zones of fat necrosis, along the same spectrum of the findings as in the recurrence. A synovial lining was not identified in the earlier, smaller biopsy.

Fig. 1 Histological appearance of the lesion, exhibiting a cyst partially lined by synoviocytes and a densely fibrotic wall.

The wound healed well following surgical excision. Since his diagnosis 24 months ago, the patient routinely wears a Lycra surfing vest with in-built padding over the pressure points. The bursa has not recurred.

We describe surfer's bursa as a large, recurrent chest wall mass, which we believe is a previously unrecognised lesion associated with long term surfing. In surfing communities, anecdotal evidence exists that clinicians see such lesions on an intermittent basis. Thus, it is likely that this phenomenon is under-reported. A blog post by a female surfer was found by the patient, representing a very similar lesion to his own (Fig. 2).

A range of mass lesions associated with chronic injuries have been described in the literature. Perineal nodular indurations, thought to be caused by repetitive trauma associated with 'saddle sports', such as cycling or horse riding are among these entities.¹ 'Bowler's thumb', caused by chronic repetitive impaction of the ulnar soft tissue of the thumb against the thumbhole of a bowling ball, manifests as pain, neuropathy and a mass lesion.² Elastofibroma dorsi, linked to repetitive trauma of the shoulder girdle, results in a pseudotumour at the infra scapular area.³

In surfers specifically, the repetitive low grade trauma caused by the contact with the surfboard may lead to the development of connective tissue nodules in several body parts, described as collagenomas or fibromas and surfer's knots.^{4–8} Surfer's knots have been described over the tibial tuberosities, dorsum of the feet and occasionally on the chest. Fujimura *et al.* reported the development of masses on the chins of two male surfers, postulated to be secondary to repetitive blunt trauma to the chin area while paddling the surfboard.⁹ Surfer's bursa shares the connective tissue changes described in the above processes, but is distinctive in having a synovial component and in exhibiting fluctuations in size in proportion with the intensity of surfing.

Fig. 2 A photograph from a surfing blog of a woman with an identical lesion on her costal margin (<https://imgur.com/TOvAvzP>), reproduced with permission from the subject.

The cystic synovial lined spaces observed in this mass have the appearances of a bursa. Two different types of bursae have been described: synovial bursa and adventitious bursa.¹⁰ Synovial bursae or true bursae are present at birth, found throughout the body near bony prominences and between bones, muscles, tendons, and ligaments, acting to decrease friction between moving structures. In contrast, adventitious bursae develop after birth in response to friction and pressure in superficial fibrous connective tissues. Since no true bursa or adjacent synovial lined joint is present at the anatomical site of this mass, we conclude that it corresponds to an adventitious bursa.

The partial synovial lining observed within the cysts is likely a metaplastic response of the injured soft tissue. Synovial metaplasia has been observed following mechanical damage to the connective tissue in situations such as experimental injections of air or oily fluids into the subcutaneous tissue, after surgical procedures,¹¹ or in patients with breast implants.

The fluctuation in size observed could be explained by fluid resorption by the synoviocytes during periods of inactivity. In addition, it is possible that mesenchymal cells in the stroma surrounding the cysts were subjected to adaptive fibrocartilaginous metaplasia, known to occur in the setting of chronic trauma.¹² This would result in cells with a chondrocytic phenotype, showing increased proteoglycan content and consequently increased water content. By this mechanism, variations in proteoglycan production and water retention according to the level of activity could contribute to variations in the size of the mass.

In typical cases, aspects of the history, anatomical location and clinical examination may allow a clinical diagnosis of surfer's bursa to be made, without the need for radiological evaluation or biopsy. If any atypical features are identified, magnetic resonance imaging (MRI) assessment can be an invaluable tool in the work up of these lesions, as it can help narrow the differential diagnosis, exclude malignancy and avoid unnecessary invasive procedures.⁵ If a decision for clinical follow-up rather than excision is made, the patient should be closely monitored to confirm regression of the lesion after periods away from surfing and to detect any atypical clinical changes. If clinically required, MRI could also be used in the follow-up, as imaging changes could alert the clinician to the need for surgical excision to exclude neoplastic or inflammatory pathology.

Prevention and mitigation strategies are effective in this condition. Lessening the intensity of surfing led to a reduction in the size of the mass. The use of padding, including wetsuits and a padded vest, offered protection and avoided further recurrence.

Surfer's bursa is a fluctuating, broad-based soft tissue mass occurring on the costal margin of long term surfers, believed to represent a response to repetitive, low grade trauma caused by the compression of soft tissues by the surfboard. This causes fat necrosis, fibrosis and the development of a synovial lining that can accumulate synovial fluid.

The condition is likely under-reported. In typical cases, clinical history, anatomical location, fluctuating size proportionate to the intensity of surfing and the findings on physical examination will establish a clinical diagnosis and avoid unnecessary investigations. In atypical cases, MRI is an invaluable tool in the diagnosis and/or follow-up of these lesions. Reducing the time surfing and the use of padding

may be preventive. If excised, local recurrence after resumption of surfing is possible.

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Persistent vaginal melanoma as an unusual mimic in the endocervix

Sir,

Primary malignant melanomas of the vagina are rare lesions with an incidence of less than 0.1 per 100,000 per year.¹ We describe an unusual case of an adult female with a primary vaginal melanoma that re-presented on multiple occasions with local and systemic metastases and demonstrated the curious phenomenon of endocervical gland colonisation by melanoma cells, a unique feature which may mimic malignancy, effects of radiotherapy, or even Arias-Stella reaction.