Unusual presentation of more common disease/injury

Pseudoangiomatous stromal hyperplasia (PASH) tumour at the surgical scar site in a patient of carcinoma breast

Andleeb Abrari

Histopathology Department, Max Super Specialty Hospital, New Delhi, India

Correspondence to Dr Andleeb Abrari, abrariand@gmail.com**Summary**

A patient on follow-up post surgery for carcinoma breast, presented with a nodule under the surgical scar. The sinister eventuality of recurrent carcinoma was clinically considered first. The lesion was biopsied and the histopathology was diagnostic of pseudoangiomatous stromal hyperplasia tumour. The nodule was excised and the patient's clinical denouement has been uneventful in the 4 months which have elapsed after this event.

BACKGROUND

Pseudoangiomatous stromal hyperplasia (PASH), presenting as a nodule, or tumourogenic PASH, is a metaphor for a breast tumour which may first be clinically considered to be any of a myriad of benign mammary nodules (fibroadenomas and their ilk), or rarely a malignant lump, by the clinician based on its clinical attributes; and significantly—as illustrated in this case—a recurrent cancer.

A PASH tumour occurring de-novo, at the surgical scar site, after cancer surgery, is virtually unknown, and this rarity renders the present case important, to the clinician as well as the pathologist.

The pathologist as the final arbiter, should correctly recognise this condition and allay unnecessary anxiety.

CASE PRESENTATION

The patient was a 53-year-old, lady on presenting at follow-up, 9 months after a core needle biopsy diagnosis of infiltrating ductal carcinoma, not otherwise specified type, histologic grade two, modified bloom-Richardson score six, pT1N0, oestrogen receptor 8/8 (Allred score), progesterone receptor 7/8 (Allred score), her-2- neu (zero, negative) managed by breast conservation surgery with sentinel lymph node excision and on tamoxifen.

She reported being distraught over having self discovered a nodule just adjacent and deep to her lumpectomy scar. Clinical examination revealed a parenchymal nodule measuring 2 × 1.5 × 1 cm, firm to hard in consistency and apparently inseparable from the surrounding tissue, about a centimetre below her lumpectomy scar. The clinical suspicion of locally recurrent tumour was strongly considered, in face of lesion location, history and lesion attributes. A needle core biopsy from the lesion was performed for histologic characterisation.

The diagnosis rendered on histopathology was PASH tumour; negative for recurrent carcinoma or second primary malignancy.

INVESTIGATIONS**Histopathology**

Sections from the needle biopsy showed complex, slit like, focally anastomosing spaces, haphazardly arrayed in a sclero-fibrotic stroma (composite micrograph figure 1). These spaces were lined by banal to mildly atypical flat and plump spindled cells (figure 1D,E). Occasional benign ducts represented revealed mild duct epithelial hyperplasia and were unaccompanied by lobular units, resembling gynaeecomastia (figure 1A).

Ancillary tests*Immunohistochemistry*

The spindled cells marked diffusely with CD 34 (figure 1F) and vimentin.

There was no expression of pan cytokeratin, epithelial membrane antigen, S-100, calponin, p63 and von Willebrand factor (vWF).

DIFFERENTIAL DIAGNOSIS

The clinical differential of PASH tumour may include almost any benign or malignant mammary nodule and is liable to be skewed by the clinical context.

The index of suspicion is understandably sharpened towards a recurrence in a known cancer patient.

The prominent histologic differentials are angiosarcoma (which is an infiltrative lesion with true vascular lumens and immunopositivity for bonafide endothelial markers like vWF and CD31); myofibroblastoma (slight proclivity for the male breast and overlapping immunohistochemistry; histologically myofibroblastomas are more solid fascicular spindle cell lesions; progesterone receptor positivity in PASH versus androgen positivity in myofibroblastoma may be used); fibroadenoma (morphology usually distinctive) and mammary hamartoma (typically heterogeneous tissue types on histology).

Figure 1 Occasional benign ducts in fibrous stroma, unaccompanied by lobular units, resemble gynecomastia (A). Anastomosing empty spaces, haphazardly arrayed in a dense fibrous stroma (B). These spaces are lined by banal spindled cells (C). Foci with slight cytonuclear atypia (D,E). Diffuse marking of the spindled myofibroblasts with CD34 (F).

TREATMENT

The lesion was excised on multidisciplinary team decision (based on low clinical threshold for complete lesion excision, in the cancer patient).

OUTCOME AND FOLLOW-UP

The clinical follow-up after needle biopsy and subsequent excision of the PASH tumour in our patient has been uneventful in 2 months.

DISCUSSION

PASH, first described in 1986¹ is a lesion formed of myofibroblasts with expression of myoid and fibroblastic phenotypes.

PASH may present in a wide clinicopathologic spectrum ranging from incidental histologic finding to clinically palpable breast mass. About 150 cases of tumorous PASH have been described in the literature.² Occasionally the mass may enlarge and mimic a malignant neoplasm. The female breast is most commonly affected, though non-tumorous PASH like stroma is a frequent incidental component of gynecomastia.^{3–5} Any part of the breast can be affected and Peau d'orange and skin necrosis have been observed in rare patients.⁶

The characteristic histology consists of a complex pattern of largely empty, anastomosing, spaces in a densely collagenised stroma. The nuclei of the myofibroblasts

are ordinarily banal and ordinarily lack marked atypia and are without significant mitoses. Random atypia may be observed. Scattered true capillaries may be present. Myofibroblasts in PASH are usually CD34 and calponin expressing and negative for true endothelial markers like vWF and CD31.^{6–8}

A word of caution is in order, in that occasional biopsies of PASH have been misinterpreted as low-grade angiosarcoma and been followed by unnecessary mastectomy.⁶

The recommended treatment is wide local excision. Most patients of PASH remain well after excisional biopsy, but ipsilateral recurrences have occurred in some cases. Rarely patients have had asynchronous or concurrent bilateral PASH tumours. Incomplete excision of tumorous PASH may probably predispose to local recurrence, but it is also possible that the residual breast tissue is susceptible to the same unknown stimuli. Recurrent lesions usually exhibit no change in histologic attributes.^{2 6 7}

Literature search, did not reveal any reported cases of PASH tumour following an ipsilateral cancer, and only a solitary reported case of incidental invasive carcinoma discovered within a PASH lesion.⁹ Another, perhaps fortuitous association in the present case is that the patient was on tamoxifen when the nodule developed. This is an aberrant clinical scenario, as tamoxifen has been reported, instead to cause regression of PASH lesions, in premenopausal patients.^{10 11}

Learning points

- ▶ PASH a disease of predominantly premenopausal patients, particularly those who have been on oral contraceptives or hormonal therapies, and male gynaecomastics, can very rarely occur in distinctly unexpected clinical settings.
- ▶ Nodular / tumorous PASH needs to be histologically distinguished from several benign and malignant mammary nodules.
- ▶ Ipsilateral nodular PASH following breast cancer, may provoke clinical suspicion of recurrent cancer/second primary.
- ▶ The extreme rarity of the lesion in the aforementioned context mandates precise histologic characterisation, with immunostains.

Competing interests None.

Patient consent Obtained.

REFERENCES

1. **Vuitch MF**, Rosen PP, Erlandson RA. Pseudoangiomatous hyperplasia of mammary stroma. *Hum Pathol* 1986;**17**:185–191.
2. **Virk RK**, Khan A. Pseudoangiomatous stromal hyperplasia: an overview. *Arch Pathol Lab Med* 2010;**134**:1070–4.
3. **Seidman JD**, Borkowski A, Aisner SC, *et al*. Rapid growth of pseudoangiomatous hyperplasia of mammary stroma in axillary gynecomastia in an immunosuppressed patient. *Arch Pathol Lab Med* 1993;**117**:736–8.
4. **Badve S**, Sloane JP. Pseudoangiomatous hyperplasia of male breast. *Histopathology* 1995;**26**:463–6.
5. **Milanezi MF**, Saggiaro FP, Zanati SG, *et al*. Pseudoangiomatous hyperplasia of mammary stroma associated with gynecomastia. *J Clin Pathol* 1998;**51**:204–6.
6. **Ibrahim RE**, Sciotto CG, Weidner N. Pseudoangiomatous hyperplasia of mammary stroma. Some observations regarding its clinicopathologic spectrum. *Cancer* 1989;**63**:1154–60.
7. **Powell CM**, Cranor ML, Rosen PP. Pseudoangiomatous stromal hyperplasia (PASH): a mammary stromal tumor with myofibroblastic differentiation. *Am J Surg Pathol* 1995;**19**:270–7.
8. **Zanella M**, Falconieri G, Lamovec J, *et al*. Pseudoangiomatous hyperplasia of the mammary stroma: true entity or phenotype? *Pathol Res Pract* 1998;**194**:535–40.
9. **Ferreira M**, Albarracin CT, Resetskova E. Pseudoangiomatous stromal hyperplasia tumor: a clinical, radiologic and pathologic study of 26 cases. *Mod Pathol* 2008;**21**:201–7.
10. **Seltzer MH**, Kintiroglou M. Pseudoangiomatous hyperplasia and response to tamoxifen therapy. *Breast J* 2003;**9**:344.
11. **Pruthi S**, Reynolds C, Johnson RE, *et al*. Tamoxifen in the management of pseudoangiomatous stromal hyperplasia. *Breast J* 2001;**6**:434–9.

This pdf has been created automatically from the final edited text and images.

Copyright 2011 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit

<http://group.bmj.com/group/rights-licensing/permissions>.

BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Please cite this article as follows (you will need to access the article online to obtain the date of publication).

Abrari A. Pseudoangiomatous stromal hyperplasia (PASH) tumour at the surgical scar site in a patient of carcinoma breast. *BMJ Case Reports* 2011; 10.1136/bcr.07.2011.4428, date of publication

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow