Pseudoangiomatous hyperplasia of mammary stroma: an unusual entity

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INTRODUCTION

Pseudoangiomatous hyperplasia of mammary stroma (PASH) is an uncommon lesion of the breast that occurs more often in premenopausal women. Breast tissue affected by PASH is characterized by a dense, collagenous proliferation of mammary stroma, forming interanastomosing capillary-like spaces (Vuitch et al, 1986; Iancu and Nochomovitz, 2001). The importance of this benign lesion is distinguishing it from angiosarcoma. This article presents a rare case of PASH in a postmenopausal woman and reviews the management of this unusual entity which should always be considered in the differential diagnosis of a breast lump.

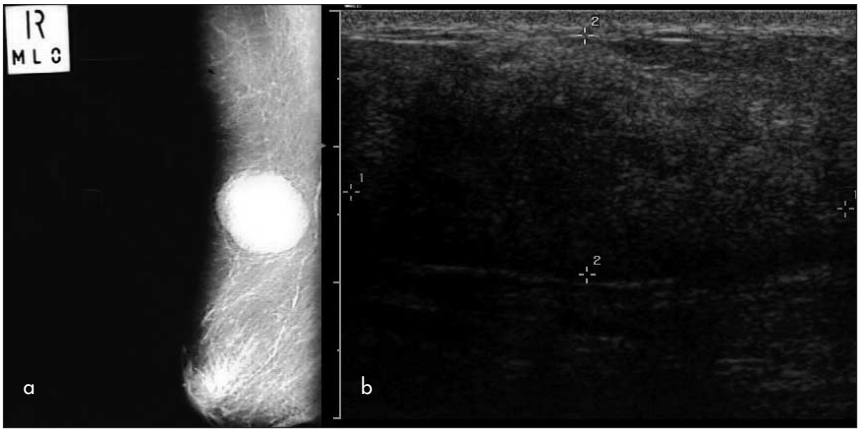


Figure 1. a. Mammogram of the right breast demonstrating a well-circumscribed soft tissue mass in the upper, outer quadrant consistent with pseudoangiomatous hyperplasia of mammary stroma. b. An ultrasound scan of the same lesion, measuring 3.6 x 1.8 cm as marked, which is relatively hyperreflective compared to surrounding parenchyma.

DISCUSSION

PASH was originally reported by Vuitch et al in 1986. Its aetiology is unknown (Iancu and Nochomovitz, 2001). However, hyperplastic breast tissue from premenopausal women commonly exhibits tiny foci of PASH, so it is likely that the development of a discrete tumour with this pattern represents an exaggerated form of stromal hyperplasia. PASH may represent a clinicopathological spectrum extending from focal insignificant microscopic changes to cases where it produces a breast lump (Ibrahim and Sciotto, 1989). The importance of this lesion is its distinction from low-grade angiosarcoma and hamartomas (Vuitch et al, 1986; Kirkpatrick et al, 2000). PASH is especially rare in postmenopausal women: a review of all cases reported found only five reported cases out of 53 occurring in postmenopausal women (Cohen et al, 1996). There is one reported case occurring in axillary gynaecomastia in an immunosuppressed male (Seidman et al, 1993).

CASE REPORT

A 74-year-old woman was noted to have a lesion in her right breast. It was painless and had been present for an unknown period. There were no other associated symptoms. A clinically large, firm, non-tender mass (3x4 cm) was felt in the upper outer quadrant of the right breast. There was minimal adherence to overlying tissue. On further examination, no evidence of metastatic disease was found. There was no past history of breast disease.

Mammography demonstrated a well-circumscribed soft tissue mass (40 mm) without associated microcalcification or conspicuous regions of fat density (*Figure 1*).

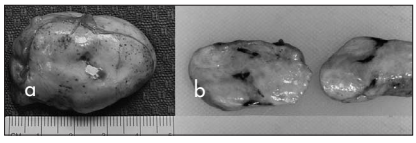
Ultrasound demonstrated an ellipsoid, lobular, solid mass of variable parenchymal reflectivity (*Figure 1*). No cystic component was identified. The mass was predominantly hyperreflective compared with adjacent parenchyma, with a few regions casting acoustic shadowing. Colour Doppler energy imaging demonstrated prominent abnormal vessels within the mass.

Based on the clinical findings a provisional diagnosis of a carcinoma was made. In view of the hyperreflectivity, vascularity, and relatively small amount of acoustic shadowing, a differential diagnosis of hamartoma, phylloides tumour or sarcoma was offered.

Under ultrasound guidance, core biopsy was undertaken. A diagnosis of pseudoangiomatous hyperplasia of mammary stroma (PASH) was made, although angiocarcinoma could not be excluded.

The mass was then surgically excised. The tumour was of a rubbery texture and was shelled out from the surrounding stroma with ease. It had a capsule and was solid throughout (*Figure 2*). Further histology confirmed the core biopsy diagnosis of PASH (*Figure 3*). This was supported by immunohistochemistry. The patient recovered without incident.

Figure 2. a. Whole breast lesion and (b) the cut specimen demonstrating a well-circumscribed mass, solid in texture with a capsule.



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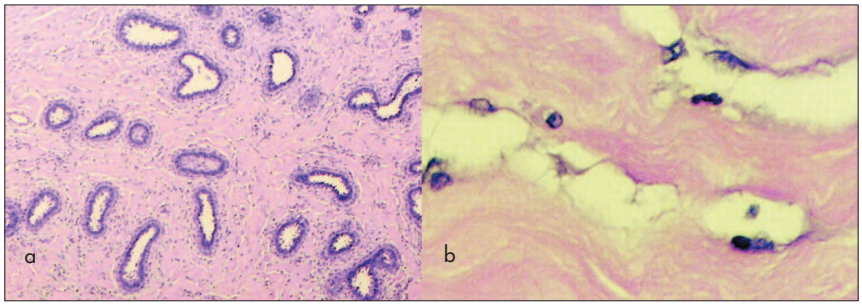

Figure 3. Histology (haematoxylin and eosin stain) of the breast lesion demonstrating the classic features of pseudoangiomatous hyperplasia of mammary stroma (a) at low power with the overall lobular architecture maintained; however, there is an interanastomosing network of slit-like pseudovascular spaces present within increased stroma. b. High power showing in greater detail the slit-like pseudovascular spaces lined by spindle cells.

Pathologically, its gross appearance is of a well-circumscribed tumour with a smooth external surface, resembling a capsule in some cases and being rubbery in texture (Vuitch et al, 1986), as was found in this case. Microscopically, pseudoangiomatous hyperplasia is characterized by dense hyaline fibrous stroma containing irregular, empty, open slit-shaped anastomosing channels, devoid of red blood cells (*Figure 3*). Cells bordering these spaces are discontinuous, flat, inconspicuous and without nuclear atypia (Vuitch et al, 1986; Fisher et al, 1992; Powell et al, 1995). Immunohistochemistry reveals stroma that is uniformly positive for CD34 antibody. Typically, factor VIII and cytokeratin staining are negative, as in this case (Powell et al, 1995).

Mammographic appearances are those of a circumscribed soft tissue mass without microcalcification and no obvious regions of fat density. Ultrasound appearances of a solid well-defined hyporeflective mass were originally described in premenopausal women (Kirkpatrick et al, 2000). This case demonstrated a hyperreflective lesion. Relative reflectivity is dependant upon adjacent parenchyma. This parenchyma is likely to be of higher density in the premenopausal female, giving an apparent hyporeflective lesion, and the reverse in the elderly.

Being a rare lesion contributes to the difficulty in diagnosing PASH. Fine needle aspiration and cytology has not been found to be helpful (Kirkpatrick et al, 2000). If PASH is diagnosed on core biopsy there are no scientifically-derived standards of management (Cohen et al, 1996). There is an argument for leaving the mass if several well-positioned biopsies are taken and careful mammographic follow-up is undertaken with excision if the lesion enlarges (Cohen et al, 1996). This would depend on patient choice and the certainty of the diagnosis. If core biopsies are not diagnostic or suggestive of low grade angiocarcinoma, then surgical excision is warranted.

Certainly, there is a potential for recurrence if a true PASH lesion is not completely excised. However, after complete local excision, clinical follow-up evaluation probably does not need extend beyond 3 years (Vuitch et al, 1986; Cohen et al, 1996). Diffuse PASH occasionally presents a difficult management problem that may necessitate mastectomy (Powell et al, 1995).

CONCLUSION

This case is of interest as PASH is an uncommon breast lesion that is rarely diagnosed in postmenopausal women. Even though it behaves in a benign fashion, excision is still the treatment of choice and is often a necessity to differentiate the condition histologically from angiosarcoma or other breast pathology. HM

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