CASE REPORT

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PSEUDOANGIOMATOUS STROMAL HYPERPLASIA (PASH) IN ECTOPIC BREAST TISSUE OF A 33-YEAR-OLD WOMAN: REPORT OF A CASE

ABSTRACT

Introduction:
Pseudoangiomatous stromal hyperplasia (PASH) is a rare benign tumour of the breast, clinically well-circumscribed. It has been reported a case of pre-menopausal woman with a capsulated mass in the right axillary cavity.
Subject:
The mass was surgically excised with a clinical diagnosis of nodular fascitis, while histopathological finding was consistent with the diagnosis of PASH.
Results:
Immunohistochemical staining was performed in supporting differential diagnosis with angiomatous tumours.
Discussion:
Histopathological analysis becomes indispensable to make a correct diagnosis in unusual presentation of this rare pathological entity.
Conclusion:
The peculiarity of the present case is the location outside breast, that has lead to a clinical misdiagnosis of soft tissue tumor.

RIASSUNTO

Introduzione:
L'iperplasia stromale pseudoangiomatosa (PASH) è un raro tumore benigno della mammella, clinicamente ben circoscritto. In questa sede viene descritto un caso di PASH localizzato nel cavo ascellare destro in una donna in età premenopausale.
Oggetto:
La massa descritta viene rimossa chirurgicamente con il sospetto clinico di fascite nodulare, mentre il quadro istopatologico è coerente con la diagnosi di PASH.
Risultati:
La diagnosi differenziale tra PASH e neoplasia angiomatosa è stata supportata dagli esami di immunoistochimica.
Discussione:
Il riscontro istopatologico è indispensabile nel formulare una diagnosi corretta ed attendibile nelle presentazioni inusuali di questa rara entità patologica.
Conclusioni:
La peculiarità del caso descritto risiede nella localizzazione atipica extramammaria, che ha determinato una diagnosi clinica non corretta di tumore dei tessuti molli.

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INTRODUCTION

Pseudoangiomatous stromal hyperplasia, also known as PASH, is a benign mesenchymal tumour of the breast stroma that usually presents as capsulated mass and mostly occurs in pre and perimenopausal woman but can also occurs in men, adolescents, post-menopausal woman and children and sometimes can be in association with gigantomastia [(1) (2)].

It was first described and reported in 1986 by Vuitch et al., who identified it in nine women with circumscribed, non- hemorragic breast masses [(3)].
PASH is characterised by benign stromal proliferation of myofibroblastic cells that anastomose capillary-like. There is a complex inter-anastomosing slitlike spaces in the dense collagenous stroma lined by spindle shaped myofibroblasts that simulate vascular proliferation [(4)].

The spindle cells usually express hormone receptors like estrogen and progesterone and are positive for CD34, vimentin, actin, calponin but negative for vascular markers like CD31 [(5)].

The pseudoangiomatous stromal hyperplasia is discovered incidentally in up to 23% of breast surgical resections and the differential diagnosis of PASH comprehend low-grade angiosarcoma, myofibroblastoma, fibroadenoma and hamartoma [(4) (6)].

In this study, we reported a rare case of diffuse pseudoangiomatous stromal hyperplasia of axillary estension of breast tissue removed from the axillary cavity of a 33-year-old woman.

CASE PRESENTATION

A 33-year-old woman had a rapidly growing subcutaneous neoformation in the right axillary region. Due to the position and the aspect, firstly the mass was clinically diagnosed as nodular fasciitis.
After the surgical removal, the sample was sent in the laboratory of ***Anatomic Pathology of the Santa Rita Clinic, Monza Policlinic Group*** sited in Vercelli. Macroscopically, the neoformation was represented by a capsulated greyish mass of fibro-elastic consistency, weighing 126g and measuring 8 x 6 x 4,2 cm and with a maximum diameter of 4,8cm (**Figure 1**).

After the macroscopic observation, the specimen was prepared for the microscopical observation.
From microscopical observation of paraffin embedded hematoxylin and eosin stain, an axillary estension of ectopic mammary tissue was found (**Figure 2a**).
The mammary tissue presented many inter-anastomosing spaces in the stroma resembling a vascular lesion that could lead to a misdiagnosis of angiosarcoma (**Figure 2b**).

Histologically the specimen displayed a pathological picture of fibroadenoma with hyaline stroma with slit-like structures located within and between the mammary lobules arranged concentrically and the spaces are lined by spindle cells that simulate endothelial cells (**Figure 3**).

The sample did not present atypia, mitoses or necrosis. The immunohistochemical staining showed positivity for hormone receptors (ER, PgR) limited to the glandular component and positivity for CD34 and actin markers in slit-like stromal spaces, that was negative for the endothelial markers CD31 and ERG (**Figure 4a-4b**). The immunophenotype was consistent with PASH.

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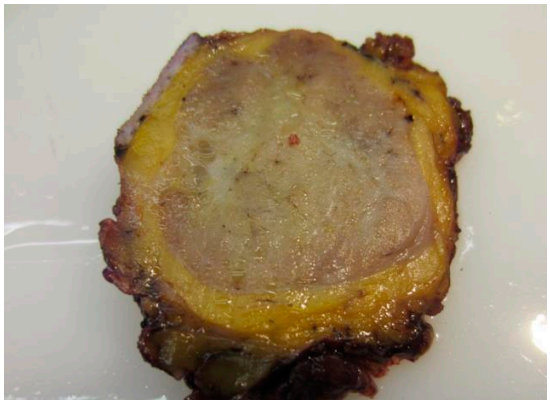

Figure 1
Cut section shows a capsulated greyish mass.

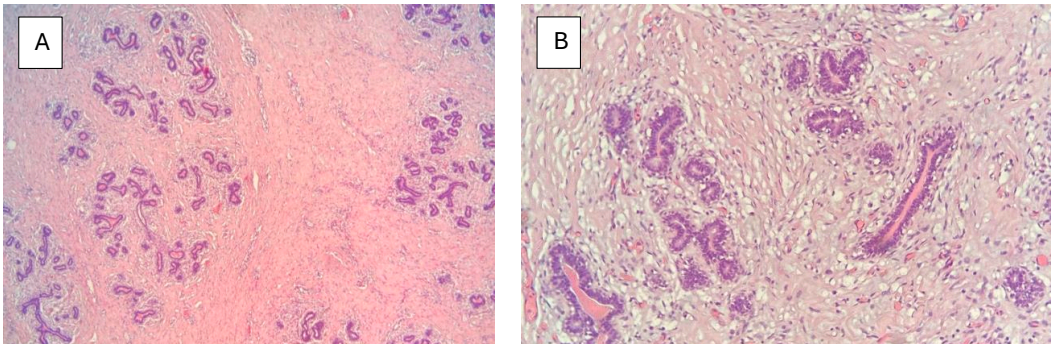

Figure 2A-2B
Hematoxylin and eosin slide of mammary parenchima with fibroadenoma and PASH (a) (Magnification 5x); Hematoxylin and eosin slide shows inflammatory infiltrate around the lobules (b) (Magnification 20x).

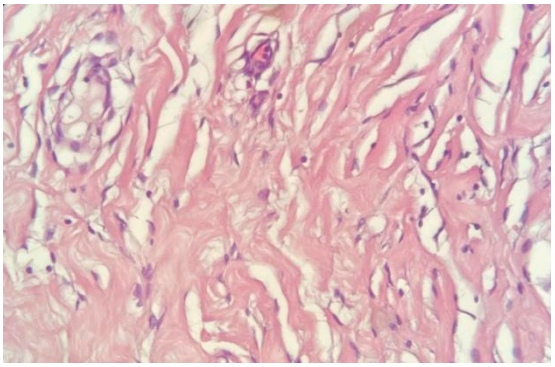

Figure 3
Hematoxylin and eosin slide shows dense and hyaline stroma with slit-like structures (Magnification 40x).

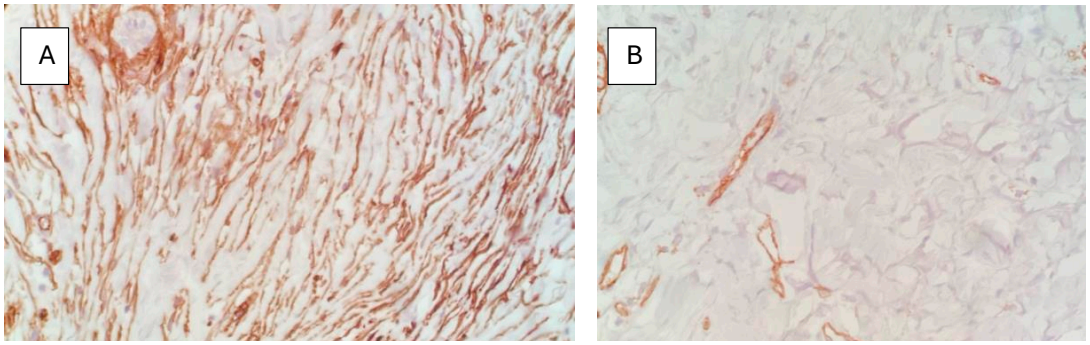

Figure 4A-4B
Immunohistochemical staining slide shows positivity for CD34 (a); Immunohistochemical staining slide shows negativity for CD31(b) (Magnification 40x).

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DISCUSSION

Pseudoangiomatous stromal hyperplasia can be present in normal breast tissue or concomitant with other lesions [(7)]. The histologic examination can indicate a wide range of morphological variations [(4)].

Typically, PASH demonstrates the following microscopic features: complex, inter-anostomosing spaces within a dense, keloid-like collagenous stroma that can be bordered by spindle-shaped myofibroblasts resembling endothelial cells, rare occurrences of multinucleated giant cells and absence of mitotic activity, necrosis or cellular atypia.
This pattern has been described as "simple PASH" distinguishing it from the form known as "proliferative PASH". In proliferative PASH, there may be foci of spindle cells that can underlying the typical pattern [(9) (10) (11)].
Ferreira et al. analysed 26 cases of PASH, and the results indicated that the PASH was classified as simple in 69% of the cases (18/26), fascicular or proliferative in 31% of the cases (8/26).
In 17 patients they found gynecomastia-like changes and in 1 case the finding of PASH was concomitant with invasive carcinoma of the breast. However, they did not consider the evaluation of hormone receptors expression, and the immunoreactivity was not reported [(12)].

In this study, we describe a case of a 33-year-old woman with simple PASH concomitant with fibroadenomatoid hyperplasia of breast parenchyma that was present in the right axillary cavity.
We reported the positivity for estrogen and progestin hormone receptors in epithelial components and immunohistochemical positivity for CD34, with negativity for CD31, in slit-like stromal spaces, characterizing PASH, helping in differential diagnosis with angiosarcoma. The diagnosis of pseudoangiomatous stromal hyperplasia can be confused with true vascular tumors, because PASH features mesenchymal cells forming vascular-like structures that could mimic the phenomenon of vascular mimicry.
Vascular mimicry represents a malignant process involving epithelial-mesenchymal transition in many solid neoplasia with the formation of pseudoangiogenic vascular structures through the lack of epithelial antigen in a dedifferentiation mechanism, with acquisition of mesenchimal phenotipe, promoting tumor growth.
On the contrary, PASH represents a benign process confined to the stroma that does not involve cellular transition or invasion.

While angiomatous tumours express vascular markers like CD31 and Von Willebrand factor, PASH is typically positive for myofibroblastic markers such as CD34, SMA and negative for vascular markers [(1)].

CONCLUSION

Pseudoangiomatous stromal hyperplasia (PASH) of the breast is a rare benign tumour that can have a wide range of morphological features and for this reason this pathology can be misdiagnosed.
PASH can be found through imaging test performed for other benign or malignant breast pathologies [(8)].

However, the radiological and ultrasonographic imaging findings are non-specific, so biopsy of the sample is necessary and recommended for a correct diagnosis for a complete and corrected diagnosis, it becomes important to perform a histological analysis supported by immunohistochemical staining.
The treatment of PASH includes local excision and the follow-up evaluation is suggested.

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