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Benign fibrous histiocytoma in breast: a case report on uncommon etiology with common presentation

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Abstract

Background: Benign fibrous histiocytomas are among the most common soft tissue tumors and are made up of a mixture of fibroblasts, histiocytes, and chronic inflammatory cells. These are commonly found in skin and less commonly in deep soft tissues. There are reports of the presence of a malignant counterpart of fibrous histiocytoma in the breast; however, existence of benign fibrous histiocytoma in breast is a very rare occurrence.

Case presentation: We present here a case of benign fibrous histiocytoma at an uncommon location with a common presentation. This is a case of 45-year-old female patient, who complained of a painless focal area of hardness and itching in the left areolar region that developed gradually for 1 year, with recent onset of areolar skin thickening, erythema, and mastalgia on the left side. Physical examination revealed a focal area of nodular thickening in the areolar region on the left side with erythema and skin excoriation. No mass was palpable in either breast or axilla. A subsequent mammogram showed an area of focal thickening in the areolar region. Ultrasound also showed a similar finding of nodular skin thickening. Paget's disease was suspected based on clinical and imaging findings. The contralateral breast was normal. Afterward, a core needle biopsy was done, but the histopathology report was inconclusive and showed only a spindle cell lesion. In due course, excisional biopsy was performed and on the basis of morphology and immune-histochemical markers, a diagnosis of benign fibrous histiocytoma was made.

Conclusions: Benign fibrous histiocytomas are varying soft tissue tumors that show wide variations in anatomic locations, biologic behavior, and pathologic features. Its diagnosis can be very challenging by imaging and even on histopathology. It must be based on the combination of morphological features and immunohistochemistry. Breast is an extremely uncommon location, and its presentation can mimic invasive carcinomas. A number of other benign and malignant skin lesions may be considered as probable differential diagnosis. It is worthwhile to keep these diverse entities in mind as differential diagnosis, with regards to this particular clinical presentation, which can be beneficial in dealing with challenging cases.

Keywords: Soft tissue fibrous lesions, Benign fibrous histiocytoma, Benign breast tumors, Case report

Background

Benign fibrous tumors are diverse soft tissue tumors which show wide variations in anatomic locations, biologic behavior, and pathologic features [1]. Among these tumors, benign fibrous histiocytoma (BFH) is one of the most common mesenchymal tumors involving fibroblasts and histiocytes. This tumor is most frequently found in the skin of the extremities and less commonly in deep soft tissues and organs [2–4].

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Our PubMed research showed many reports of the malignant counterpart of fibrous histiocytoma in the breast; however, existence of benign fibrous histiocytoma in breast is a very rare occurrence. We found only 4–5 cases of benign fibrous histiocytoma in breast. The diagnosis can be very difficult by imaging and is confirmed histologically only [2–4]. We present here a case of benign fibrous histiocytoma at an uncommon location with a common presentation.

Case presentation

We present here a case of 45-year-old female patient, who visited our outpatient clinic with the complaint of a painless focal area of hardness in the left areolar region which is associated with occasional itching. These complaints gradually developed for 1 year for which she went to a local general physician and had been given some local ointments. She also complained of recent onset areolar skin thickening and erythema and mastalgia on the left side. The patient had no prior history of surgery, or previous neoplasia or radiation.

Physical examination revealed a small focal area of nodular thickening in the areolar region on the left side with erythema and skin excoriation. No mass was palpable in either breast or axilla. Subsequently, a mammogram and ultrasound of the breast were performed. Mammogram showed an area of focal skin thickening in the areolar region (Fig. 1a, b). Ultrasound also showed a similar finding of nodular skin thickening. No mass was found within the breast on imaging. No microcalcifications were noticed on the mammogram. Paget's disease was suspected based on clinical and imaging findings. The contralateral breast was normal. Subsequently, core needle biopsy was done, but the histopathology report was inconclusive and showed only spindle cell lesion. An excisional biopsy was recommended. In due course, wide local excision was performed.

On this histopathology, morphological features exhibited fascicles of spindle cells with mildly pleomorphic nuclei. The storiform pattern was also appreciated. These cells were admixed with foamy histiocytes and other chronic inflammatory cells. There was no necrosis or epithelial hyperplasia or dysplasia (Fig. 2a–d). Immunohistochemical analysis revealed diffuse positivity for vimentin and CD68, while CKAE1/AE3, CD34, actin, caldesmon, and S-100 were found to be negative. Hence, histopathology confirmed the presence of benign fibrous histiocytoma.

Discussion

Benign fibrous histiocytomas are common soft tissue tumors found in skin and in deep soft tissues [5]. Its presence is exceedingly rare in the breast; however, the

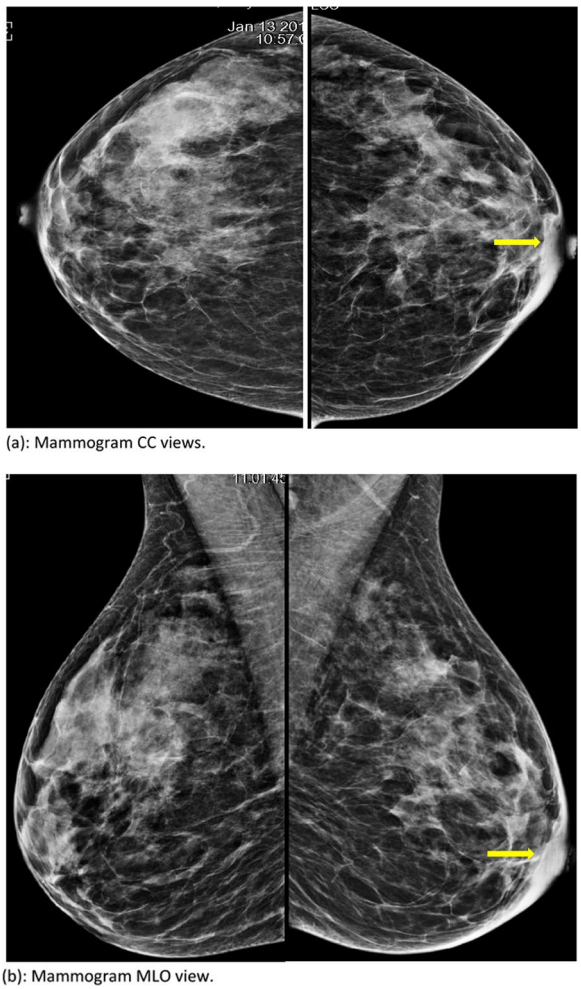

Fig. 1 **a** Mammogram CC views. **b** Mammogram MLO view. Focal high-density area in the retroareolar region corresponds to the nodular skin thickening on clinical examination (yellow arrow). There is no mass or microcalcifications in either breast

presence of the malignant counterpart of fibrous histiocytoma in the breast is not uncommon. It usually presents with a painless mass with nonspecific symptoms [2].

In our case, the patient presented with nodular skin thickening with erythema and skin excoriation in the retroareolar region. Clinically, these findings are a common presentation of Paget's disease of nipple in which patients present with changes in the nipple and areolar region in the form of erythema, eczematous changes ulceration, and thickening of skin that may be associated with nipple retraction and nipple discharge with suspicious of underlying malignancy [7]. Mammography is the initial radiological investigation for identifying underlying malignancy or DCIS; however, it may be normal, and

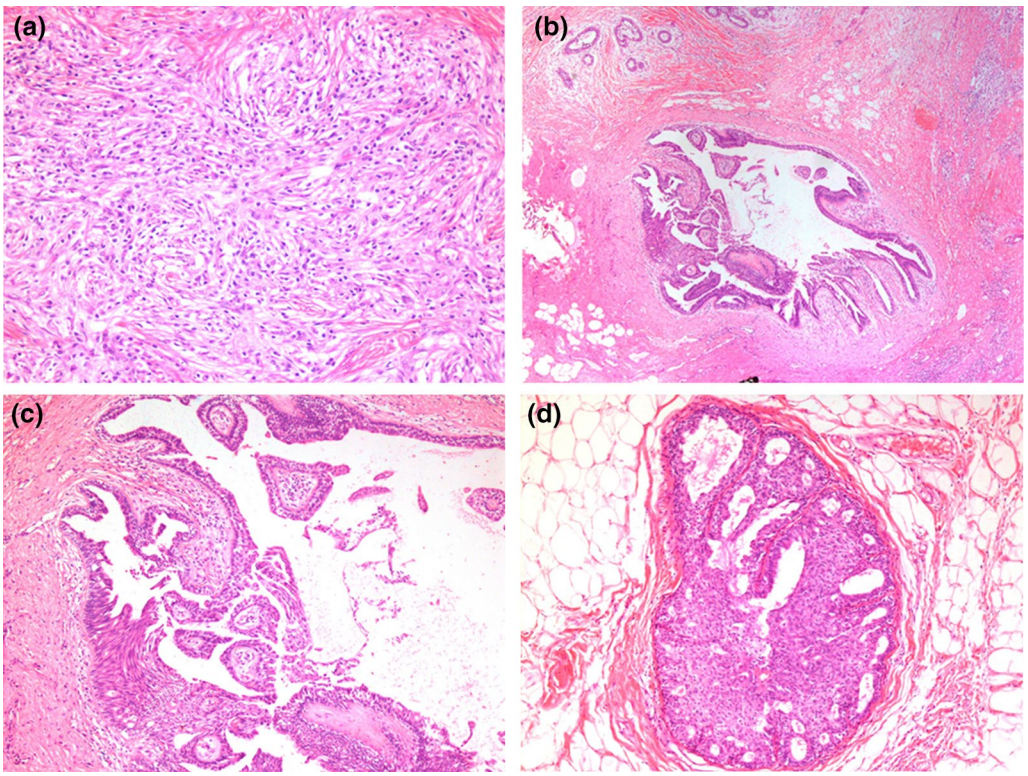

Fig. 2 **a** High-power magnification of breast lump biopsy showing spindle cell lesion arranged in storiform pattern dissecting collagen fibers. No nuclear atypia, necrosis, or mitosis is seen. (H&E × 400). **b** Low-magnification view of breast tissue showing large lactiferous duct with a papillary lesion exhibiting papillary structures with central fibrovascular cores. (H&E × 100). **c** High-magnification view of a papillary lesion exhibiting papillary structures with central fibrovascular cores, lined by dual epithelial and myoepithelial cell layers. (H&E × 200). **d** High-magnification view of lactiferous duct exhibiting solid/cribriform pattern with irregular cleft like spaces separated by proliferating epithelial and myoepithelial cell layers. These cells show minimal variation in size and shape. No necrosis is seen. (H&E × 200)

ultrasound is the next best step when the mammogram is negative [7].

Another differential diagnosis in our case would be benign eczema, but it is usually bilateral and may be associated with systemic symptoms of atopic dermatitis. If symptoms do not improve after treatment with a topical steroid, a biopsy should be performed [8]. A number of other benign and malignant skin lesions may be considered probable differential diagnosis [6]. The diagnosis of fibrous histiocytoma can be very difficult by imaging and even on histopathology; diagnosis is often a challenge and must be based on the combination of morphological features and immunohistochemistry [2].

This case report presents an atypical presentation of uncommon soft tissue tumor involving unconventional anatomical location. Further studies are, however, required to elaborate on usual and unusual clinical and imaging features of this soft tissue tumor. Generally, prognosis of typical benign fibrous histiocytoma is excellent. Wide local excision is adequate to prevent the recurrence of the tumor. Local recurrence is rare, resulting in excellent prognosis, but locally aggressive and metastasizing tumors have been reported [3]. These may rarely become malignant, and the prognosis depends on the size and grade of the tumor [9]. Our patient is now on follow-up for the last 2 years. There is no recurrence.

Conclusions

Benign fibrous tumors are diverse soft tissue tumors that show wide variations in anatomic locations, biologic behavior, and pathologic features. Breast is an extremely uncommon location, and its presentation can mimic invasive carcinomas. Baseline imaging investigations may be inconclusive, and histopathology with morphological evaluation and immunohistochemistry is paramount for its diagnosis.

Abbreviations

BFH: Benign fibrous histiocytoma; DCIS: Ductal carcinoma in situ; CKAE1/AE3: Cytokeratin AE1/AE3; CD68: Cluster of differentiation 68.

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SS (corresponding author) suggested and developed the idea. She did manuscript writing, revising, and editing. KA assisted in manuscript editing. SS and RR helped in histopathology descriptions and images. All authors have read and approved the manuscript.

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Availability of data and materials
Data are available upon request.

Declarations

Ethics approval and consent to participate
Ethical approval was waived from the Ethical Review Board of our Sindh Institute of Urology and Transplantation, Karachi, Pakistan. Written informed consent was obtained from the patient for assigning them to sample and using their data in research.

Consent for publication
Written informed consent to publish this information was obtained from the study participant. Proof of consent to publish from the study participant can be provided on request.

Competing interests
The authors declare that they have no competing interests.

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References

1. Dinauer PA, Brixey CJ, Moncur JT et al (2007) Pathologic and MR imaging features of benign fibrous soft-tissue tumors in adult. Radiographics 27:173–187
2. Gutiérrez MDA, Zuluaga NAV, Buitrago PA et al (2016) Benign fibrous histiocytoma, case report. Hematol Med Oncol 1(1):21–23. https://doi.org/10.15761/HMO.1000103
3. Ding YF, Hao SP (2013) Benign fibrous histiocytoma of the cheek. Am J Otolaryngol Head Neck Med Surg 34:154–157
4. Ceroni D, Dayer R, De Coulon G, Kaelin A et al (2011) Benign fibrous histiocytoma of bone in a paediatric population: a report of 6 cases. Musculoskelet Surg 95:107–114
5. Abdellatif E, Chatzipantelis P. Dermatofibroma (fibrous histiocytoma). PathologyOutlines.comwebsite. http://www.pathologyoutlines.com/topic/softtissuebfh.html. Accessed 27 Nov 2020
6. Ananiev J, Tchernev G (2014) Giant cutaneous benign fibrous histiocytoma of the breast: successful surgical approach in a young female patient. Akush Ginekol 53(4):62–64
7. Sripathi S, Ayachit A, Kadavigere R (2015) Spectrum of imaging findings in Paget's disease of the breast—a pictorial review. Insights Imaging 6(4):419–429. https://doi.org/10.1007/s13244-015-0415-z
8. Lim HS, Jeong SJ, Lee JS (2011) Paget disease of the breast: mammographic, US, and MR imaging findings with pathologic correlation. Radiographics 31:1973–1987. https://doi.org/10.1148/rg.317115070
9. Meshikhes AWN, Jan GM, Al-Jaroof AH (2005) Fibrous histiocytoma of breast. Saudi Med J 26(2):326–329

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