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Rare Bird Spotted: Leiomyoma Of The Breast - Case Report

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ABSTRACT: *Leiomyomas, originating from smooth muscle and primarily identified in the gastrointestinal tract and uterus, are rare non-malignant tumors. In breast pathology, leiomyomas are exceptionally rare, constituting less than 1% of all breast neoplasms. This narrative presents a case of a 35-year-old woman diagnosed with breast leiomyoma, exploring its immunohistochemical and histological characteristics, and discussing relevant literature. The clinical, radiological, and pathological features align with common benign lesions, emphasizing the diagnostic challenges of breast leiomyomas. The presented case involves a pregnant woman with a painless subareolar mass, showcasing consistent radiological findings. An ultrasound-guided breast core biopsy confirmed the leiomyoma diagnosis, supported by immunohistochemical analysis. Despite initial reluctance for surgical resection, understanding the rarity and potential diagnostic challenges of breast leiomyomas remains crucial. This case contributes to the growing body of knowledge on these uncommon breast tumors, highlighting the significance of comprehensive diagnostic approaches.*

INTRODUCTION:

Leiomyoma, originating from smooth muscle and categorized within mesenchymal neoplasms affecting the gastrointestinal tract and uterus, is a non-malignant tumor. In the realm of breast pathology, leiomyoma stands out as an exceptionally rare non-epithelial tumor, representing less than 1% of all breast neoplasms, with documented cases in the literature numbering fewer than 30. This tumor typically manifests in the subareolar region, where a higher concentration of smooth muscle exists. Notably, it affects individuals of both sexes.

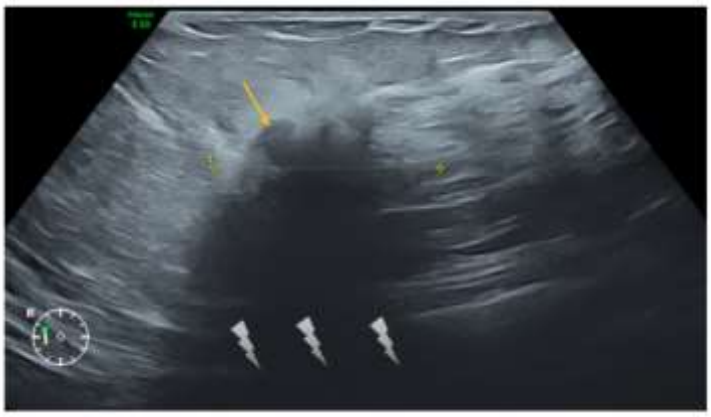
These narrative details the case of a 35-year-old woman diagnosed with breast leiomyoma, presenting an exploration of the lesion's immunohistochemical and histological characteristics, complemented by a discussion of pertinent literature. The clinical, radiological and pathological characteristics do not differ markedly from those observed in the most frequent benign lesions. We report a case of leiomyoma in the breast parenchyma that was seen in our service and conducted a review of the literature, with special attention to radiological features that have been described so far.

CASE REPORT:

A 33-year-old pregnant woman was seen at the Department of Gynecology and Obstetrics I of the Hassan II University Hospital Center of Fez with a history of a painless lump growing in her right breast for six months. She said that she did not have any other symptoms such as papillary flow or cutaneous lesions. She had not had any previous surgery or biopsies. She reported having had three pregnancies and two deliveries, with thirty months of breastfeeding. She was not lactating or taking hormone therapy, either. Her family history of breast cancer was negative.

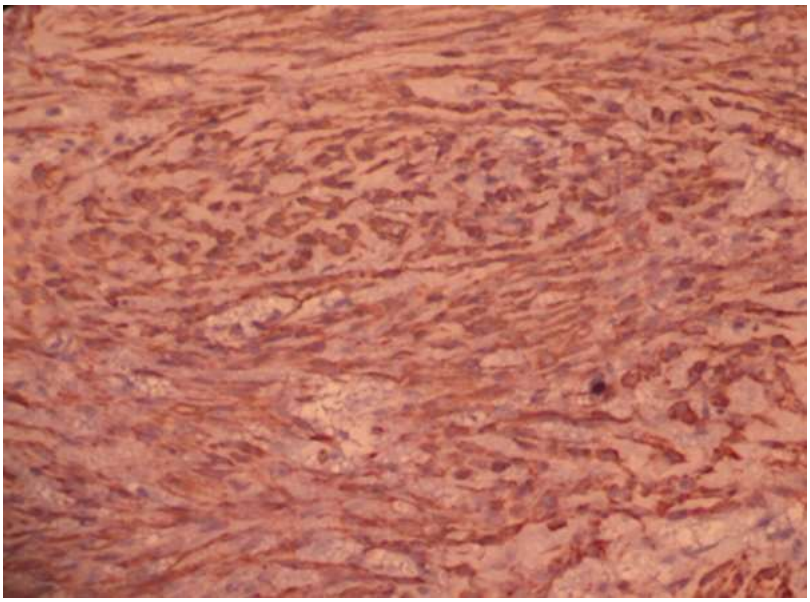
On physical examination, she had a mobile, well-circumscribed mass lesion measuring 1.5×1 cm localized in the in the subareolar region of the right breast, 1,5 cm away from the nipple. The mass had no attachment to the overlying skin and lacked any signs of inflammation. There was no axillary or supraclavicular lymph node involvement, nor was there any abnormality of the contralateral breast and axillary region.

Mammographic images showed an isodense circumscribed, oval, non-calcified mass measuring 1.6 x 1.4 cm that was located in the subareolar region of the right breast. Sonographic images of the left breast showed a hypoechoic homogenous oval mass measuring 1.4 x 1.3 cm that was horizontal and parallel to the skin. It had two lobulations and circumscribed margins, and was coincident with the location described through mammography. The lesion did not present any posterior acoustic shadow, hyperechoic halo or other associated abnormal features. The mass was classified as being in Breast Imaging-Reporting and Data System (BI-RADS) category 4b.



Mammogram revealing a substantial, ill-defined, spiculated, and markedly hypoechoic tissue mass in the upper outer quadrant of the right breast, classified as ACR5.

An ultrasound-guided breast core biopsy with a 12-gauge needle was performed and five fragments were obtained. The anatomopathological study revealed a fusocellular tumor proliferation arranged in intersecting bundles. The tumor cells are spindle-shaped, with a non-atypical elongated nucleus surrounded by abundant eosinophilic cytoplasm, and no mitotic figures were observed. The tumor morphology suggests a leiomyoma. Immunohistochemical analysis identified cells expressing desmin and h-caldesmone and not expressing PS100 or CD34. A diagnosis of smooth muscle tumor, and specifically mammary parenchyma leiomyoma, was established. The decision was a surgical resection of the lesion, which was declined by the patient who preferred to undergo the operation after giving birth.



Photomicrograph of surgical specimen shows uniform cytoplasmic staining for smooth-muscle actin in leiomyoma (1).

DISCUSSION:

Leiomyomas in the breast are rare tumors, with the first documented case described by Strong in 1913. These tumors typically occur in the subareolar region, and various theories about their origin have been proposed. Kaufman and Hirsch suggested that they may arise from smooth muscle cells surrounding capillaries in the subcutaneous tissues of the breast, while Diaz-Arias et al. proposed five potential sources, including teratoid origin, embryologically displaced smooth muscle, angiomatous smooth muscle, multipotent mesenchymal cells, and myoepithelial cells. The frequent occurrence of mammary leiomyomas near the nipple is attributed to the abundance of smooth muscle cells in that area, but the exact histogenesis remains controversial.

Radiologic features of breast leiomyomas are not well-defined, but some reports note sonography findings resembling a well-circumscribed solid mass, similar to a fibroadenoma. However, a lack of distal attenuation on sonography may differentiate leiomyomas from fibroadenomas. In the presented cases, the radiologic findings were consistent with those reported in the literature. Despite initial suspicions of fibroadenoma, significant unexplained expansion over a year prompted surgical excision, revealing leiomyoma upon histologic examination. The typical histopathologic features of breast leiomyomas include interlacing bundles of spindle-shaped cells with blunt-ended nuclei and eosinophilic cytoplasm. Immunohistochemically, leiomyomas often express vimentin, desmin, and muscle-specific actin. Breast leiomyomas are most commonly diagnosed in women of late middle age, typically occurring in the right breast. However, the presented cases deviate from this norm, as one patient was in her mid-40s, and the leiomyoma developed in the parenchyma of the left breast. Differential diagnoses for breast leiomyoma include adenoleiomyoma, cystosarcoma phyllodes, fibroadenoma with prominent smooth muscle, fibromatosis, benign spindle cell tumor, fibrous histiocytoma, myoepithelioma, myoid hamartoma, and the crucial consideration of leiomyosarcoma. Distinguishing between leiomyoma and leiomyosarcoma is essential due to the potential for recurrence and metastasis associated with the latter. Leiomyosarcomas exhibit marked cellular atypia, a higher mitotic rate, atypical mitoses, vascular invasion, and necrosis.

CONCLUSION:

In conclusion, breast leiomyomas remain a diagnostic challenge due to their rarity and variable radiologic features. Surgical excision and histopathological examination, supported by immunohistochemistry, play a crucial role in confirming the diagnosis and distinguishing leiomyomas from more aggressive lesions like leiomyosarcomas. Continued research and reporting of cases contribute to a better understanding of these uncommon breast tumors.

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