

A Rare Giant Cavernous Hemangioma: A Case Report with the Review of the Literature

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ABSTRACT

Objective: Vascular tumors of the breast are extremely rare; among these tumors, hemangiomas are tumors without pathognomonic features. Hemangiomas of the breast are incidentally seen in mastectomy cases. Diagnosis of these tumors using conventional imaging methods is rare. Core needle biopsy and aspiration biopsy cannot help the diagnosis.

Case: A 69-year-old woman presented to the outpatient clinic with a sudden hematoma on a slow-growing mass in the right breast with a 1-year history. After breast ultrasonography and dynamic contrast-enhanced magnetic resonance imaging supported a 5 × 4 × 2 cm hemangioma, fine needle aspiration biopsy was performed and sent to pathology after excisional biopsy because of the hematinic material. The pathological findings of the mass were positive for breast hemangioma, and no disease recurrence has been observed in the last six months.

Conclusions: Preoperative diagnosis of breast hemangiomas is difficult. Surgical excision is recommended if the vascular lesion is larger than 2 cm, shows atypical features on core needle biopsy, or has discordant radiologic and pathologic findings.

Keywords: Hemangioma, Female Breast, Vascular Tumor.

INTRODUCTION

According to clinical practice, vascular tumors of the breast are extremely rare, with hemangiomas and angiosarcomas being more common (1). Breast hemangioma formation is rare and usually does not exceed 2 cm in diameter (2). Breast hemangiomas are usually detected incidentally in mastectomy and postmortem cases (3). Since they lack pathognomonic features, making a preoperative diagnosis using conventional imaging methods is difficult. Giant breast hemangioma presenting with hematoma is a very rare clinical presentation..

CASE

A 69-year-old woman presented to our breast outpatient clinic because of a bruise (purple area) that appeared on her right breast for the last two days, while there was a slowly growing swelling two to three cm above the nipple in her right breast for the last one year. Physical examination revealed a hematoma of approximately 4 cm in the right breast at the 12 o'clock position. The hematoma was located in the intraparenchymal part of the breast and was separated from the other areas as a segment with a sharp border. Further examination revealed no axillary pathologic lymphadenopathy or nipple discharge and no family history of breast cancer. The patient had no history of trauma to the breast and did not report any bleeding-coagulation disorder. Hemogram, biochemistry, prothrombin time and international normalized ratio values were normal.

Breast ultrasonography was performed. Breast ultrasonography revealed a 32×49 mm lobulated contoured, heterogeneous, hypoechoic solid lesion with cystic areas and a heterogeneous, hypoechoic solid lesion 3 cm from the areola at 12 o'clock in the right breast and a heterogeneous, finger-like hematoma in the periphery (BI-RADS 4 findings).

Considering the possibility of complications during mammography, dynamic contrast-enhanced magnetic resonance imaging (MRI) was recommended.

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The patient underwent breast MRI and a 57×49 mm nodular lesion with macro lobule contour, T1A hypointense, T2A hyperintense, peripheral and discontinuous contrast enhancement in the right breast retro areolar area was observed in the post-contrast series. The lesion was evaluated in terms of the contrast enhancement of hemangioma-like lesions with these contrast enhancement features (Figure 1).

Fine needle aspiration cytology was performed and revealed hemorrhagic aspiration without any ductal cells. Ultrasound-guided core needle biopsy (CNB) was performed and breast ducts, fat globules and vascular tissues were detected.

Excisional biopsy was performed to confirm the diagnosis. Histopathology report revealed a 5X4X2 cm firm mass with pale brown edematous and hemorrhagic areas on section. Microscopy revealed multiple thin-walled, dilated, and occluded blood vessels covered with a single smooth endothelial surface layer. No cytologic atypia was observed. The patient was diagnosed as cavernous hemangioma (Figure 2).

The patient did not develop any postoperative complications and was discharged after surgical recovery. No recurrence was detected in the six-month follow-up. The patient was informed after follow-up.

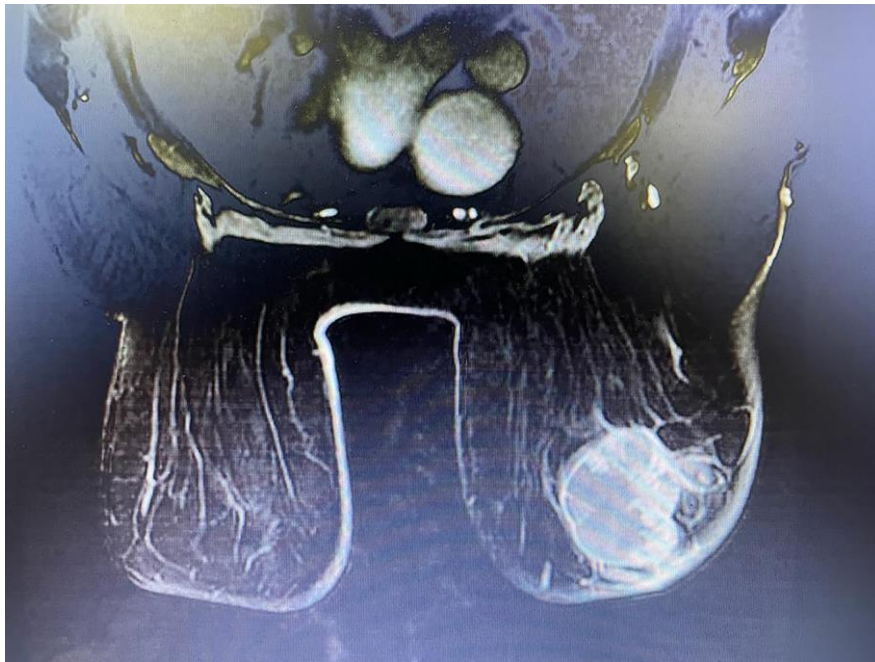


Figure 1: T1A hypointense, T2A hyperintense, macro lobule contoured nodular lesion measuring 57x49 mm in the right breast retro areolar area on dynamic contrast-enhanced breast MRI with peripheral and discontinuous contrast uptake in the post-contrast series.

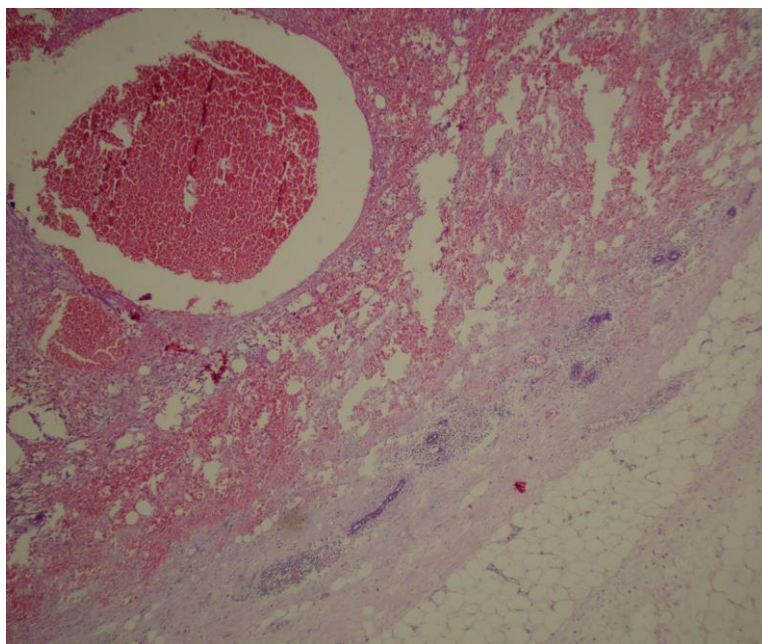


Figure 2: Microscopy revealed multiple thin-walled, dilated and occluded blood vessels covered by a single layer of smooth endothelial surface.

DISCUSSION

Breast hemangioma is a rare benign vascular tumor that accounts for 0.4% of all breast tumors. It occurs in approximately 1.2% of soft mastectomy specimens and 11% of postmortem specimens in women (5). Estrogen is thought to play a role in the pathogenesis of breast hemangiomas (6). The tumor ranges in age between 18 months and 82 years and most commonly affects women (7).

Breast hemangiomas are histologically characterized by the presence of dilated thin-walled vascular channels lined with endothelial cells (8). Histologically, breast hemangiomas can be classified as diffuse or localized, and as capillary or cavernous types based on their size. Localized hemangiomas can further be classified as peri-lobular (microscopic lesions found in the extralobular stroma), parenchymal (microscopic lesions with dilated and occluded vessels that can be divided into lobes by fibrous septa), subcutaneous (located in the subcutaneous tissue), and venous (irregular) (9). Breast hemangiomas do not have specific imaging features (10).

On mammography, breast hemangiomas may appear as isodense, well-circumscribed, or microlobular masses (11). Ultrasonography reveals an oval mass, which can be hypoechoic, isoechoic, or hyperechoic (12). Vascularity does not provide diagnostic value in color Doppler sonography (10). There are only a few reports on the MRI features of breast hemangiomas. The tumor typically appears isointense on T1-weighted images, hyperintense on T2-weighted images, and shows early contrast enhancement after contrast administration (13).

The preoperative diagnosis of breast hemangiomas is challenging. Only three out of 27 patients in a study by Funamizu et al. were diagnosed preoperatively, and core needle biopsy (CNB) and aspiration biopsy cytology were unable to aid in the diagnosis in 40.7% of cases where samples contained only hematinic material (10). Consequently, the limitations of radiology and fine needle aspiration biopsy make preoperative diagnosis of hemangiomas very difficult. When considering differential diagnosis, angiosarcoma, lipoma, cysts, mucinous carcinomas, and fibroadenomas should be taken into account for breast hemangiomas. Additionally, pseudoangiomatous stromal hyperplasia, lymphangioma, angiomatosis, and atypical vascular lesions following radiotherapy are other lesions that should be considered (14). However, the main distinguishing factor is angiosarcoma (7, 8, 10). Angiosarcomas tend to have intraparenchymal localization and are usually larger than 3 cm (15). The prognosis of angiosarcomas is extremely poor, with a three-year survival rate of only 38% (10). Although Mesurrolle et al. misdiagnosed 37% of angiosarcomas as hemangiomas using CNB, they reported that CNB is a potential method to differentiate hemangiomas from angiosarcomas (16).

If a hemangioma is identified on CNB, surgical excision is recommended to rule out angiosarcoma (17). Sebastiano et al. reported no transformation to cancer in 22% of breast tissue sent for surgical excision and 23% of incidentally encountered benign vascular lesions during a 40-month follow-up period (18). The largest study on this subject was conducted by Zhang et al., who examined 117 benign vascular lesions diagnosed with CNB and performed surgical

excision in 16.9% of hemangiomas and all atypical hemangiomas. During the follow-up of all patients, no transformation to cancer was detected, similar to the study by Sebastiano et al. (19). These findings limit the necessity of surgical excision, especially in patients with hemangiomas in CNB, in order to ensure radiologic and pathologic correlation. Recent scientific studies recommend surgical excision for lesions larger than 2 cm if there is atypia on core needle biopsy or if radiologic and pathologic findings are inconsistent (20).

CONCLUSION

Diagnosing breast hemangiomas using conventional imaging methods is uncommon. Core needle biopsy and aspiration biopsy are not helpful in making the diagnosis since histologically, hemangiomas primarily consist of hematinic material. Presently, surgical excision is recommended when the vascular lesion exceeds 2 cm in size, exhibits atypical features on core needle biopsy, or demonstrates inconsistent radiologic and pathologic findings.

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