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Retropectoral Hemangioma in A Male Patient: Report of A Case

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ABSTRACT

Background: A hemangioma is a rather common benign soft tissue tumor that rarely originates from both the pectoralis muscle and the breast. Vascular tumors of the breast, such as benign hemangiomas, are rarely seen in men.

Case presentation: A 40-year-old man presented with a non-tender palpable right breast mass since 6 months ago. On physical examination, a hard lump was detected in the central part of his right breast with normal intact skin without discoloration. No nipple discharge or axillary mass was detected.

Mammography revealed a well-defined heterogeneous mass with a few macrocalcifications. Surgical excision was performed and Microscopic examination revealed multiple vascular spaces covered by one layer of endothelial cells without any remarkable atypia or mitotic activity proved to be benign hemangioma.

Conclusion: A hemangioma should also be considered in the differential diagnosis of uncommon breast tumors in men. The imaging features of the male breast hemangioma seem to be similar to those described in female patients.

Introduction

A hemangioma is a common benign soft-tissue tumor that can rarely originate from both the pectoralis muscle and the breast. Vascular tumors of the breast, such as benign hemangiomas, are not frequent. They occur twelve times more often in women than men.¹ These lesions are rarely seen in

men; thus, there is limited data on this type of tumor in men with limited case reports in the literature. We present a 40-year-old man with a pathologically proved cavernous hemangioma and present the imaging characteristics. Such a tumor can cause diagnostic dilemma both clinically and radiologically. To the best of our knowledge, this is the first report of a hemangioma in a male patient in the retropectoral area presenting as a breast mass that is visible on mammograms with characteristic macrocalcifications and fat.

Case Presentation

A 40-year-old man presented with a non-tender palpable right breast mass since 6 months ago. He did not have any previous history of systemic

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diseases or trauma. He was not under any medications and did not have a history of any types of substance abuse. There seemed to be no family history of breast cancer.

On physical examination, a hard mass was detected in the central part of his right breast with normal intact skin without discoloration. No nipple discharge or axillary mass was detected. Digital mammography of the right breast (Full Direct Digital Hologic) was implemented in the standard craniocaudal and mediolateral oblique positioning. A circumscribed mass was seen in retropectoral area containing large macro-calcifications and a low-density area suggestive of fat (Figures 1 and 2).

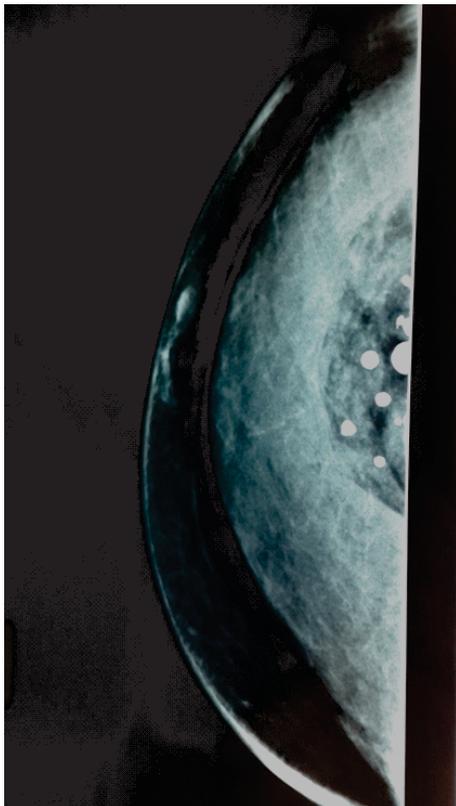


Figure 1. Craniocaudal mammography showed a mass containing fat and macro-calcifications in the patient's breast

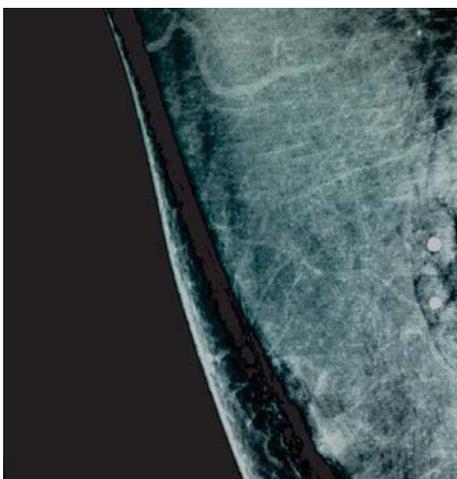


Figure 2. Mediolateral oblique mammography of the patient showed a deep mass containing macro-calcifications

Ultrasonography was performed with a 12-15 MHz transducer (Esaote MyLab). No evidence of gynecomastia was detected in either breast. The left breast was normal in ultrasonographic evaluation. An oval circumscribed heterogeneous mass which was mainly isoechoic and contained internal anechoic spaces was notable at the palpable lesion in the right breast. The lesion was located in the central part of the breast with a parallel orientation. Color Doppler ultrasonography revealed little internal vascularity within the mass (Figure 3).

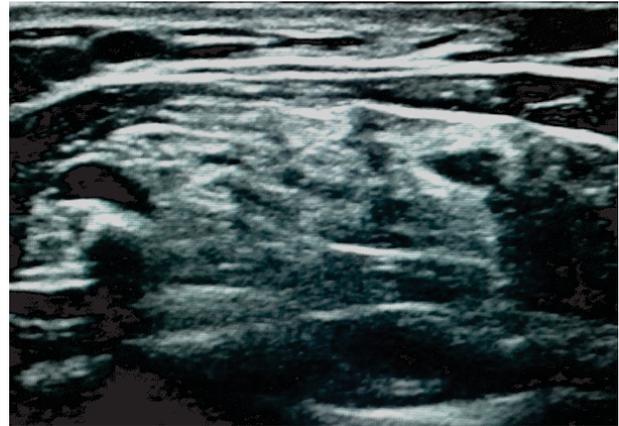


Figure 3. Sonography showed an isoechoic well defined mass with a tubular anechoic compartment and a few macro-calcifications.

According to the images, we suggested the differential diagnoses of hemangioma or hamartoma. Complete excision of the mass was performed and the pathology report proved the diagnosis of a hemangioma.

Macroscopic pathological examination of the specimen showed a highly vascularized, creamy brownish well-defined 4×3×1 cm mass with multiple white spherical tissues suggestive of macro-calcifications. Microscopic examination revealed multiple vascular spaces covered by one layer of endothelial cells without any remarkable atypia or mitotic activity. A local papillary endothelial hyperplasia was noted. The tumor was well demarcated, without any signs of infiltration of the surrounding tissue by the endothelial element (figure 4).

Discussion

Although a hemangioma is a rather common benign soft tissue tumor that presents in various parts of the body, its occurrence in both the pectoris muscle and the breast is rare. It is a benign vascular tumor containing blood-filled thin-walled vascular spaces that can occur both within and beyond lobular units in breast. Furthermore, occasionally phleboliths can be found within the tumor. Histologically, there are two common types of this tumor: the capillary hemangioma and the cavernous hemangioma.

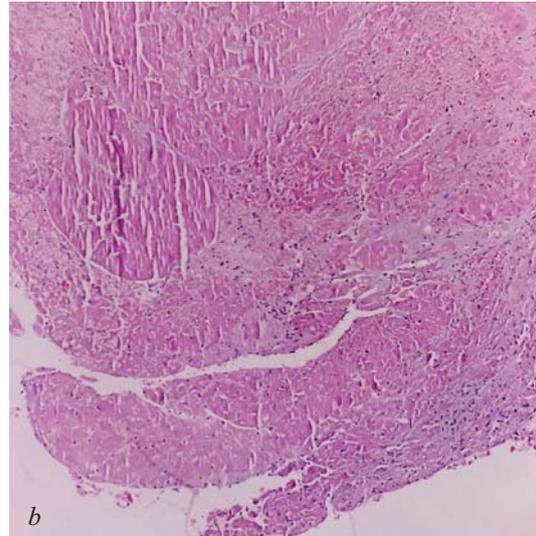
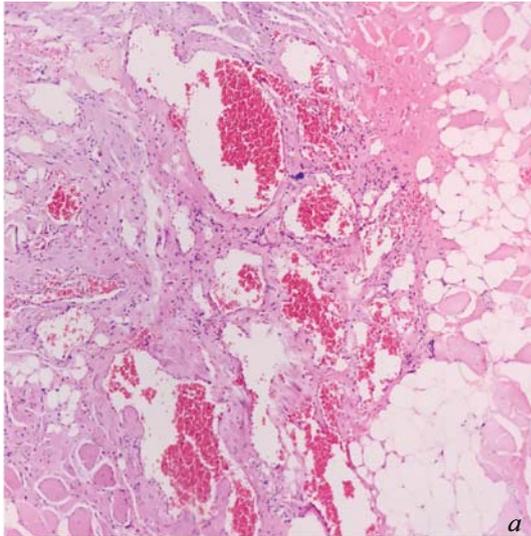


Figure 4. Microscopic examination showed a neoplasm composed of dilated irregularly shaped vascular spaces with variably muscularized walls and bland-looking endothelial lining in a fibrous stroma (a). There was no evidence of nuclear atypia or papillary endothelial proliferation in the specimen. Separate fragments of organized thrombosis were also seen (b).

Sometimes it is hard to distinguish a benign hemangioma from a low-grade angiosarcoma on pathological examination. On the other hand, transformation of a benign hemangioma to a low-grade angiosarcoma is reported; but, it is considered controversial.²⁻⁴

Most of the previous studies reported the imaging characteristics of hemangiomas in female patients, with few case reports in males. According to the available literature, the imaging characteristics of hemangiomas are rather identical in both male and female patients.⁴⁻¹⁷

Two published case series reported the features of breast hemangioma in 18 and 16 female patients. On mammography, findings are variable; however, the most common presentation is an oval or lobular mass with circumscribed or microlobular margins with equal density to the parenchyma of the breast.^{16,17}

Calcifications secondary to phleboliths formation may exist within hemangiomas and are often located superficially.^{18,19} The presence of calcification in a mass on the mammography of a male patient suggests differential diagnoses such as breast carcinoma in situ; tuberculosis; fat necrosis due to trauma; parasitic infections (schistosomiasis, paragonimiasis, myiasis, etc); and hemangioma.⁵

The ultrasonographic appearance is variable; however, most of the previous studies have reported benign features. The borders are most often circumscribed or microlobulated. As for echogenicity, the lesions might be hyperechoic, isoechoic, hypoechoic, or complex. It has been suggested that the presence of multiple small vascular channels within a hemangioma may cause a complex echo pattern in ultrasonography.¹⁷ In case of isoechoic or slightly hypoechoic nature of the tumor, the lesion is

less likely to be detectable in ultrasonography compared to mammography.^{16,17} Macrocalcifications within a solid mass on ultrasonography have also been reported.^{16,17} Color Doppler ultrasonography is commonly used in discrimination of benign and malignant vascular lesions.¹⁸ However, hypervascularity has also been reported in some patients with benign breast masses such as hemangiomas.⁷ Shi *et al.* also reported that the measured mass size on sonography was less than the true size of the pathologic specimen; they believed that the reason for this finding could be the smaller size of the footprint of the transducer than the tumor and the similarity of the echotexture of the mass to the normal peripheral tissue.⁵

Although not performed for our patient, the magnetic resonance imaging appearance of hemangiomas has been described in multiple cases which are suggestive of vascular lesions that may contain fluid-fluid levels.⁵ High signal on T2-weighted and intermediate signal on T1-weighted images are due to vascular spaces and muscle tissues, respectively. Thrombosis or phleboliths cause low-signal foci on T2-weighted images. The enhancement characteristics after gadolinium injection, depending on the vessel size within the lesion, include intense contrast enhancement and gradual centripetal enhancement.^{16,19}

According to the available literature, the management of a benign hemangioma varies from excision of the lesion to imaging surveillance without any invasive intervention. The justification for surgical excision is to eliminate the possibility of an underlying malignant angiosarcoma and to prohibit progression to an angiosarcoma. Meanwhile, according to a case report, if the benign nature of a hemangioma is confirmed through imaging-guided



large core biopsy, there would be no need for surgical excision of the mass.¹² The authors recommended to continue imaging surveillance of the patients for 2 years at 12-month intervals to monitor the stability of the suspected lesion.¹²

There are few case reports of breast hemangioma in male patients in the literature.^{1, 2, 5, 6, 8, 9, 20} Most of them presented with 1.5 to 5.5 cm palpable masses. The reported patients were aged between 30 to 77 years old. All of them had neither a history of specific medical disease nor a history of substance abuse. All showed well defined masses on mammography and calcification were noted in some cases. There was no side preference, and hemangioma distributed equally between the right and left breast. According to the reported cases, FNA was not helpful for diagnosis; while core needle biopsy might be considered as a reliable diagnostic tool. Surgical excision was the treatment of choice in most cases.

We reported a male patient with a hemangioma of the breast. We suggest that this lesion should be in the list of differential diagnosis of uncommon breast tumors in men. The imaging features of male breast hemangiomas appear to be similar to those described in female patients.

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