

# Cavernous hemangioma of the female breast<sup>1</sup>

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**A cavernous hemangioma of the female breast parenchyma became evident as a palpable mass. Treatment consisted of a simple excision. An infiltrating ductal carcinoma subsequently developed in the same breast, but the patient has been followed for seven years without the vascular tumor recurring. Problems with the differential diagnosis of vascular lesions of the breast are discussed.**

**Index terms:** Breast neoplasms • Hemangioma, cavernous

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A controversy in the field of pathology involves the potential malignancy of palpable or symptomatic vascular lesions of breast parenchyma. Some authorities consider such lesions malignant until proved otherwise, irrespective of their histologic appearance.<sup>1,2</sup> Others have documented the rare occurrence of benign cavernous hemangioma presenting as a palpable tumor.<sup>3,4</sup> This paper reports an additional case of cavernous hemangioma presenting as a breast mass. The differential diagnosis is discussed.

### Case report

A 72-year-old white woman came to the Cleveland Clinic complaining of a lump in her left breast. A physical examination revealed a moderately firm, 1.5-cm-thick mass deep in the inferomedial quadrant of the left breast. An excisional biopsy was performed.

The excised tumor was ovoid, spongy, dark red, and measured 1.8 × 1.6 × 1.0 cm (*Fig. 1*). Many small, blood-filled spaces were present throughout the specimen. The

entire specimen was submitted for microscopic examination. The histologic features were characteristic of cavernous hemangioma. The tumor had a sharply circumscribed pushing border and consisted of generally rounded, thin-walled, blood-filled spaces lined by a flattened endothelium (*Figs. 2 and 3*). The endothelial cells demonstrated no hyperchromasia, atypia, or mitotic figures.

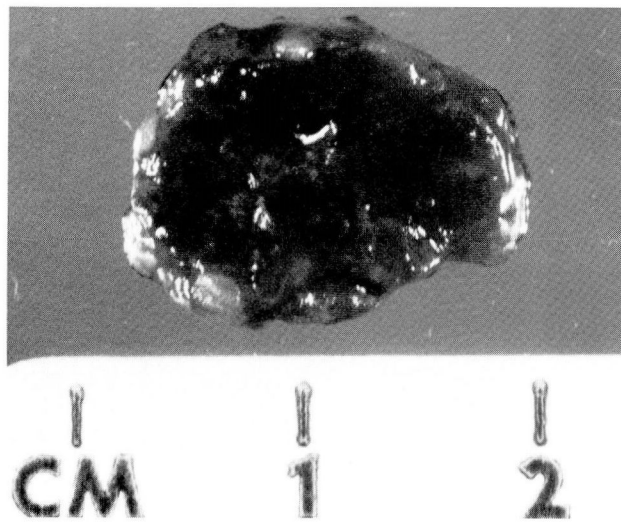
During the one-year follow-up examination, dimpling was noted in the upper-outer quadrant of the left breast. A wide upper-outer quadrant excision and axillary sampling were done. The excised quadrant contained an infiltrating ductal carcinoma measuring 3.4 × 2.2 × 2.0 cm. Metastasis was present in one of 12 axillary lymph nodes. No vascular lesion was discovered in the resected tissues. Cobalt-60 therapy was administered to the internal mammary lymph node chains, left supraclavicular area, left axilla, and left breast which totaled 5,000 rads over five weeks. Iridium-192 implants were then placed in the left breast to deliver 2,745 rads.

After seven years, a recurrence of the disease has not been evident.

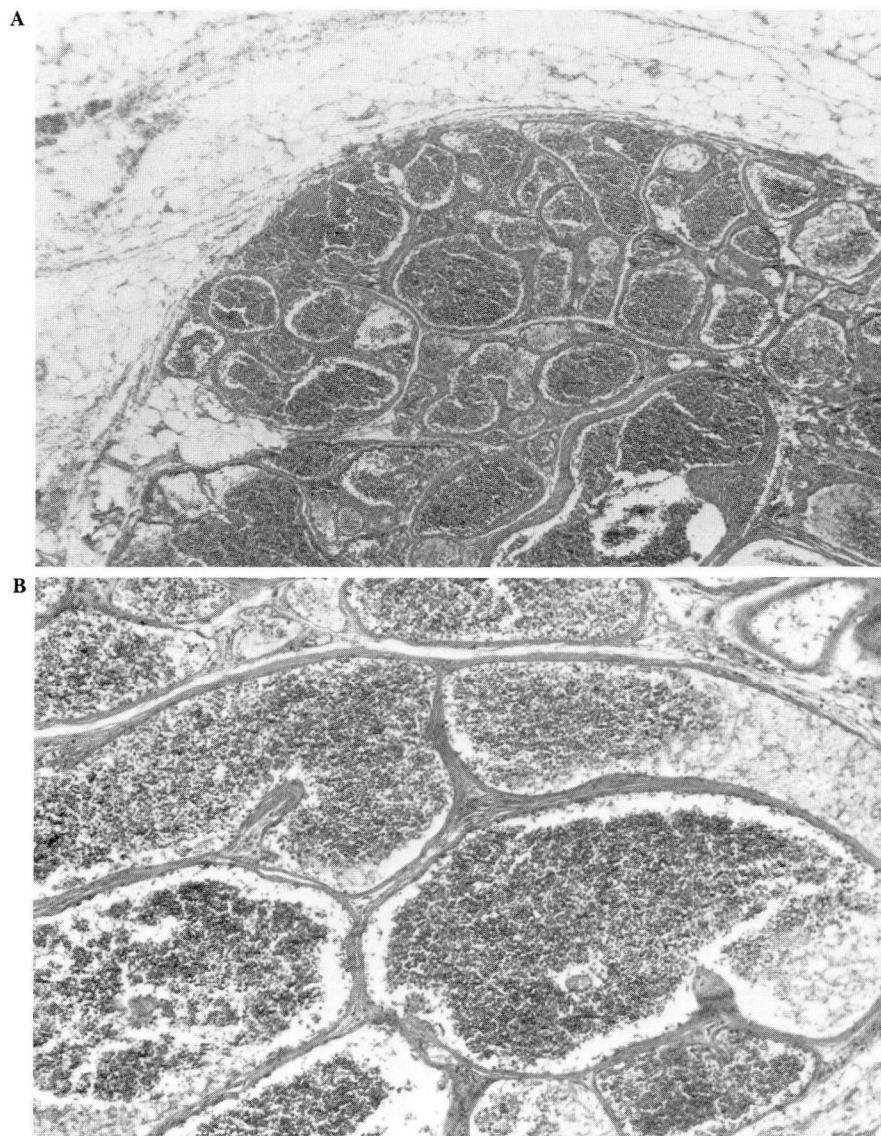
### Discussion

Vascular lesions of female mammary parenchyma are rare; most can be classified as either angiosarcomas or hemangiomas.<sup>4,5</sup> Perilobular hemangiomas,<sup>5</sup> found in 1.2% of biopsy and mastectomy specimens, are the most common. Virtually all are microscopic and are discovered incidentally.<sup>2,5</sup> Most palpable and symptomatic vascular tumors are angiosarcomas.<sup>4</sup> Because these sarcomas may be well differentiated and deceptively bland in appearance, particularly at the tumor margins,<sup>4</sup> misinterpretation is common.<sup>6</sup> McDivitt et al<sup>1</sup> have stated that, "After the perilobular angiomas have been eliminated, it must be inferred that all the capillary tumors are malignant." Azzopardi<sup>2</sup> has claimed that, "If a vascular tumor of the breast substance is producing a palpable lump or other symptoms, it must be regarded as angiosarcoma unless otherwise proven." Yet, he warned that this rule is applicable only when one is certain that the lesion in

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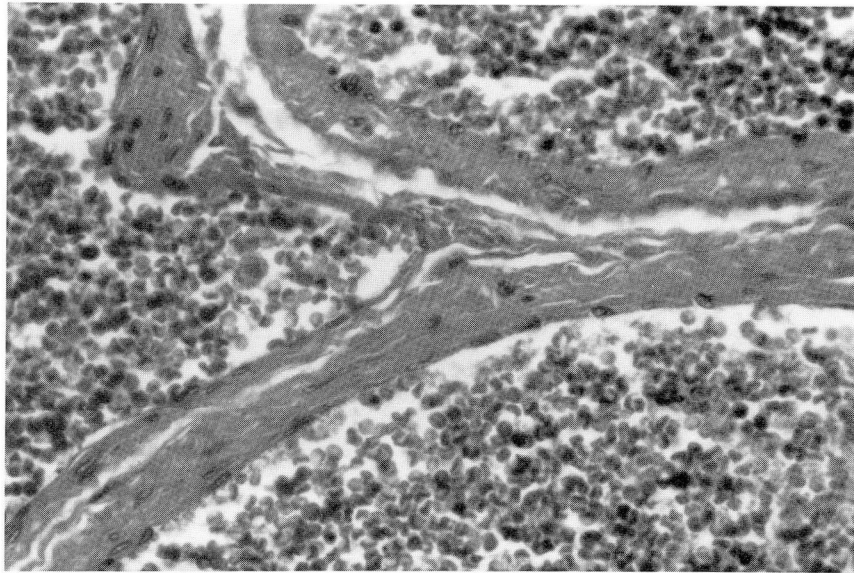
**Fig. 1.** Sectioned surface of the tumor, showing the discrete borders.



**Fig. 2. A.** The boundary between the neoplasms and fatty breast stroma. Note the circumscribed pushing border and the rounded profiles of the vascular channels. The inter-anastomosing growth pattern, commonly seen with angiosarcomas, is absent (hematoxylin-eosin stain,  $\times 40$ ).

**B.** Here the hemangioma is shown at a higher magnification. The mass consists of cavernous vascular spaces filled with blood (hematoxylin-eosin stain,  $\times 100$ ).





**Fig. 3.** Several vascular channels are lined by a single layer of bland endothelial cells (hematoxylin-eosin stain,  $\times 400$ ).

question is situated within the mammary parenchyma.

In contrast, the case described here shows an example of a cavernous hemangioma deep within the mammary parenchyma manifesting as a palpable lump. A seven-year follow-up without recurrence or metastasis has substantiated its benignancy. The development of an infiltrating ductal carcinoma in the same breast one year after excision of the hemangioma appears to be unrelated; this judgment is substantiated by the observations of Rosen and Ridolfi<sup>5</sup> who found as many perilobular hemangiomas as the result of biopsies performed to evaluate benign conditions as in mastectomy specimens obtained to treat a carcinoma. Furthermore, they noted that angiomas found in breasts removed due to a carcinoma were usually distant from the malignancy. The carcinoma in this case also arose in a site distant from the hemangioma.

Enzinger and Weiss<sup>3</sup> illustrated a case of cavernous hemangioma of breast parenchyma, but did not report the incidence of this lesion in their material. Recently, 52 vascular lesions of the female breast collected at two institutions were studied.<sup>4</sup> Forty were classified as angiosarcomas. In the 12 lesions which were considered to be benign, there were three cases of cavernous hemangioma which were excised because they presented as palpable masses. The hemangiomas ranged from 1.8 cm to 7 cm in diameter. One patient did not return for follow-up examina-

tions, one had no evidence of disease less than one year after a wide excision, and one had no evidence of disease after nearly four years.

The correct diagnosis of cavernous hemangioma of the female breast is based primarily on distinguishing hemangioma from angiosarcoma. Angiosarcoma has a wide morphologic spectrum. The well-differentiated lesions may have thin-walled vascular channels that are difficult to distinguish from angiomas; however, these channels almost always have an inter-anastomosing pattern and infiltrate the mammary parenchyma. The endothelial cells tend to show at least some hyperchromasia. The poorly differentiated lesions are readily identified by endothelial tufting and papillary growth, nuclear atypism, and mitotic figures. Solid growth patterns, spindle cells, and necrosis substantiate the diagnosis of malignancy. Cavernous hemangiomas, by contrast, are generally more sharply circumscribed with a "pushing" border. An inter-anastomosing growth pattern is not seen. The vascular spaces tend to be more rounded and are lined by a flattened endothelium which shows no hyperchromasia or atypism. Mitotic figures are almost never seen.

Cavernous hemangiomas constitute an important subset of vascular lesions of breast parenchyma presenting as palpable masses, since they may easily be misdiagnosed as angiosarcoma and the patient thus subjected to an unnecessary mastectomy. The diagnosis should be made only after complete excision of the lesion and thorough

microscopic examination. One should block the entire specimen for histologic study.

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