Vascular Tumors in the Region of the Breast

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Summary. Three vascular tumors in the breast region with different degrees of differentiation are presented. The first neoplasm is a haemangiosarcoma (of the vascular neoplasms, these tumors are the type which occur most frequently in the breast). Haemangiosarcomas show an infiltrative growth of atypical blood capillaries, frequently with formation of highly cellular and solid capillary sprouts. Ultrastructurally, the tumor cells are characterized as endothelial, also in the region of the capillary sprouts. The second tumor (an angiosarcoma in Stewart-Treves-syndrome, STS) is characterized by an intensive endothelial proliferation. Solid spindle-celled regions are also found in which the tumor cells correspond to undifferentiated mesenchymal cells, but other cells possessing properties of smooth muscle cells and pericytes may be found.

The third tumor corresponds light and electron microscopically to a haemangiopericytoma of the soft tissue. The pericytic character of the tumor cells is most clearly seen in the immediate vicinity of the vessels. With increasing distance from the capillaries, the tumor cells take on the characteristics of fibroblasts. The tumors reflect the diversity of the angioplastic differentiation potential of the mesenchyme.

Key words: Breast – Haemangiosarcoma – Stewart-Treves-syndrome – Haemangiopericytoma.

Introduction

Compared to the numerous publications on breast cancer, there are only a few communications on non-epithelial tumors in the literature. According to Bässler (1978), sarcomas account for about 1% of all malignant tumors with this localization, including cystosarcoma phylloides. Vascular neoplasms in the region...
of the breast are rare. Intramammary haemangiomas and lymphangiomas are found as benign tumors.

Vascular sarcomas occur in various forms. Haemangiosarcomas of the mammary gland have been described in 66 cases to date (York, 1972; Jautzke, 1973; Watanabe and Nakano, 1973; Breitfellner, 1975).

"Lymphangiosarcomas" after prior mastectomy for carcinoma in the context of Stewart-Treves-syndrome (STS) appear mainly in the region of the upper and lower arm on the operated side. Out of the 200 published cases (Kuhn, 1977), only two were localized in the thoracic wall in the region of mastectomy scar (Woodward et al., 1972; Schmitt and Littmann, 1977). Their lymphangiosarcomatous or haemangiosarcomatous nature is disputed.

The third variant form, haemangiopericytoma of the mammary gland has been recorded in the literature in three cases (Kauffman and Stout, 1960; Torino, 1972).

Because of the rarity of vascular tumors in the breast, the difficulties of differential diagnosis and as a contribution to clarifying questions of formal pathogenesis concerning the differentiation of the multipotent matrix, three of our own cases will be reported.

The characteristics of haemangiosarcoma, angiosarcoma in STS and haemangiopericytoma will be compared with reference to light and electron microscopic findings.

Case Reports

Case 1

Clinical History. A 27-year-old woman had two births (1972 and 1976). She had not taken oral contraceptives. In March 1977, an exploratory excision from the left breast revealed an angiomatous tumor in fibrocystic mastopathy. In November 1977, an intramammary tumor was removed from the left breast and a tumor situated above the areola from the right breast. Seven days later, there was a single bilateral breast amputation without followup irradiation. A sterilization was carried out by laparotomy. Since then, there has been no clinical indication (up to April 1979) for a tumor recurrence or metastases.

Gross Pathology. The measurements of the excised tumor of the left breast were 5 x 4 x 3.5 cm and of the tumor of the right breast 3 x 3 x 2.5 cm. On the cut surfaces, a red-greyish, soft, ill-defined tumor was seen.

Microscopic Pathology. The tumor consists of capillaries and capillary sprouts mostly with a narrow lumen, frequently filled with erythrocytes. The endothelial cells are elongated, the nuclei are longish or oval, and occasionally bizarre. The frequency of mitosis is moderately high. The cytoplasm of the endothelium is scanty and slightly eosinophilic. The endothelial layer is partly flat, and in places small endothelial pads are found projecting in the direction of the lumen. The tumor cells show pericapillary proliferation in the form of small buds and capillary sprouts and are enmeshed by a fine silver-staining network of fibers. Apart from areas rich in stroma, frequently with sinusoidal vessels, the tumor forms intensely proliferating structures focally, which largely consist