SPINDLE CELL LESIONS OF THE BREAST

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KEYWORDS

• Spindle cell carcinoma • Fibromatosis • Myofibroblastoma • Nodular fasciitis • Breast

ABSTRACT

Spindle cell lesions of the breast represent a heterogeneous group of reactive and neoplastic disorders that commonly present diagnostic challenges. Arguably, the most important of these lesions to recognize is spindle cell carcinoma, a type of metaplastic carcinoma. This review focuses on those spindle cell lesions of the breast that are most likely to be encountered in clinical practice or that produce particular diagnostic difficulties.

SPINDLE CELL LESIONS OF THE BREAST

OVERVIEW

A variety of reactive and neoplastic lesions of the breast are characterized by a proliferation of spindle cells.[1–4] Because these lesions are uncommon, many surgical pathologists, even those who have considerable experience, often find them diagnostically challenging.

When any spindle cell lesion is encountered in the breast, the diagnosis of spindle cell carcinoma (a type of metaplastic carcinoma) should always be given serious consideration, and that diagnosis should not be dismissed unless there is histologic or immunophenotypic evidence to exclude it. The possibility of a phyllodes tumor should also be considered because the epithelial component may be difficult to identify in some cases, particularly in cases of malignant lesions characterized by prominent stromal overgrowth or in cases with small biopsy samples. In fact, the definitive categorization of any spindle cell lesion of the breast may be difficult or impossible to determine in the limited sampling afforded by core needle biopsy, and a cautious approach to the diagnosis of spindle cell lesions in needle biopsy specimens is prudent.

Many spindle cell lesions that occur in other anatomic sites (such as neural tumors and smooth muscle tumors) may also be seen in the breast. This review focuses on those lesions that are most likely to be encountered in clinical practice or that produce particular diagnostic difficulties.

SPINDLE CELL CARCINOMA

OVERVIEW

Some carcinomas of the breast that are included within the broader category of metaplastic carcinoma are composed of a pure or predominant population of spindle cells. Tumors of this type have been designated as metaplastic carcinoma, sarcomatoid carcinoma, spindle cell metaplastic carcinoma, and spindle cell carcinoma.[1–8] Spindle

Key Features

SPINDLE CELL LESIONS OF THE BREAST

- A diverse group of reactive and neoplastic disorders.
- Correct classification requires a careful histologic assessment of the growth pattern and cytologic features of the spindle cells; the use of adjunctive immunostains may be necessary in some cases.
- A definitive diagnosis may be difficult or impossible in core needle biopsy material.
- Always consider the possibility of spindle cell (metaplastic) carcinoma, regardless of the appearance of the spindle cells.

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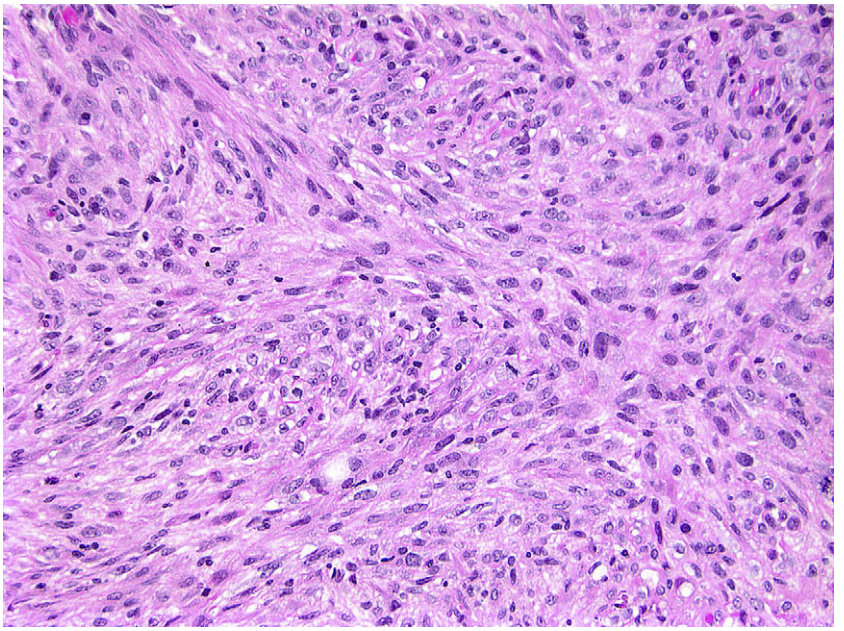

Fig. 1. Spindle cell carcinoma. This lesion is characterized by interlacing fascicles of spindle cells. A mitotic figure is present in one of the cells.

cell carcinomas are uncommon, accounting for less than 1% of invasive breast cancers.

GROSS FEATURES

On gross examination, the tumors are most often gray or white, firm masses that may have an infiltrative appearance. Not infrequently, however, these tumors are grossly circumscribed.

MICROSCOPIC FEATURES

The cells that compose spindle cell carcinomas can vary in appearance from cytologically bland to highly pleomorphic. The growth pattern may be fascicular, fasciitis-like, storiform, or haphazard (**Figs. 1** and **2**). Areas suggestive of vascular spaces are seen in some cases (**Fig. 3**). The mitotic rate is highly variable. The borders of the lesion are

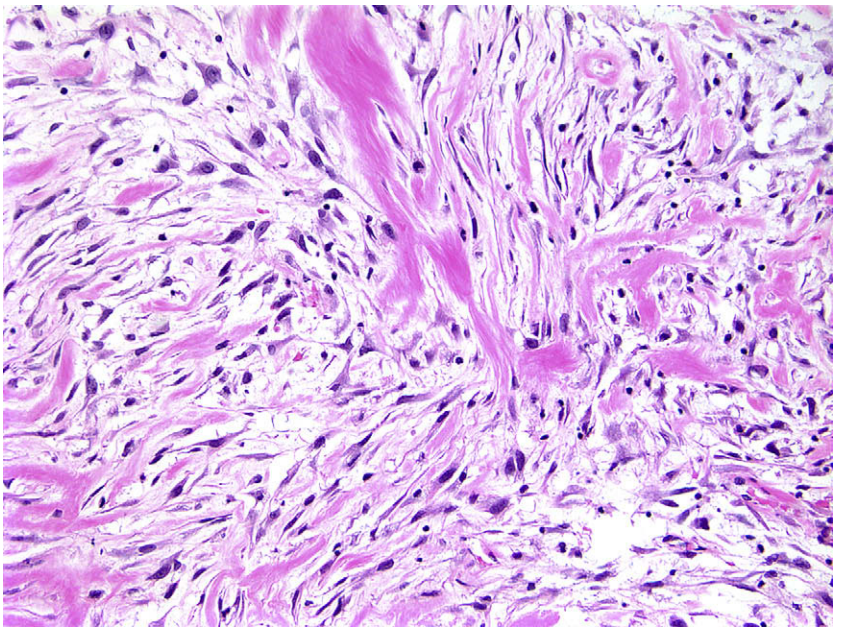

Fig. 2. Spindle cell carcinoma. This spindle cell carcinoma has a fasciitis-like appearance, with spindle and stellate-shaped cells in a partially myxoid stroma.