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CASUISTIC PAPER

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Fibromatosis-like spindle-cell metaplastic carcinoma of the breast – a case report

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ABSTRACT
Introduction. Metaplastic breast carcinoma is expressing epithelial and/or mesenchymal tissue within the same tumor.
Aim. The aim of this study is to evaluate metaplastic breast carcinoma in a case report and literature review.
Description of the case. The presented case desribes metaplastic carcinoma of the breast in 65 years old female patient.
Conclusion. Fibromatosis-cell metaplastic carcinoma of the breast presents a particularly large diagnostic challenge. Malignant variants of this disease have been described in the literature.
Keywords. breast cancer, fibromatosis, metaplastic breast carcinoma

Introduction

Metaplastic carcinoma of the breast is a heterogeneous group of malignant tumors. It is composed of neoplastic cells that exhibit epithelial and/or mesenchymal differentiation. This form of breast cancer may be aggressive and accounts for less than 1% of all breast cancer diagnoses.[1] Fibromatosis-like spindle-cell metaplastic carcinoma (FLSpCC) is a variant of metaplastic carcinoma that needs to be distinguished from other cancers due to its favorable outcome.[2] It rarely metastases to axillary lymph nodes and has very low potential for distant metastases.[3] On the other hand it presents a high risk of local recurrence.[4] FLSpCC cannot be reliably diagnosed by Ultrasound or Magnetic Resonance Imaging alone and therefore requires histological examination.[5] It also requires a different therapeutic approach than other metaplastic carcinomas of the breast.[6]

Aim

This study cover histopatological examination in order to diagnose metaplastic carcinoma. We studied histopatology in order to assess the degree of cytologic and histologic correlation in the cytology based diagnosis.

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Description of the case

65 years old female patient has been admitted to an Oncological Surgery Clinic because of a palpable right breast tumor. In the performed ultrasound examination, the lesion was identified and defined as grade 4a on the BIRADS scale. No enlarged axillary lymph nodes were visualized. The patient was qualified for surgical treatment.

Postoperative material was sent to our Pathology Department for final diagnosis. On gross examination tumor was white, solid, with well-defined borders. It measured 55 x 42 x 30 mm. On microscopic examination the lesion appeared deceptively benign. It consisted of bland spindle cells in a prominent collagenous stroma with infiltrative borders (Figure 1).

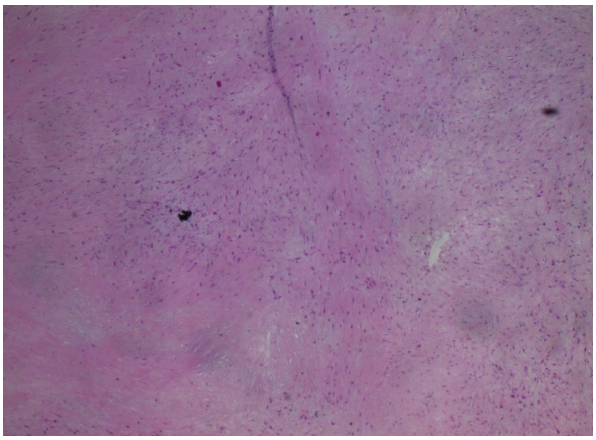

Fig. 1. Bland spindle cells in prominent collagenous stroma with infiltrative borders (H&E, 40X)

On high magnification low-grade atypical cytologic features including hyperchromasia, polymorphism and irregular contours of cell nuclei could be identified (Figure 2).

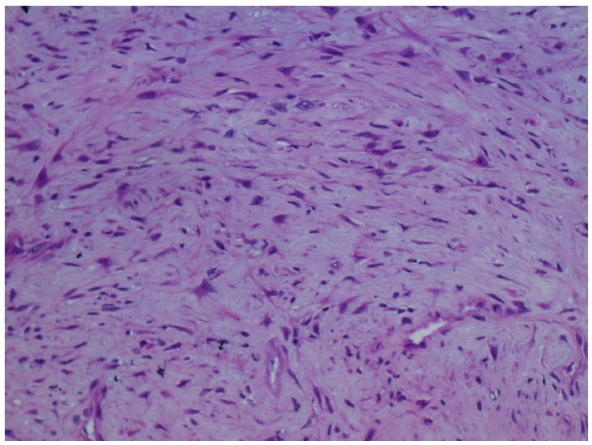

Fig. 2. Low-grade atypical cytologic features (H&E, 200X)

After further examination the tumor proved to be biphasic. Positive immunohistochemical stains for Smooth Muscle Actin (SMA) (Figure 3) and p63 (Figure 4), suggested myoepithelial differentiation, while stains such as CK7 (Figure 5) pointed to epithelial differentiation.

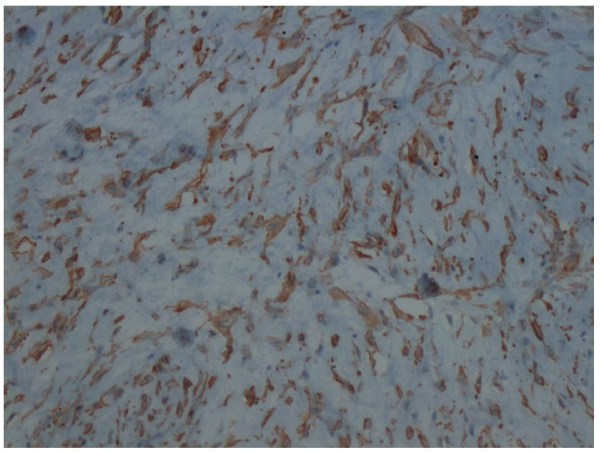

Fig. 3. Postivie SMA immunohistochemical stain (200X)

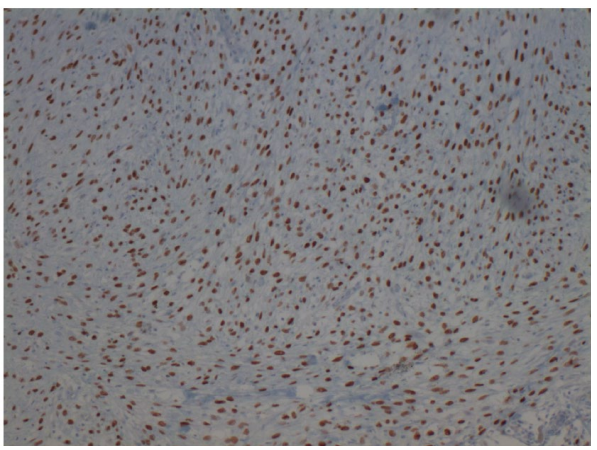

Fig. 4. Positive p63 immunohistochemical stain (100X)

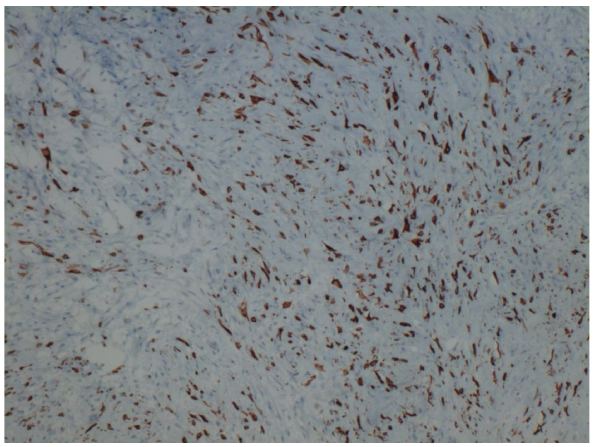

Fig. 5. Positive CK7 immunohistochemical stain (100X)

At least one cytokeratin stain must be positive in order to diagnose metaplastic carcinoma. In the absence of any keratin a different diagnosis should be made.[7,8] Stains for estrogen receptor (Figure 6), progesterone re-

ceptor (Figure 7) and HER-2 receptor (Figure 8) where all negative. The lesion turned out to be a "triple-negative" carcinoma. Ki67 staining was about 10%.

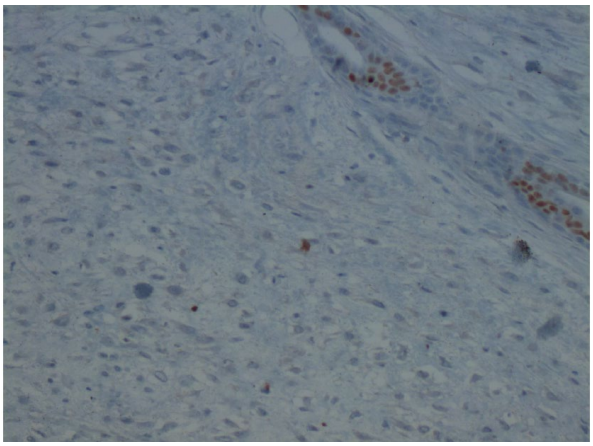

Fig. 6. Negative ER receptor immunohistochemical stain (200X)

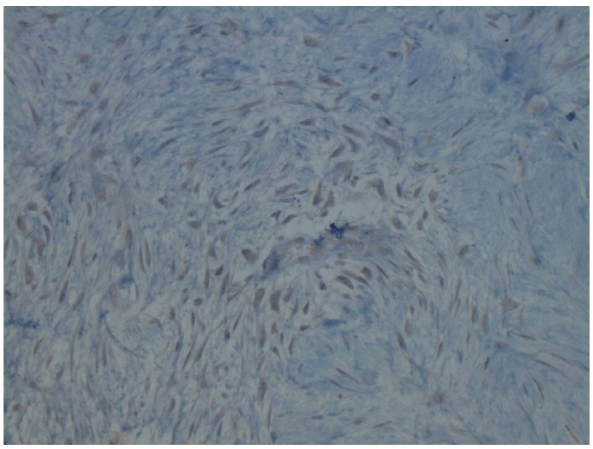

Fig. 7. Negative PR immunohistochemical stain (200X)

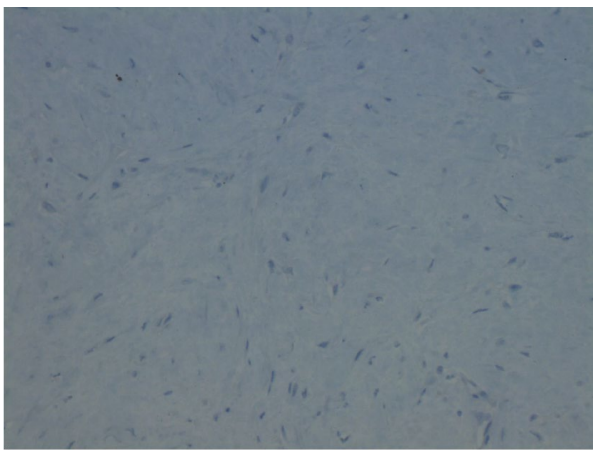

Fig. 8. HER-2 receptor status (200X)

Angiosarcoma was ruled out with negative CD31 and CD34 immunohistochemical staining (Figure 9).

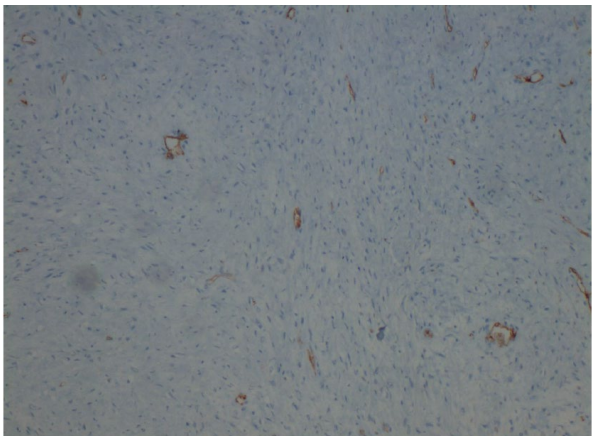

Fig. 9. Tumor cells negative for CD31 immunohistochemical stain (100X)

Discussion

Different spindle cell changes were considered in the differential diagnosis.[9] Mild fibromatosis, nodular fasciitis, squamous metaplasia or granulation tissue reaction show less nuclear and cellular atypical features and lower mitotic activity. Low-grade sarcomas ie. fibrosarcoma should not express keratins.[10-15]

The adenomyoepithelioma presents a particularly large diagnostic challenge. This change morphologically may be very similar to FLSpCC and malignant variants of this disease have also been described.[16-20] In most cases of this lesion, the myoepithelial component is the dominant one. Epithelial cells usually form glandular spaces and can show apocrine, sebaceous or squamous metaplasia or can have papillary epithelial proliferation.[20-23] Such changes were not observed in the described case.[23-29]

Conclusion

FLSpCC is a rare malignancy, however, this diagnosis carries significant clinical consequences. It has a better prognosis compared to other metaplastic breast cancers, as well as a significantly lower percentage of axillary lymph node metastases compared to „classic" breast cancers, ie invasive ductal carcinoma of no special type or lobular carcinoma. Some authors even propose to distinguish a group of lesions called „breast lesions of limited metastatic potential" to emphasize a good prognosis in the case of changes such as FLSpCC, low-grade adenosquamous carcinoma or encapsulated papillary carcinoma. On the other hand, due to the risk of underdiagnosis of FLSpCC as a benign lesion, it is recommended that the use of immunohistochemical studies, especially for cytokeratins and SMA, is necessary to properly assess spindle cell changes in the breasts.

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