Mammary fibroadenoma with pleomorphic stromal cells

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SUMMARY

The presence of enlarged and pleomorphic nuclei is usually regarded as a feature of malignancy, but it may on occasion be seen in benign lesions such as mammary fibroadenomas. We present such a case of fibroadenoma occurring in a 37-year-old woman presenting with a self-palpable right breast mass. Histological examination of the tumor revealed the presence of multi and mononucleated giant cells with pleomorphic nuclei. The recognition of the benign nature of these cells is necessary for differential diagnosis from malignant lesions of the breast.

Keywords: fibroadenoma – pleomorphic stromal cells – atypia – breast

Fibroadenom prsu s pleomorfními stromálními buňkami

SOUHRN

Přítomnost zvětšených a pleomorfních jader je obvykle považována za známku malignity, občas však může být pozorována v benigních lézích jakou je fibroadenom mléčné žlázy. Informujeme o takovém případu u 37leté ženy, která si nahmatala tumor v pravém prsu. Histologické vyšetření nádoru ozřejmilo přítomnost obrovských mnohojaderných i jednojaderných buněk s pleomorfními jádry. Rozpoznání benigního charakteru těchto buněk hraje důležitou úlohu v diferenciální diagnostice nádorů mléčné žlázy.

Klíčová slova: fibroadenom – pleomorfní stromální buňky – atypie – prs

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Fibroadenoma is a benign tumor with bland-appearing stromal and epithelial elements. The presence of stromal pleomorphic cells in these tumors is uncommon (1,2). These cells are benign and should not be interpreted as a sign of malignancy (2). Herein, we report a case of fibroadenoma of the breast with pleomorphic stromal cells. Our aim is to describe the histological features of this tumor and emphasize its differential diagnosis.

CASE REPORT

A 37-year-old woman presented with a self-palpable right breast mass. She was operated on twice, three years ago, for fibroadenoma with typical histological features of the same breast. Clinical examination revealed a non-tender, mobile 2 cm mass between the upper quadrants of the right breast. Mammography and ultrasonography showed a hypoechoic heterogeneous lobulated mass. Surgical excision of the lesion was performed. Grossly, the nodule was firm, well-circumscribed and lobulated with a white-grey whorled cut surface. Microscopically, it showed features of fibroadenoma with well delineated borders, mostly compressed glands and a low cellular stroma. Throughout the stroma, there were scattered multi and mononucleated giant cells with enlarged and hyperchromatic pleomorphic nuclei, and with no mitotic figures (Fig. 1, 2). Immunohistochemically, the cells were positive for vimentin and CD68 and negative for alpha smooth muscle actin and cytokeratin (Fig. 3). The conclusive diagnosis was that of a fully excised benign fibroadenoma, with pleomorphic stromal cells. Follow-up (3 years) showed no recurrence of the lesion.

DISCUSSION

In 1979 Rosen (2) first described the presence of multinucleated stromal giant cells in the breast, as an incidental finding in breast specimens from 14 patients with breast carcinoma. Pleomorphic stromal cells (PSC) have also been described in a variety of benign lesions of the breast including fibroadenomas, papillomas, adenomyoepitheliomas, pseudoangiomatous hyperplasia and adenosis (3). They almost always represent an incidental finding in otherwise typical lesions and their presence has no clinical implications (1). The significance of these cells is in their misinterpretation as a sign of malignancy.

Pathogenesis remains unclear and controversial; the existing studies suggest reparative and hormonal factors (2-4), one study mentions possible failure of apoptosis in the stroma (3).

Ultrastuctural and immunohistochemical studies of PSC found fibroblastic, myofibroblastic, or fibrohistiocytic features of these cells indicating that they represent altered stromal cells (5-7). A single study made by Nielson and Ladefoged (8) favored a myoepithelial origin, hypothesizing that the myoepithelial cells enlarge and merge together to form a syncytium. However, other studies did not support this hypothesis.

Architecturally, the overall pattern of fibroadenoma with PSC is that of the usual fibroadenoma, but with striking nucleomegaly of the stromal cells (1). Mitotic figures are usually absent.

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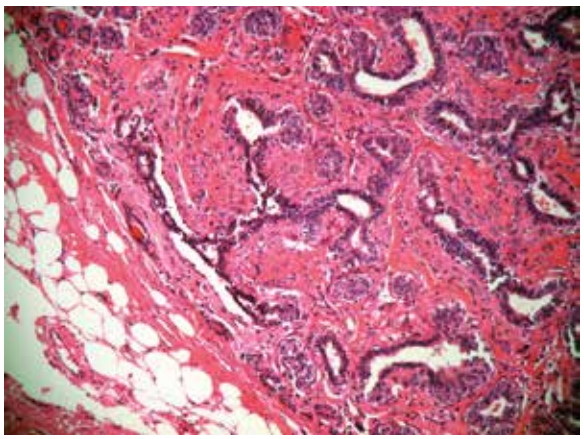

Fig. 1. Classic architectural features of mammary fibroadenoma (HE x200)

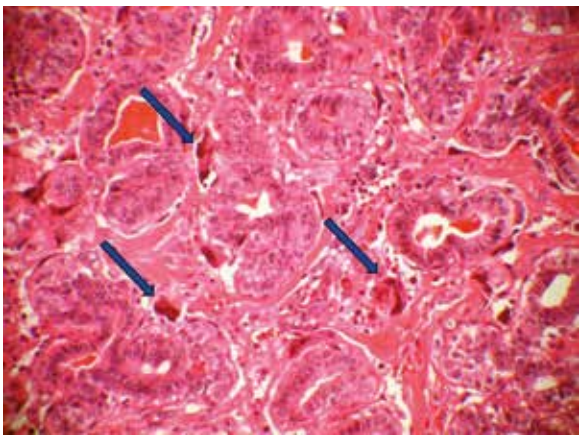

Fig. 2. Pleomorphic stromal giant cells with enlarged cytoplasm and hyperchromatic nuclei (arrows) (HE x 400).

Huo et al. (5) reported one case of fibroadenoma with high mitotic activity (up to 4 mitotic figures per 10 HPF) including atypical mitotic figures but the tumor showed no other features of malignancy. The benign nature of these cells was already suggested in Rosen's original study (2). Other neoplastic lesions in the breast showing PSC include phyllodes tumor, sarcoma, and metaplastic breast carcinoma. However, fibroadenoma lacks stromal overgrowth, cellular crowding and mitotic figures. The presence of PSC in combination with mitotic activity, necrosis, stromal overgrowth or hypercellularity raises the question of the presence of another lesion, usually phyllodes tumors (5,9).

Although the experience is limited, PSC appear not to have any clinical significance; there are no published data about recurrent fibroadenoma with PSC even when these cells are present in the resection surgical margins (5).

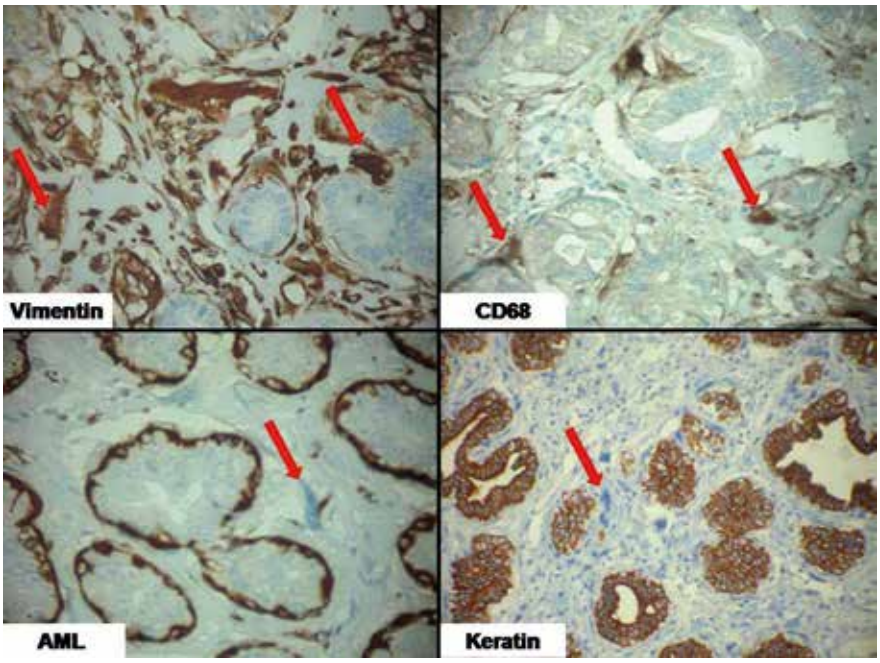

Fig. 3. Immunohistochemical stains: Stromal giant cells are positive for vimentin (x 400) and CD68 (x 400); negative for alpha smooth muscle actin (x400) and cytokeratin (x200) (arrows).

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