Case report

Microinvasive lobular carcinoma arising in a benign phyllodes tumour – a short report and brief review of the literature

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Lobular carcinoma in situ (LCIS) with microinvasion is a rare entity which is rarely reported in the literature. We describe a case of microinvasive LCIS following excision of a fibroepithelial lesion. The lesion was graded as U3 and M3 on ultrasonography and mammography respectively, and on core needle biopsy was described as a fibroepithelial lesion with 'unusual features'. Microscopic examination revealed a fibroepithelial lesion focally colonised by florid E-cadherin negative LCIS with multiple foci of microinvasive classical lobular carcinoma, which lacked a myoepithelial layer on CK5 and S100 staining.

Key words: microinvasive, lobular, carcinoma, breast, phyllodes.

Introduction

Lobular carcinoma *in situ* (LCIS) with microinvasion is an uncommon entity defined in the World Health Organization (WHO) Breast Tumours (5th edition) as having an invasive component less than 1 mm in size [1]. Microinvasive LCIS is rarely reported in the literature, with the largest case series representing just 16 cases [2]. We report a case of LCIS with microinvasion in a 51-year-old woman who presented following her attendance at routine breast screening in the United Kingdom.

Case report

This 51-year-old woman presented following routine breast screening during which a 64 mm breast lump was detected in the right breast within the lower outer quadrant. The lesion was graded as U3 and M3 on ultrasonography and mammography respectively. On core needle biopsy, the lesion was diagnosed as a fibroepithelial lesion with 'unusual features' characterised by loss of the basal cell layer (demonstrated by p63 and CK5 immunostaining) around several proliferative glands. There were no overt features of malignancy.

A wide local excision was performed. On macroscopic examination, a relatively well-demarcated grey/white lesion measuring 43 mm in maximum dimension was identified and all embedded.

Microscopic examination of the tumour partly demonstrated a sclerosed fibroadenoma and a second, more cellular area with elongated, dilated ducts and stromal expansion. In the second area, the stromal cellularity was moderately increased with mild to moderate cytologic atypia representing a benign phyllodes tumour (Fig. 1).

In addition, several epithelial spaces were expanded by a uniform population of E-cadherin negative, oestrogen receptor (ER) positive (7/8) cells with centrally placed, round to ovoid nuclei and abundant pale or vesicular cytoplasm (Figs. 2, 3). Most of these epithelial spaces were surrounded by CK5 and S100 positive myoepithelial cells, but haphazardly small, mostly rounded cellular nests and single tumour cells without myoepithelial cells were noted. These foci

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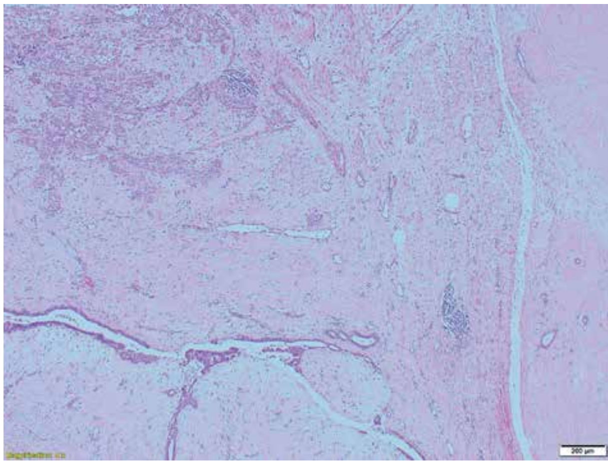

Fig. 1. Image at 4× power showing both florid lobular carcinoma *in situ* and leaf-like architecture, within the wider phyllodes lesion

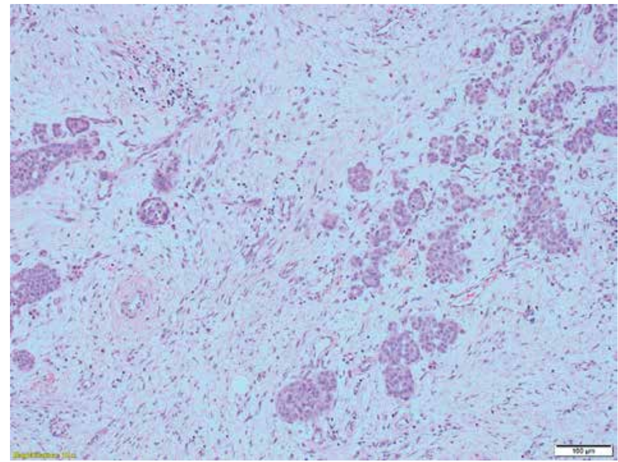

Fig. 2. Image at 10× power showing area of microinvasion, which measured less than 1 mm in extent

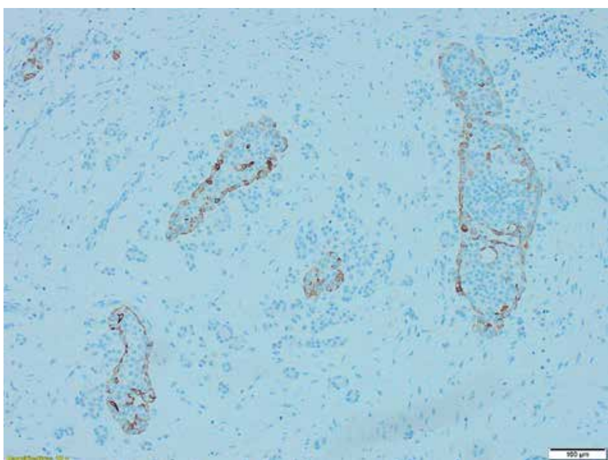

Fig. 3. Image at 10× power showing CK5 staining pattern within the lesion

This highlights the rounded cellular nests and single tumour cells without myoepithelial cell layer.

measured less than 1 mm in maximum diameter; and were strongly ER positive (8/8).

The lesion was diagnosed as a fibroepithelial lesion focally colonised by florid LCIS with multiple foci of microinvasive classical lobular carcinoma.

Outcome and follow-up

The patient has been followed up for two years with clinical examination and annual mammographic review since surgery. There has been no new lesion or recurrence of local disease, and the patient remains well.

Discussion

Microinvasive LCIS is an uncommon entity which is rarely reported in the literature. The largest case series to date describes just 16 cases of microinvasive LCIS diagnosed in a series of 75, 250 breast cases [3]. This series is a primary reference used by the WHO classification of tumours of the breast [4]. Of the 16 cases of microinvasion, 11 arose in association with classical LCIS, and 5 in association with pleomorphic LCIS (as in our case). Their series highlighted the rarity of this entity, as it represented just 0.02% of all breast cases examined during the study period and was only associated with 0.4% of all cases of LCIS. None of their cases of microinvasive lobular carcinoma (MILC) demonstrated lymph node metastasis. None of the patients in the short follow-up period developed disease recurrence, and all were alive at the time of report writing.

An earlier case series describes 6 cases in which microinvasive LCIS was diagnosed [5]. Three of 5 cases were treated by wide local excision alone, 1 by mastectomy, and 1 by mastectomy and axillary lymph node clearance. One case was incidentally diagnosed on a "prophylactic mastectomy". All lymph nodes sampled were negative for metastatic disease. The patient in our case received a wide local excision without lymph node sampling and remains disease free at 2 years.

Microinvasive carcinoma of the breast is usually associated with ductal carcinoma *in situ*, which is understood to be the precursor lesion to invasive breast carcinoma of no special type. In general, microinvasive carcinomas of the breast are associated with low-risk disease, with few cases of disease recurrence or metastasis, even in the presence of positive lymph nodes [3, 6, 7]. However, most of the literature relates to microinvasive carcinoma associated with ductal carcinoma *in situ*, and little is currently known about the natural history of MILC. To date, the literature suggests that disease recurrence is not a feature of MILC, as is corroborated in our case. However, there is a paucity of data on this entity, in large part due to its rarity [3, 5].

Conclusions

While LCIS is associated with an increased risk of developing invasive malignancy, the natural history of LCIS is poorly understood, and it is not known whether the disease represents a precursor lesion to invasive lobular carcinoma. This case contributes to the understanding of the natural history of invasive lobular carcinoma. Previous case reports of MILC suggest that LCIS is, at least in some cases, a precursor lesion to invasive LCIS [5, 6]. Due to its rarity, there are very limited clinical outcome data regarding microinvasive LCIS, and it is therefore important to continue to build on the volume of data in the literature.

Disclosures

1. Institutional review board statement: Not applicable.
2. Assistance with the article: None.
3. Financial support and sponsorship: None.
4. Conflicts of interest: None.

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