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CASE REPORT

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Primary lobular carcinoma of the vulva: a case report

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Abstract Primary breast carcinoma of the vulva is very rare, with only 13 cases so far reported in the English literature since 1936. We present the 14th case of primary breast cancer in the vulva and the second case with, on histology, lobular carcinoma in the entire lesion with oestrogen and progesterone receptors. This is also the first case in which anastrozole was used to treat vulval breast cancer in an attempt to modify the natural course of the disease.

Keywords Primary breast cancer · Vulval cancer · Tamoxifen · Anastrozole

Case report

In a visit to her general practitioner for complaints of weight loss, anorexia, and nausea, an 81-year-old woman mentioned noting a lump near her vagina. This was initially asymptomatic and had gradually increased in size over 6 months. An urgent gynaecology referral confirmed two ulcerated lesions, 3×4 cm and 1×1 cm, on the left labia, with the larger lesion extending into the vestibule. Both lumps felt indurated and were suspicious for cancer, and further clinical examination revealed firm bilateral inguinal lymphadenopathy. The patient underwent urgent vulval biopsy of both lesions, and histology showed an infiltrative dermal lesion that was partly trabecular and partly arranged in single strands of cells with open pleomorphic round nuclei and pale eosinophilic cytoplasm (Fig. 1). The lesion also showed erosion into the epidermis with numerous mitoses. Immunohistochemistry was positive for cytokeratin 7 (CK7), oestrogen receptor (ER), and progesterone receptor (PR). This histological pattern suggested the appearance of metastatic lobular breast carcinoma.

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Further clinical examination failed to detect any primary breast tumours or axillary lymph nodes. Urgent referral to the breast surgeons was organised. Further investigations were done, including mammogram, chest x-ray, and computed tomography (CT), to establish the presence and location of a breast primary. The mammogram was negative, ultrasound of the axillae failed to show any lymph nodes, and chest x-ray showed clear lung fields but with fracture of the 8th rib posteriorly. The unusual fracture site was suspicious, and a bone scan showed increased uptake within the left and right ribs and the left greater trochanter. CT scanning showed no evidence of multiorgan involvement, but it did show bilateral inguinal lymph nodes and left obturator lymph node with the appearance of metastatic infiltration. The breast surgeons started the patient on Arimidex (anastrozole) in light of the hormone receptor status and suggested further excision with or without chemotherapy/radiotherapy. Because of her age, the patient declined further excision but agreed to chemotherapy/radiotherapy. The oncologist also commenced bisphosphonate therapy because of the bone scan findings.

Discussion

Primary carcinoma of the vulva is an uncommon cancer, with an incidence of 3.1/100,000 in England and Wales. Eight hundred new cases are detected each year and are responsible for 400 deaths per year [1]. The most common histological types are squamous cell carcinoma (85%) followed by melanomas (5%) and other uncommon tumours including basal cell carcinoma, verrucous carcinoma, carcinoma of Bartholin's gland, sarcomas, and metastatic tumours. Metastatic tumours are rare and are usually haematogenous, with primary cancer arising in the breast or as a part of non-Hodgkin's lymphoma or leukaemia [2]. Primary breast cancer of the vulva is very rare and often comes as a surprise at histology.

A fully formed mammary gland was reported by Hartung in 1872 in the left labia majora of a 30-year-old woman; since then, 38 additional cases of ectopic breast

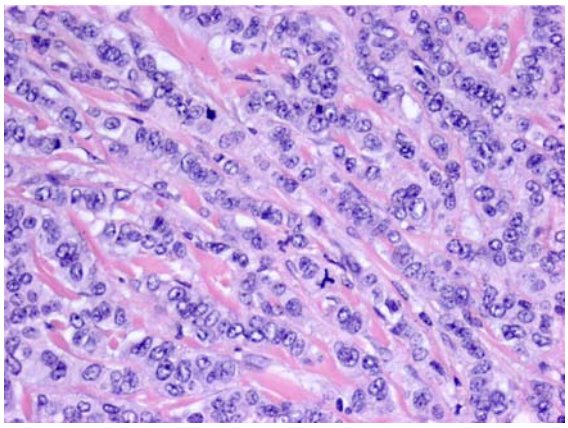

Fig. 1 High-power view of tumour cells showing trabecular and "Indian file" pattern (haematoxylin and eosin, ×800)

tissue have been described [3]. This makes the vulva another potential, though rare, site for developing breast cancer. So far, 13 cases of primary breast cancer in the vulva have been reported in the literature.

The lesion usually presents in the perimenopausal to postmenopausal age group as an asymptomatic vulvar mass with no typical morphologic characteristics [3]. Histology is the diagnostic tool, and in addition to the tumour's microscopic appearance, immunohistochemistry helps greatly in distinguishing the nature of the tumour. Antibodies related to breast carcinomas include ER, PR, gross cystic disease fluid protein (GCDFP), and HER-2/neu; the cytokeratins CK5/6, CK7, and CK20; the mucin glycoprotein antibodies MUC2, MUC3, MUC5AC, and MUC6; and others, such as DAS-1 and CDX2 [4]. The presence of steroid receptors (ER, PR) and GCDFP is highly specific for breast carcinomas, although hormone receptors are also found in vulval dystrophies and vulvar carcinomas [5].

Eleven cases of this entity have been reported as infiltrating ductal carcinoma [6] similar to the most common histological type seen in breast carcinoma. Out of these 11, one case had two growth patterns, one of infiltrating ductal or lobular carcinoma and the other of intraductal carcinoma [7]. Two cases have been reported with mucinous adenocarcinoma [7, 8]. Our case is unique in the fact that it had invasive lobular carcinoma in its entirety. Lobular carcinoma forms about 1% of all invasive breast cancers, and therefore it is unsurprising to note the similar reflection in the vulva. The prognoses of both invasive ductal and lobular breast carcinomas do not depend on the histology but more on other characteristics such as tumour size, lymph node status, hormone receptors, S phase, and age [9]. It is unknown whether primary vulval cancers behave in the same fashion.

Because of the rarity of the disease and the similarity to breast cancer, even though no definite treatment guidelines exist, adopting breast cancer treatment guidelines is the next best alternative. Most of the cases in the literature were treated with wide local excision or radical vulvectomy with inguinal and femoral node dissection initially, followed by adjuvant chemotherapy, hormone therapy, and radiotherapy [2].

Tamoxifen is an oestrogen-receptor antagonist and is the adjuvant hormonal treatment of choice in women with oestrogen-receptor-positive breast cancer [10]. It delays the growth of metastases, increases survival, and reduces the risk of developing cancer in the other breast. If tolerated, it should be continued for 5 years. Although commonly given as adjuvant treatment, neoadjuvant therapy is given to older women with locally advanced breast cancer and is effective in shrinking the size of the tumour before surgery. Tamoxifen, though protective towards bone, is known to cause an increased incidence of endometrial cancer and other oestrogenic side effects, such as an increased incidence of thromboembolism.

Anastrozole is a nonsteroidal aromatase inhibitor. It is at least as effective as tamoxifen for first-line treatment of metastatic breast cancer in postmenopausal women. However, it is not yet known whether the benefits persist over the long term. The advantage of aromatase inhibitors over tamoxifen is that they lack the partial agonistic effects of tamoxifen. In the recent trial (in the ATAC trial), anastrozole was compared with tamoxifen in early breast cancer and was found to show better efficacy with respect to the disease-free survival rate and with fewer side effects [11].

So far, only tamoxifen has been used as adjuvant hormonal treatment in vulval breast cancer with ER positivity. This will be the first case in which anastrozole will be used in adjuvant treatment of vulval breast cancer. In our case, because the patient opted out of surgical treatment—which is a reasonable option given her age and the presence of stage IV disease—the disease-free survival period will depend on the effectiveness of anastrozole.

Conclusion

Primary breast carcinoma of the vulva is a rare phenomenon; however, with more cases being reported around the world, and taking into consideration an ageing population with increased life expectancy, this is a diagnosis we should consider when assessing a vulval lesion. Proper treatment guidelines are required in order to give uniform care worldwide for comparison of results to best assess the prognosis.

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