Basal cell carcinoma (BCC) is the most common malignancy occurring in white Caucasians worldwide and the incidence of BCC is rising. The majority of BCCs occur sporadically on sun-exposed areas of the head and neck, with ultraviolet radiation (UVR) considered an important aetiological factor (1). However, BCCs also occur on covered and non-sun-exposed sites, including the nipple and areola, axilla, hands, feet, inguinal and genital areas. These are often referred to as being “unusual” sites for BCC and occur in the absence of immunosuppression, exposure to carcinogens or a hereditary predisposition (2). BCC has been postulated to originate from pilosebaceous units. It is, however, more generally accepted that pluripotent epithelial cells in the epidermis or adnexal structures can mature into any epithelial structure (3).

CASE REPORT

A 69-year-old Caucasian man was referred with a 3-year history of an enlarging, pruritic papule on his right nipple. This was associated with bleeding and crusting, which led the patient to seek attention. There was no past history or family history of skin cancer. Nifedipine was his only medication for hypertension. During the ages of 16–24 years he had combined work on a farm, frequently without his shirt on, with work in a steel factory. Subsequently he had worked indoors in a steel factory and then in a glass factory until his retirement.

Examination revealed a poorly-defined, 14 × 11 mm, pink and telangiectatic, irregular plaque involving the right nipple and areola with central ulceration (Fig. 1A). The left nipple and areola was normal and there were no other abnormalities seen on skin examination, including absence of regional lymphadenopathy. A mammogram was performed, which was normal. Incisional biopsy of the lesion revealed evidence of a mixed nodular and superficial type BCC.

Mohs micrographic surgical (MMS) excision was performed in view of the ill-defined edges of the tumour, to ensure tumour-free margins and tissue preservation. Tumour-free margins were achieved following four stages and five blocks. The final defect measured 22 × 11 mm (Fig. 1B). This was allowed to heal by secondary intention. Healing occurred within 3 weeks and the cosmetic appearance after 5 months is shown in Fig. 1C. Follow-up after 2 years showed no sign of recurrence, with an excellent cosmetic outcome.

DISCUSSION

There are 31 reported cases of BCC of the nipple-areola complex in the literature, and these are summarized in Table SI (available from http://adv.medicaljournals.se/article/abstract/10.2340.00015555-0935). Two-thirds of cases have been reported in men, which may be explained by a greater amount of sun exposure to this area. The frequency of histological subtype for BCC of the nipple-areola complex is unknown. Fourteen of the reported cases gave further details of histology and, of these, three were infiltrating BCCs (4–6), three had invasion of the lactiferous ducts (7–9), four were superficial (10–13) and three were nodular (9, 12).

There has been some debate as to an increased potential to metastasis for BCC at "unusual" sites, but this has not been substantiated. The reported metastatic rate in BCCs ranges from 0.0028 to 0.5% (14). Those with a higher risk of metastasizing are large, neglected tumours, those invading bone with a morpheaform and infiltrative tumour histology (14). Three of the 31 BCCs of the nipple-areola complex reported have apparent axillary lymph node involvement (15–17). Only one histologically confirmed the presence of BCC in the axillary lymph nodes (15); a case that reports a 54-year-old man who had had a nipple...
resection followed by radiotherapy for BCC of the left nipple 4 years prior to presenting with discomfort under his left arm on movement and radiation changes on the left breast. Metastatic BCC was demonstrated in the left axillary lymph node following left axillary dissection, but no tumour present in the skin, breast or muscle tissue following a left mastectomy.

The majority of the reported cases have been treated with simple excision. Radiotherapy has been used in two cases: one following wedge biopsy showing an invasive BCC; however, long-term follow-up was not carried out in this case (6), and in the other case, described above, axillary node involvement confirming metastatic BCC developed 4 years later (15). Ertitrate has also been used for 3 months in one case, with complete resolution of the BCC confirmed histologically (18). Four of the 31 cases were treated with mastectomy (16, 19, 20) and one with a partial mastectomy (11). So far only five cases have been treated with MMS, two with infiltrating histology (4, 5, 10, 21, 22).

Eight of the 31 cases reported mammographic findings. Of these, five were normal (4, 5, 7, 10, 11), two revealed calcification (8, 23) and one had involutional changes and dermal thickening (6). Two patients with infiltrative BCCs (4, 5) and one patient with BCC invading the lactiferous ducts (7) had normal mammograms. In the other two patients with normal mammograms, the histology later revealed superficial BCC (10, 11). Involutional changes and dermal thickening on mammography were found in one infiltrating BCC (6). Microcalcifications were found in one invasive BCC (8), while the other case showing calcifications in the areola on mammography did not report any histological details (23).

Our patient had an ill-defined BCC of superficial and nodular histological subtype that was treated with MMS following a normal mammogram and normal clinical examination of the axillary lymph nodes. MMS of BCC of the nipple-areola complex has the potential for high cure rates and tissue preservation by producing tumour-free surgical margins. This is especially important when the tumour edges are difficult to determine.

Secondary intention healing is an important method of wound management, allowing excellent cosmetic results in selected wounds (24). Our patient had a cosmetically acceptable result following secondary intention healing postoperatively of the BCC of his nipple-areola complex. We are not aware of previous reports of the outcome of secondary intention healing of the nipple-areola complex.

REFERENCES