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Original Research Article

Basal cell carcinoma in a patient at two rare sites: a case report

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ABSTRACT

Basal cell carcinoma (BCC) is a locally aggressive cutaneous tumor frequently linked to aberrations in the Hedgehog signaling pathway. It typically occurs on sun-exposed areas; however, rare presentations in non-sun-exposed sites have been documented. A 61-year-old female presented with a five-year history of a non-healing ulcer on the right leg. Initially misdiagnosed as Lupus vulgaris, repeated biopsies revealed features consistent with infiltrative BCC and, subsequently, a morpheaform subtype with squamous differentiation. In addition, metastasis was noted in the inguinal region. Radiological studies and histopathological evaluations confirmed the diagnosis. This case underscores that BCC may present at atypical, non-sun-exposed sites and can demonstrate local aggressive behavior with regional metastasis. Early recognition and prompt surgical management are essential to prevent further local invasion and metastasis.

Keywords: Basal cell carcinoma, Morphea form, Non-healing ulcer, Non-sun-exposed, Metastasis, Pathology

INTRODUCTION

Basal cell carcinoma is the most common malignant cutaneous neoplasm and is usually linked to chronic ultraviolet exposure. Classically described as 'rodent ulcer' or basal cell epithelioma, BCC originates from the pluripotent basal cells of the surface epithelium.[1,2]

While it predominantly affects older individuals with fair skin, its occurrence in non-sun-exposed areas is rare.

Various histological subtypes have been reported, including nodular, superficial, adenoid, keratoacanthoma, basosquamous, and morphea form variants.[2]

Here, we report a case of BCC in a 61-year-old female with lesions on the right leg and inguinal region a rare presentation that highlights the importance of considering

BCC in the differential diagnosis of chronic non-healing ulcers.

CASE REPORT

Clinical presentation

A 61-year-old female presented with a complaint of a non-healing ulcer on the right leg persisting for five years. The lesion began as a small mole that progressively enlarged, ulcerated, and began bleeding, ultimately causing difficulty in walking. The patient's past medical history was notable for tuberculosis treatment on two occasions three years prior.

Radiological findings

CT angiography of the lower limb arteries demonstrated a skin defect with subcutaneous and intramuscular edema in the anterolateral aspect of the right leg just below the knee. HRCT of the thorax revealed changes suggestive of sequelae to a previous infection, likely tuberculosis, without evidence of mediastinal lymphadenopathy.

Sputum examination for acid-fast bacilli was negative.

Histopathological findings

First biopsy

A skin punch biopsy (1.3×1×0.2 cm) from the right leg ulcer showed tissue fragments covered by squamous epithelium with ulceration. Sections revealed infiltrating, angulated, and thin strands of basaloid tumor cells extending deep into the dermis, with fibrosis and desmoplasia in the stroma. These features were suggestive of an infiltrative type of BCC.

Second biopsy

A wedge biopsy measuring 0.8×0.5×0.5 cm exhibited features diagnostic of morpheaform BCC with squamous differentiation.

Excision specimen

A wide excision of the non-healing ulcer (skin specimen measuring 15.5×13.5×1 cm with a large, ulcerated area of 9.5 cm in diameter) along with an inguinal mass was performed. Gross examination revealed grey white to grey-brown cut surfaces. Microscopic examination confirmed the presence of morphea form BCC, with similar findings in the tissue from the inguinal region; however, no lymph node tissue was identified. All margins are free from tumor.

Figure 1: Excision biopsy from the non-healing leg ulcer.

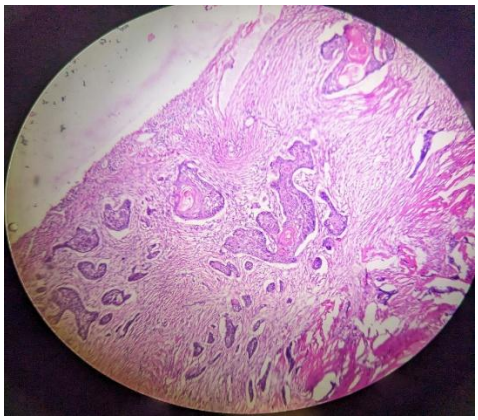

Figure 2: Hematoxylin and eosin (H and E) slide demonstrating morpheaform BCC from the leg ulcer.

DISCUSSION

BCC is the most common malignant cutaneous neoplasm worldwide, with its incidence varying according to ethnicity and geographic location, yet showing a global increase in recent decades.[2,3] It predominantly involves the upper two-thirds of the face, particularly the nose in 25–30% of cases.[4] Although most cases occur on sun-exposed sites, up to one-third arise on non–sun-exposed areas.[4,5] The occurrence of BCC on the lower limb is reported to be nearly three times higher in women than in men.[6] The present case of a 60-year-old female with BCC on the right leg represents a rare presentation on a non–sun-exposed site.

Histologically, BCC is composed of nests of basaloid keratinocytes surrounded by stromal tissue and often connected to the epidermis. The tumor cells resemble basal keratinocytes of normal epidermis, showing hyperchromatic nuclei, scant cytoplasm, and peripheral palisading.[7,8] The nodular or solid variant typically demonstrates irregular lobulated nests of basaloid cells with clefting artifacts and variable stromal inflammation. The main subtypes of BCC include nodular, superficial, and morpheaform, accounting for approximately 50-79%, 15%, and 5-10% of cases respectively.[7,9,10] The present case corresponds to the morpheaform type.

BCC usually progresses slowly and indolently; however, if untreated, it may invade subcutaneous tissue, muscle, and bone, forming ulcus rodens.[11] Locally aggressive tumors often show loss of peripheral palisading and a dense fibrotic stroma.[11] Metastatic BCC is exceedingly rare, and its occurrence at uncommon sites such as the inguinal region, as in this case, is exceptional. Since the first report in 1894 of a facial BCC metastasizing to the submaxillary lymph node, only around 300 metastatic cases have been described.[12] Mutations in the sonic hedgehog signaling pathway play a crucial role in BCC pathogenesis.[10] Hedgehog pathway inhibitors have shown promising results in locally advanced or metastatic cases. The most common route of dissemination is via lymph nodes, followed by hematogenous spread.[13] Distant metastases are rare but have been reported in the lungs, bones, and liver. Metastatic potential is higher in basosquamous variants, tumors with perineural invasion, and those located on sun-protected areas.[11,14-16] This case also represents a basosquamous type arising in a non–sun-exposed area.

Tumors larger than 2 cm are associated with increased risk of recurrence, metastasis, and mortality.[10,17] In this case, the lesion measured 9.5 cm, indicating aggressive potential. Early surgical excision remains the treatment of choice, while regional metastases may require lymph node dissection. Systemic metastases may need combined chemotherapy, radiotherapy, and surgery.[18,19] Prognosis remains poor once lymph node metastasis develops.

CONCLUSION

This case report documents a rare presentation of basal cell carcinoma arising on a non-sun-exposed site with regional metastasis. The unusual location and histological presentation emphasize the need for a high index of suspicion when evaluating chronic non-healing ulcers. Early recognition and wide local excision remain critical for preventing local invasion and regional spread. This patient also had radical excision with free margins (histologically) and presently patient is free of disease.

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