African Urology 2024;4:102-104
https://doi.org/10.36303/AUJ.0157

AFRICAN UROLOGY
ISSN 2710-2750 EISSN 2710-2750

CASE REPORT

A rare case of basal cell carcinoma – "where the sun don't shine"

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We present a rare case of scrotal basal cell carcinoma (BCC) in a 74-year-old patient who presented with a long-standing history of a nonhealing scrotal ulcer.

Keywords: scrotal lesion, nonhealing scrotal ulcer, basal cell carcinoma, wide local excision, scrotal cancer

Case presentation

A 74-year-old male of mixed heritage was referred to our urology outpatient department with a three-year history of a painless, nonhealing scrotal ulcer. The patient was an ex-smoker and had hypertension, dyslipidaemia, and gout. He had no other relevant medical, surgical, social, occupational, or travel history. He did not have excessive exposure to ultraviolet light and did not report any scrotal trauma.

Interestingly, the patient had grown up in the Northern Cape of South Africa, and during his childhood and teenage years, he would stand next to or over an agar stove in the cold winter mornings for prolonged periods to keep warm. It is unclear if this may have posed a risk for developing basal cell carcinoma (BCC) of his scrotum years later.

The lesion was 4 cm × 1 cm in size on the median raphe of the scrotum. It had an ulcerative appearance with irregular edges and areas of contact bleeding. The patient's testes and penis were clinically normal, and he had no palpable inguinal lymphadenopathy. There were no other skin lesions. The abdominal ultrasound and chest radiograph were normal. His human immunodeficiency virus (HIV) enzyme-linked immunosorbent assay (ELISA) serological test was negative, the Treponema Pallidum Haemagglutination Assay (TPHA) test was positive, but the reactive plasma reagin (RPR) test was negative.

We performed a wide local excision of the scrotal lesion (Figure 1). Histopathological evaluation revealed a tumour in the dermis with connections to the epidermis composed of basaloid cells growing in nests that displayed peripheral palisading, focal clefting between the epithelium and stroma, and scattered mitotic figures in keeping with BCC. Nodular, micronodular, and infiltrative growth patterns were identified. The carcinoma infiltrated to a depth of 5.9 mm and extended to excision margins. Perineural invasion was not demonstrated.

Although some tumours may mimic BCC on histology, the histological appearance of haematoxylin and eosin (H&E) stain in this case was distinctive and diagnostic for BCC (Figure 2). The diagnosis was based on the combination of nests of basaloid cells with a connection to the epidermis, peripheral palisading and frequent mitotic activity, the presence of clefting between tumour epithelium and stroma, and an infiltrative growth pattern. The tumour was independently diagnosed as BCC by different pathologists on the original and re-excision specimens. No immunohistochemical stains were done.

The patient required re-excision with an intraoperative frozen section to ensure clear margins. Histology of the re-excision specimen confirmed residual BCC with the margins clear of tumour.

Discussion

BCC is a common skin malignancy, representing 75–80% of nonmelanoma skin cancers, and usually occurs in sun-exposed areas. It originates from pluripotent cells in the epidermis or a hair follicle.[1-4] Perineal, genital, and perianal lesions are found in only 0.1–0.27% of cases.[2] The vulva is the most common site, followed by the perianal and pubic areas, scrotum and penis.[2] Scrotal BCC has an annual incidence of 1 per 1 000 000 population.[3] BCC mainly affects the elderly, at an average age of 65 years, and can present with a long-standing history of skin lesions, ranging from months to years.[2,3]

The usually delayed presentation may be attributed to the slow-growing nature of these tumours, difficulty with self-inspection in the described areas, and the stigma associated with genital lesions.[2] These lesions are often initially misdiagnosed.[5] BCC usually presents as ulcerated nodules, patches, and plaques. Ulcers were observed in about a third of cases.[2] The differential diagnosis includes sarcoma, squamous cell carcinoma, Bowen's disease, extramammary Paget's disease, pyoderma gangrenosum, melanoma, or venereal disease.[1,5-7]

Ultraviolet light exposure has been described as the main risk factor for BCC. Other risk factors include exposure to radiotherapy, dust, soot, coal, tar, pitch, various lubricant oils or creosotes, arsenic exposure, chronic dermatitis, chronic fungal infections, Hailey-Hailey

disease, immunosuppressive therapy, and smoking.[1,2,5,8] Genital human papillomavirus has been proposed as a growth-promoting factor, but studies have failed to demonstrate any evidence thus far.[5] Other factors include decreased immunosurveillance, PTCH1, TP53, and other tumour-related genes, or syndromes such as basal cell nevus syndrome.[6] More than one year of exposure to tumour necrosis factor (TNF) inhibitors, usually in the treatment of psoriasis, has shown an increased risk.[6]

A review that investigated the risk of ambient temperature related to primary BCC carcinoma found no linear relationship between lifetime temperature and BCC risk, although BBC risk rose slightly with increased temperatures. However, the risk was lowest in the first quintile of temperature exposure and highest in the fourth quintile, suggesting a possible link.[9]

Genital BCC usually presents as relatively large tumours (1.5–5 cm) due to their delayed diagnosis.[5] BCC rarely metastasises (0.003–0.1% risk) and genital BCC accounts for 7% of these cases, which is a relatively high proportion given the rarity of genital BCC.[2,3] Therefore, scrotal BCC seems to be more aggressive, metastasising more frequently and earlier compared to other skin sites.[5] Local lymph node and lung metastases have been reported in 13–20% of patients with scrotal BCC 2–3 years after diagnosis, compared to 0.003–0.5% after 9–11 years in BCC at other locations.[5,7]

The scrotum has well-vascularised, thin skin with minimal subcutaneous fat, which might be a contributing factor to the aggressive course of the disease.[5] The standard treatment for localised BCC is surgical excision, with a 2–3 cm tumour-free margin.[2,7] The rugosity of the scrotum may complicate the delineation of tumour margins, but clear margins are paramount for future prognosis, which remains excellent despite being more aggressive than BCC at other sites.[6] Imiquimod has been used in a neoadjuvant role to decrease the tumour size for future excision. This may decrease tissue loss and the need for complex reconstructive surgery for skin closure.[6]

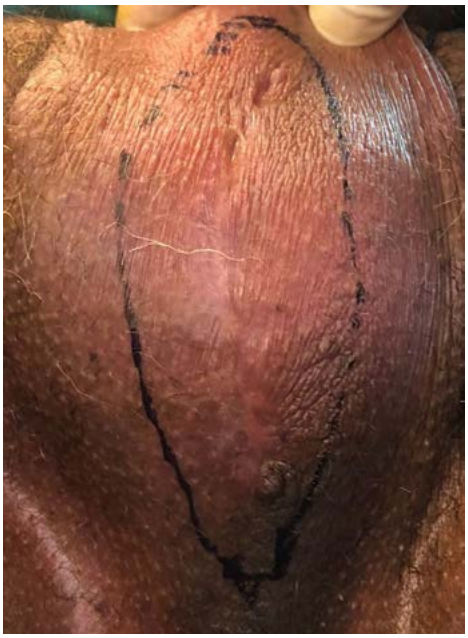

Figure 1: Intraoperative photo at the time of repeat excision; note the previous surgical scar and skin marking for wide local excision

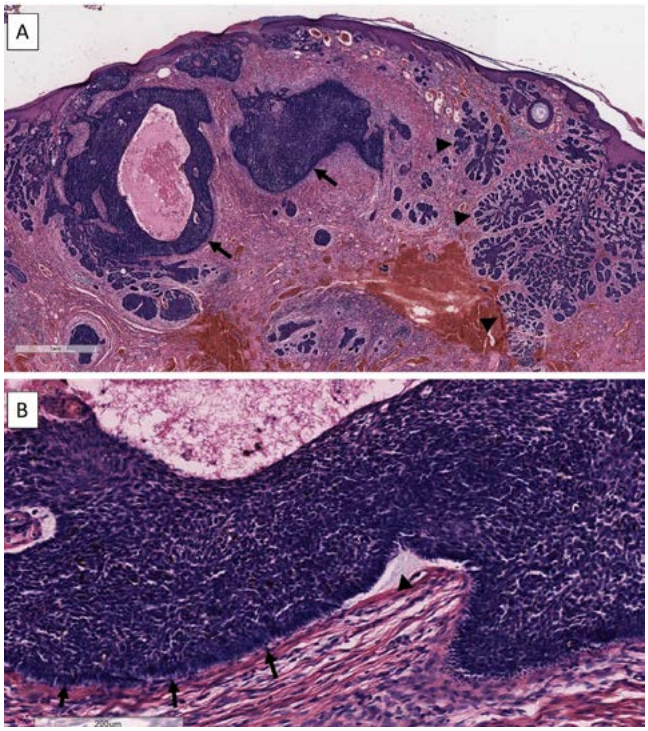

Figure 2A: (Histopathological slide) basal cell carcinoma involving scrotal skin display nodular (centre and left of centre, indicated by arrows) and micronodular growth patterns (right side, indicated by arrowheads); H&E stain, original magnification 22x
Figure 2B: Palisading of tumour cells at the periphery of nests (indicated by arrows) and retraction artefact between tumour epithelium and stroma (indicated by an arrowhead) are characteristic histological findings that can be seen in basal cell carcinomas at any site; H&E stain, original magnification 110x

Mohs micrographic excision has yielded superior results due to imprecise margins during standard surgical excision of these lesions.[3] Radiotherapy, topical immunomodulators, cryotherapy, and photodynamic therapy have been used for BCC in other areas.[2,4,6] Regional metastases may be treated with a lymphadenectomy.[2] Chemotherapy with cyclophosphamide, doxorubicin, and cisplatin is used for patients with distant metastases.[2]

Poor prognostic factors include invasion of the dartos muscle and positive surgical margins, spiky irregular outlines, perineural or vascular invasion, and possibly immunosuppression.[4,6] Morpheaform, metatypical (basosquamous carcinoma), and adenocystic variants are the most aggressive types of BCC.[4] Penile BCC has a poorer prognosis compared to scrotal BCC.[10]

This case is a reminder that nonhealing scrotal lesions have a broad differential diagnosis and biopsy (or excision) is essential to make the correct diagnosis. BCC may infiltrate deeper than clinically apparent, therefore it is essential to ensure wide excision margins. Our case had no recurrence on clinical review at six months and one year post-op and will be reviewed regularly.

Conflict of interest

The authors declare no conflict of interest.

Funding source

No funding was received.

Ethical approval

The patient provided written, informed, and signed consent.

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