

Basal Cell Carcinoma in a Dermatosurgery Scar: A Case of Immunocompromised Cutaneous District

Sir,

Basal cell carcinoma (BCC) is the second most common non-melanoma skin cancer in India.^[1] An interplay of genetic and somatic factors is central to its occurrence in the majority of individuals. While ultraviolet (UV) exposure is the predominant somatic factor, infrequently, trauma and scar tissue have also been implicated.^[2] Herein, we report a case of BCC occurring at the site of surgical trauma.

A 65-year-old male, an avid golfer, reported with 6-year history of a slow-growing, skin-colored growth below his left lower eyelid. The lesion was painless and associated with occasional episodes of bleeding after casual trauma. There was no history of smoking, or a family history of similar lesions. As per the patient record, 8 years prior, radiofrequency ablation was performed at the same site for a filiform wart. The ablation site healed with minimal scarring and a good cosmetic outcome. The site remained quiescent for 2 years before manifesting with the present growth.

As part of his golfing sport, he was exposed to 4-6 hours of sun, four times a week. He further reported that he never used a sunscreen. Physical examination revealed Fitzpatrick type III skin with a solitary, well-defined 1.5 cm × 1.0 cm non-tender erythematous nodule below the left lower eyelid [Figure 1]. Dermoscopy revealed arborizing blood vessels with a thick stem vessel, thin branching vessels and white streaks [Figure 2]. Based on clinical and dermoscopic examination, we considered basal cell carcinoma, trichoblastoma, trichoepithelioma, intradermal nevus, hypertrophic scar, squamous cell carcinoma and amelanotic melanoma as differential



Figure 1: Solitary well-defined 1.5 cm × 1 cm erythematous nodule below the left lower eyelid

diagnoses. Excision biopsy of the lesion was performed with 4 mm inferior, lateral and medial margins, and a 2 mm superior margin. The latter margin was necessitated by proximity to the lower eyelid and the prospect of post-surgical ectropion. Histopathology revealed discrete nests of basaloid cells in the dermis [Figure 3a] with a peripheral palisade of malignant keratinocytes and a retraction artefact [Figure 3b], confirming BCC. The margins were reported as clear.

Our patient was a fair-skinned golfer who underwent a dermatosurgical procedure two years prior to the appearance of BCC at the site. An etiologic relationship between trauma, scar tissue and the development of BCC has been described.^[3,4] Vern *et al.* in their retrospective study of 1,178 cases of post-scar carcinoma reported that 8.5% developed BCC. The development of BCC was associated with older age and a relatively shorter latent period.^[3] Skin injury, including, but not limited to ionizing or UV radiation, burns, trauma, herpetic infection and even vaccination, can render the affected areas susceptible to subsequent cutaneous disorders. The concept of immunocompromised cutaneous district or locus minoris resistentiae (site of lesser resistance) states that the

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Table 1: Reported cases of cutaneous premalignant conditions and malignancies as a result of immunocompromised cutaneous district

	Site	First disease	Carcinoma
Mishra and Raji, ^[6] 2004	Scalp	Herpes zoster	Squamous cell carcinoma
Ruocco <i>et al.</i> ^[7] 2004	Shaft of penis	Herpes zoster	Bowenoid papulosis
Bennewitz <i>et al.</i> ^[8] 2013	Arm	Chronic arm lymphedema	Angiosarcoma
Yoo <i>et al.</i> ^[9] 2014	Multiple	Burn scar	Squamous cell carcinoma (42 cases)
Yoo <i>et al.</i> ^[9] 2014	Arm	Burn scar	Fibrosarcoma
Yoo <i>et al.</i> ^[9] 2014	Leg	Burn scar	Verrucous carcinoma
Kluger <i>et al.</i> ^[10] 2014	Multiple sites	Tattoo	Squamous cell carcinoma and keratoacanthoma (23 cases)
Kluger <i>et al.</i> ^[10] 2014	Multiple sites	Tattoo	Melanoma (16 cases)
Kluger <i>et al.</i> ^[10] 2014	Multiple sites	Tattoo	Basal cell carcinoma (11 cases)
Wollina U, ^[11] 2014	Supraclavicular area, infraclavicular area and forehead	Chronic radiodermatitis	Basal cell carcinoma (3 cases)

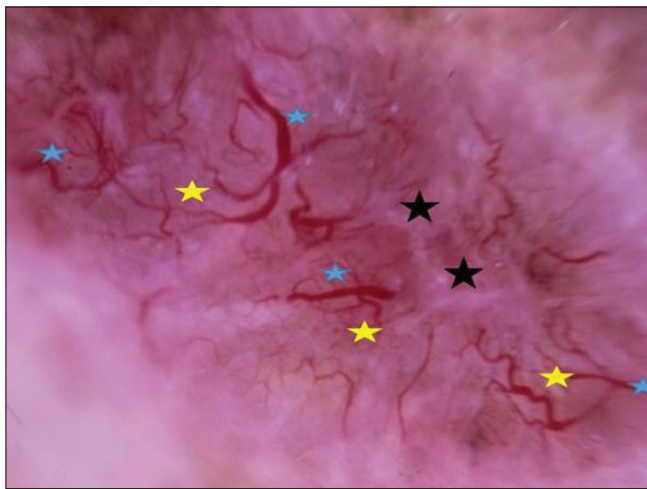


Figure 2: Dermoscopy reveals arborizing vessels with thick stem vessels (blue star), thin branching vessels (yellow stars) and white streaks (black stars)

affected region is more vulnerable to acquire a second disease process that may be immunological, infectious or neoplastic in nature.^[4] This vulnerability has been ascribed to dysregulation or alteration of the local and regional immune systems due to lymph stasis and/or locally altered neuromediator signaling of cell membrane receptors located on immunocompetent cells.^[5] Our patient reported no visible scar at the dermatosurgery site. However, the cellular attributes of healing tissue would have persisted for several months following radiofrequency ablation. Coupled with intermittent and intense UV exposure, this could have contributed to neoplasia at the surgery site. Many cases of cutaneous premalignant and malignant lesions over previous scar, infection and dermatosis site are present in literature [Table 1].

Fitzpatrick skin type II (burns easily, minimally tans) has been mentioned as a risk factor for BCC.^[12] Our patient, however, had type III skin. Although, our patient had a filiform wart at the tumor site, no putative role for Human papilloma virus in BCC has been elucidated.

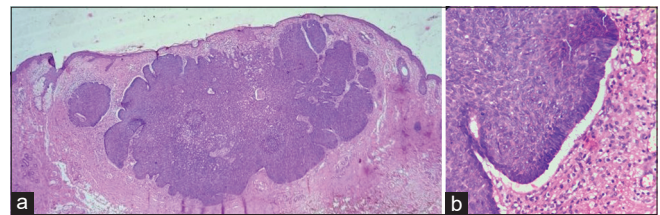


Figure 3: (a) Nodular mass of cells extending into the dermis with peripheral palisading (H and E, x10). (b) Peripheral palisading of basaloid cells with retraction artefact (H and E, x40)

BCC developing over a dermatosurgery site has been sparingly reported. We speculate that a combination of surgical trauma and UV exposure in our patient contributed to the manifestation of immunocompromised cutaneous district that eventually led to BCC. The case underscores the importance of sun protection after all dermatosurgery procedures, particularly among individuals having an outdoor lifestyle or occupation.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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