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CASE REPORT

Basal cell carcinoma presenting as an excoriated cicatricial plaque: A case report

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ABSTRACT

Basal cell carcinoma (BCC) is the most common skin cancer with several clinical and histopathological subtypes. Trauma and scar tissue have been implicated as possible etiological causes of BCC. Here, we report a case of a 37-year-old man with BCC arising on a longstanding cicatricial plaque with nearly 30 years' duration. Intractable pruritus, which had started two months ago and gradually intensified, was the patient's main complaint upon admission. The lesion presented as a linear, erythematous, excoriated cicatricial plaque in the left supraclavicular region. Pearly borders and the mildly atrophic center of the plaque, that were recognized upon close examination, were notable features and may indicate BCC. We believe that a detailed patient history and meticulous clinical examination are essential for diagnosing BCC arising in longstanding scars.

Introduction

Basal cell carcinoma (BCC) is the most common skin cancer in the world. BCC is generally a slow- growing tumor that rarely metastasizes; however, it can cause significant morbidity due to local destruction and disfigurement.[1,2] Light skin color, intermittent and intense sun exposure, ionizing radiation, arsenic exposure, immunosuppression, and HIV seropositivity are well-known risk factors for the development of BCC.[1] Trauma and scar tissue have also been implicated in the etiology; nevertheless, the pathophysiology of the development of BCC arising from scar tissue has not yet been fully elucidated.[3,4] Moreover, Requena described a separate variant of BCC in 1996, reporting two cases that morphologically resembled keloids, and proposed the term “keloidal BCC”.[5] Herein, we report a case of BCC arising on a longstanding linear scar located in the supraclavicular region of a 37-year- old man.

Case report

A 37-year-old male patient presented to our outpatient clinic with a cicatricial-keloidal plaque in the left supraclavicular region. The patient had developed intense pruritus that was localized to this area, and had started two months prior to his presentation and had continued to increase in severity. He stated that the scar had been present for nearly 30 years, but he could not provide a detailed history about the cause and progression of the scar. He denied any surgical procedure, burn, radiotherapy, or any other trauma and gave no history of chemical exposure, radiation, or immunosuppression. He also did not have a family history of BCC or BCC related syndromes.

Physical examination showed a linear, cicatricial, erythematous-purple-colored plaque (7 × 1 cm) with crusts caused by excoriations. Upon close examination, a slight elevation on the border that was formed by multiple orange/skin-colored millimetric papules and a mildly atrophic center were observed (Fig. 1A–B). He had no lymphadenopathy and no other significant cutaneous findings.

A punch biopsy was performed in the vicinity of the border with a provisional diagnosis of granulomatous skin disease, dermatofibrosarcoma protuberans, and keloid. Microscopic examination revealed fibrillar, thickened, prominent collagen bundles arranged parallel to the skin surface forming nodular structures and an increased number of blood vessels with perivascular lymphocyte and plasmocyte infiltration, consistent with a hypertrophic scar. Many basaloid palisading cell aggregations of BCC that were of

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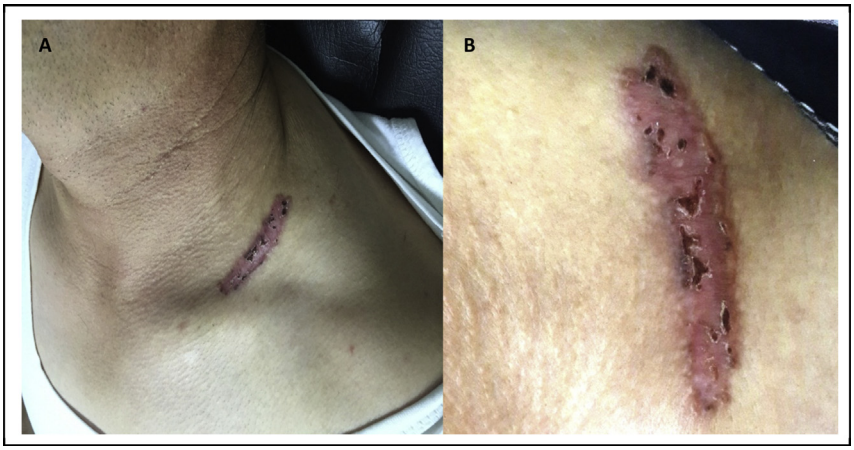

Fig. 1 Clinical images of the patient (A) Linear excoriated cicatricial plaque in the left supraclavicular region. (B) Pearly border of the plaque and crusts on close examination.

various sizes were intermixed with collagen bundles in the scar's deep layer (Fig. 2A–B). With these histopathological findings, we established a diagnosis of BCC arising on a hypertrophic scar. Subsequently the patient was referred to plastic surgery and total excision of the lesion was performed with 10 mm margins. There was no recurrence was after five months.

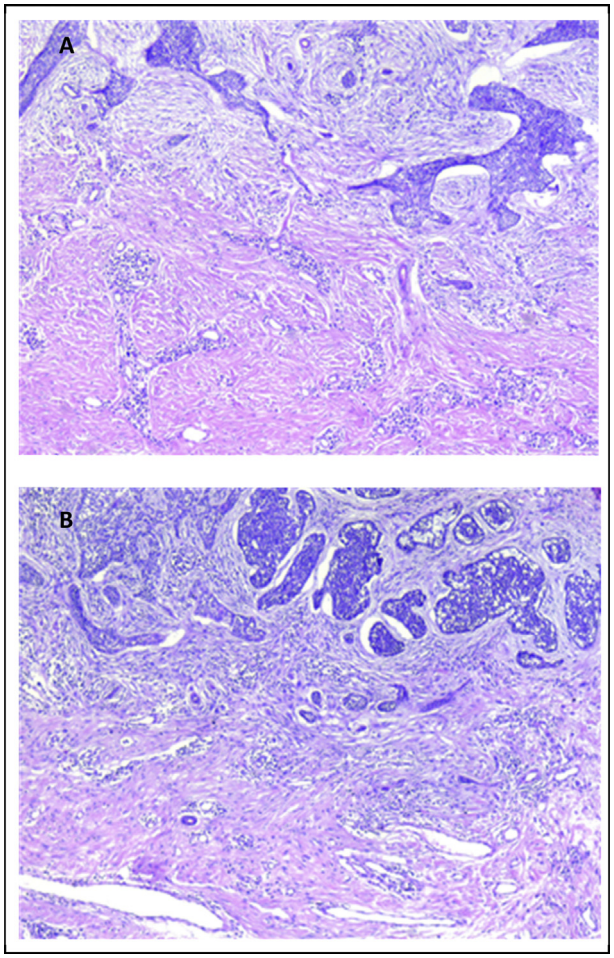

Fig. 2 Histopathological examination (A), (B) Basaloid tumor cells in nests and they are surrounded by thick collagen bundles haphazardly (H&E, ×50).

Discussion

BCC is the most common skin cancer with a predilection for chronically sun-exposed areas, mainly the face and neck, and is most frequently seen in adults aged 40 years or older.[6] UV exposure is the predominant environmental risk factor in the etiology of BCC,[1] trauma and scar tissue have also been associated with the development of BCC, and the period between the onset of trauma and tumor formation can range from weeks to decades.[3,4,6] Noodleman reported that trauma-related BCCs were seen more frequently in males and at younger age compared with BCCs that were not related with trauma.[3] In line with this, the present case was a 37-year-old male patient. The exact pathogenesis of the development of BCC on scar tissue remains unclear. It has been speculated that cell damage due to UV exposure, skin atrophy, decreased perfusion, the release of toxins as a result of chronic irritation, slow initial healing and recurrent ulceration form a predisposition to the development of malignancy.[3,7] In a study comprising 1774 basal cell carcinomas treated with Mohs surgery, 7.3% of the patients had a prior history of trauma such as burn injury, sharp trauma, and chicken pox scars.[3] Ryeol et al.reported a case of BCC that presented as a hypertrophic scar in the right supratip region of a 39 year-old-woman who had acne scars frequently irritated during wound healing.[6] Misago et al. reported a case of keloidal BCC in the preauricular region after radiotherapy.[8] Goder et al. reported another case of keloidal BCC on the mid helix of the auricle within the scar tissue of ear piercing.[9] Case reports that describe BCCs arising from surgical scars also exist.[10,11] In the present case, the patient could recall no history of surgery, wounds, burns, or radiotherapy exposure. Nevertheless, the linear shape of the lesion seemed to indicate some form of trauma. Since the lesion was already present in childhood, it is also possible that he might not remember some traumas from his infancy; this could not be confirmed as the patients' parents were no longer alive. The long duration of surgical scars has been related to the development of BCC.[4,12] Similarly, in our case, the long-term existence of the scar (approximately 30 years), might have contributed to the development of malignancy. Chronic irritation due to clothes and rubbing might also be involved in the pathogenesis.[4,12]

In this case, the lesion presented as an excoriated, erythematous, cicatricial plaque, that was indistinguishable from scar tissue at first sight. Upon close examination, a pearly border was formed by multiple orange/skin-colored millimetric papules and the mildly atrophic center were recognized; we believe that these features may be indicative of BCC. A diagnosis of BCC arising on a

hypertrophic scar was established with the histopathological findings; however, the lesion was not clinically a hypertrophic plaque. We considered that the scar might have undergone regression, as most hypertrophic scars regress over time.[13] Interestingly, the patient mainly complained of severe, disturbing pruritus, that had emerged recently on this longstanding plaque. Pruritus is a common symptom in hypertrophic scars; nevertheless, it can also be a symptom of cutaneous malignancies such as basal cell carcinoma, squamous cell carcinoma, and melanoma.[14] In a study done by Yosipovitch et al., itching was present in 31.9% of all BCCs.[14] However, with the possibility that the itch was a common symptom of scar tissue in this case, the new-onset and intensifying severity also raised the suspicion that these characteristics of pruritus could be warning signs for the diagnosis of scar-related BCCs. Since there is no study comparing the characteristics of pruritus in scars and BCC in the literature, we were unable to confirm this suspicion. Histamine released by mast cells plays a role in the pruritus pathophysiology in hypertrophic scars and keloids; therefore, we expected to see an increase in the number of mast cells in the histopathological examination of this highly pruritic scar.[15,16] Nevertheless, the inflammatory infiltrate predominantly consisted of plasma cells and lymphocytes, revealing that different mechanisms may be involved in the pruritus pathophysiology in this case.

In a study by Ozyazgan et al., of the histopathological BCC subtypes, solid and morphea-like patterns were reported in trauma-related BCCs.[4] In our patient, the histopathology was consistent with mixed infiltrating + nodular BCC, characterized by multiple focuses of BCC on dense fibrous stroma made up of thickened and sclerotic collagen bundles. Based on these findings, we also considered keloidal BCC in the histopathological differential diagnosis. Keloidal BCC was first described as a separate variant of BCC by Requena, who reported two cases of BCC in which the keloidal tissue was the stroma of the tumors.[5] However, the stroma in our case showed features of hypertrophic scar consisting of randomly arranged fibrillar collagen fibers forming nodular structures, an increased number of blood vessels and perivascular infiltrate composed of lymphocytes and plasmocytes.[17] Therefore, we reached the diagnosis of BCC arising from a hypertrophic scar.

Here, we report a case of BCC developing on a cicatricial plaque over many years. Although SCCs in scar tissues have been reported, there are limited cases of BCCs in the literature, and the mechanisms underlying the development of BCCs on scar tissues remain unclear. In our case, the lesion presented as an excoriated, cicatricial plaque, with no suspicious features of BCC apart from the pearly border and minimally atrophic center, which were only visible upon close examination. The characteristics of pruritus, such as the recent onset and increased severity, were noteworthy, and we suspected that these were related to the development of BCC, but we could not exactly confirm this since pruritus is also a common symptom of scar tissue.

Therefore, we believe that more studies that investigate and compare the characteristics and pathophysiology of pruritus in scars and malignancies are necessary. We also recommend that the morphology of cicatricial plaques and accompanying symptoms must be carefully evaluated, especially in longstanding lesions. Since BCCs that evolve in scars may not present as classical types of BCC, clinicians must be aware that this can be overlooked unless meticulous clinical examination is performed.

Conflict of interest statement

The authors have no conflict of financial and/or nonfinancial interest to declare.

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