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A keratoacanthoma with venous invasion

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ABSTRACT Keratoacanthomas are variously regarded as a self-limiting variant of squamous cell carcinoma or as a distinct benign lesion and they very seldom show attributes normally associated with malignant behaviour, such as perineural invasion. Herein we report the case of a keratoacanthoma with venous invasion proven by immunoperoxidase and elastic tissue stains.

Introduction

Different forms of squamous cell carcinoma (SCC) exist, keratoacanthoma (KA) variously being regarded as a variant of SCC or as a benign and self-limiting lesion [1]. Though invasion of adnexal, vascular or nervous structures usually precludes the presence of a benign tumour, a series of KA with perineural invasion has been published before [2], as has a case with venous invasion [3]. In this report we present the case of a non-pigmented raised skin tumour, with clinical and histologic features of KA, showing venous invasion.

Case report

A 79-year-old man with a past history of both non-melanoma skin cancer and melanoma presented with a new lesion on his left forehead. The lesion had not been noticed at a previous visit four weeks earlier, and he believed it had appeared and grown over the preceding three weeks. The lesion (Figure 1) was raised and symmetrical with central keratin surrounded by a white area, which merged to a pink area peripherally. It was not tender to palpation and some surface scale was evident.

Dermatoscopy (Figure 2) revealed a non-pigmented lesion with a central structureless orange area (consistent with keratin) surrounded by a large structureless white area merging into a structureless pink area at the periphery. There was a pattern of branched serpentine vessels visible over most of the surface area outside of the keratin. Blood-spots were seen on the keratin.

On histologic examination of the excision specimen there was a well-differentiated squamoproliferative lesion with the characteristic pattern of keratinisation seen in a KA [4]. In each of the two transverse sections taken there was a nest of keratinising squamous cells within the lumen of a vein in the deep dermis. The wall of the vein was highlighted using a

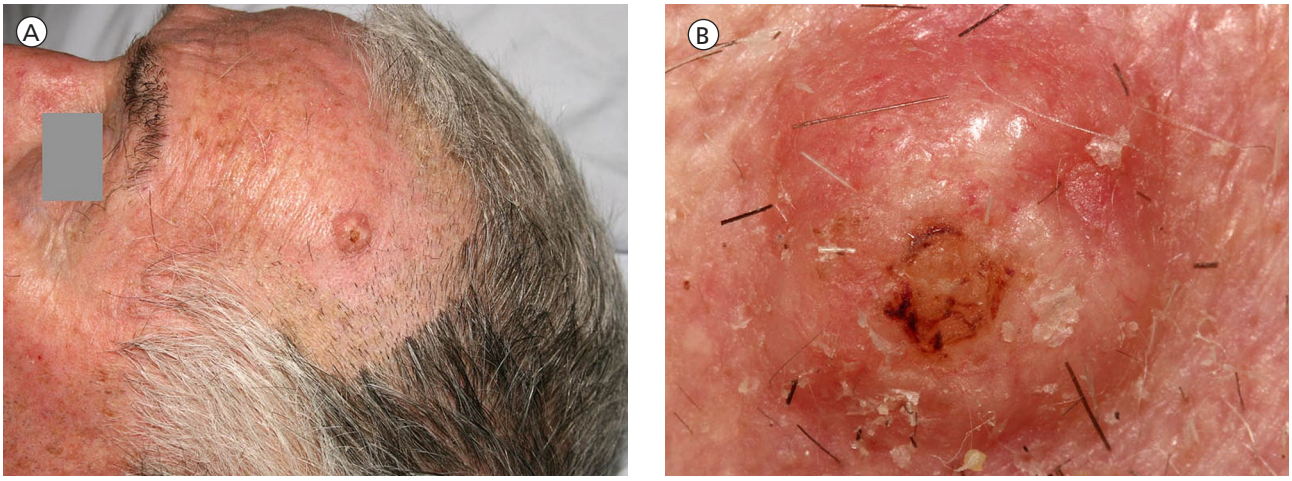


Figure 1. (A) A new raised lesion is present on the left forehead. (B) Close-up imaging reveals central keratin surrounded by a white area, which merges into a pink area peripherally. There is also some surface scale.

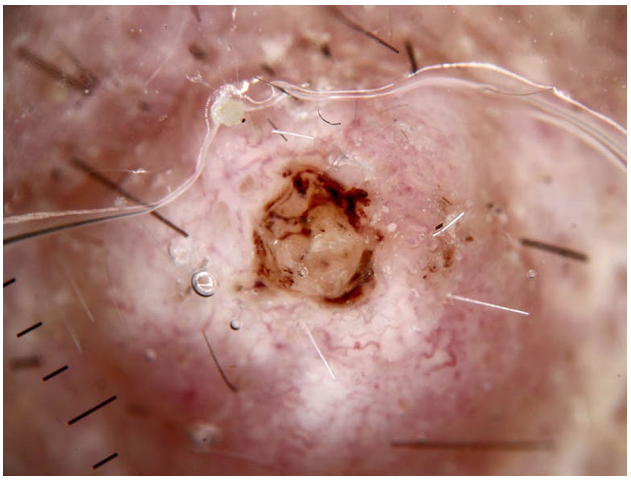


Figure 2. Dermatoscopy reveals a non-pigmented lesion with a central structureless orange area (consistent with keratin) surrounded by a large structureless white area merging into a structureless pink area at the periphery. There is a pattern of branched serpentine vessels visible over most of the surface area outside of the keratin. Blood-spots are seen on the keratin.

Verhoeff-van Gieson stain (VVG), immunoperoxidase stains for desmin, and a stain for smooth muscle actin (Figure 3).

Findings and treatment options were discussed with the patient, and the decision was made to perform a deep and wide surgical excision with an additional 5 mm clinical margin.

Discussion

KA is variously regarded as a benign keratinising tumour and an SCC variant characterised by benign (non-metastasising) behaviour. [1] Although invasion of peripheral nerves has been reported [2,5] this has not been associated with an adverse prognosis. One of the authors (DW, data not shown) has now seen 122 cases of KA with perineural invasion without a single case of adverse outcome. Venous invasion has been reported [3] and observed previously [6].

We suggest that KA is not a variant of SCC on the following grounds [1]:

1. They are each morphologically distinctive.
2. The behaviour of KA with perineural and/or intravenous invasion is quite different to that of SCC showing the same phenomenon.
3. There are possible alternative interpretations for purported cases of KA that metastasised [7].

Richard Reed, a noted dermatopathologist, at the time of this controversy about KA being SCC, went as far as to say: "those of us who compliantly acquiesce to the authors' dogmatic position will have relinquished both soul and conscience" [8].

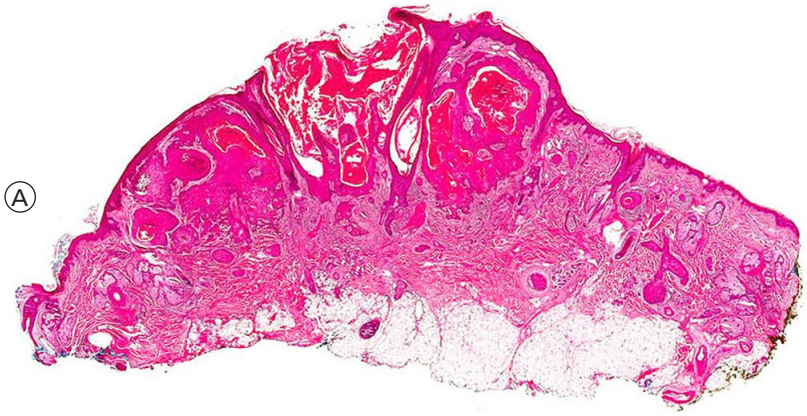
While not all of the authors hold that extreme view, we do agree that over diagnosis is as culpable as under diagnosis [1].

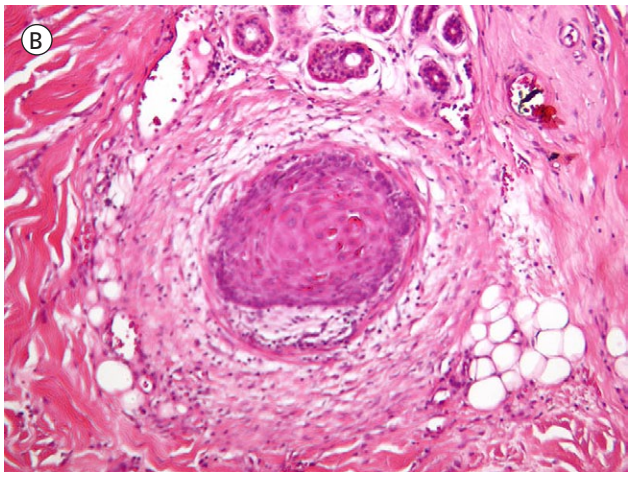
Although the presence of venous invasion would be consistent with an SCC, in the view of the authors, this lesion still represents a KA. This is also consistent with the clinical history of a new and rapidly growing lesion, though SCCs can also occur rapidly. Dermatoscopically it is not possible to distinguish SCC and KA with confidence [9]. Dermatoscopic central keratin with blood spots, white structureless areas and branched serpentine vessels are consistent with both diagnoses. Histopathologically the present tumour was classified as a KA on the basis of a squamoproliferative lesion with the characteristic pattern of keratinization, unique to KA [4]. The cells in a KA have a distinctive hue to their cytoplasm, which is paler than seen in a SCC and this is best seen in the large central cells that may be up to double the size of peripheral cells. These central pale cells are also much larger than the cells of an SCC [4].

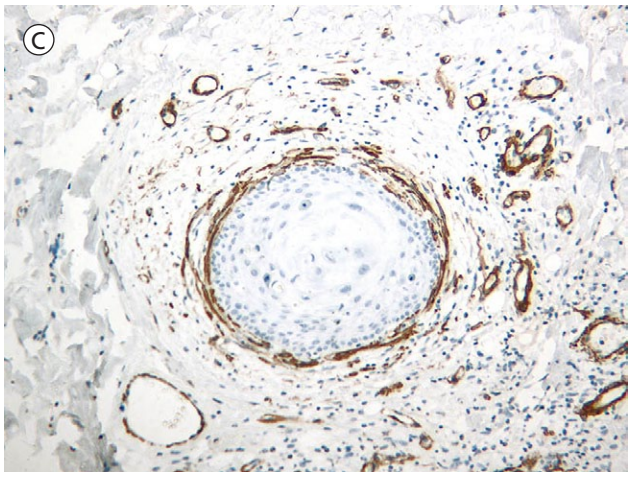
Venous invasion of keratinocytes was confirmed by immunoperoxidase as well as Verhoeff-van Gieson stains (Figure 3).

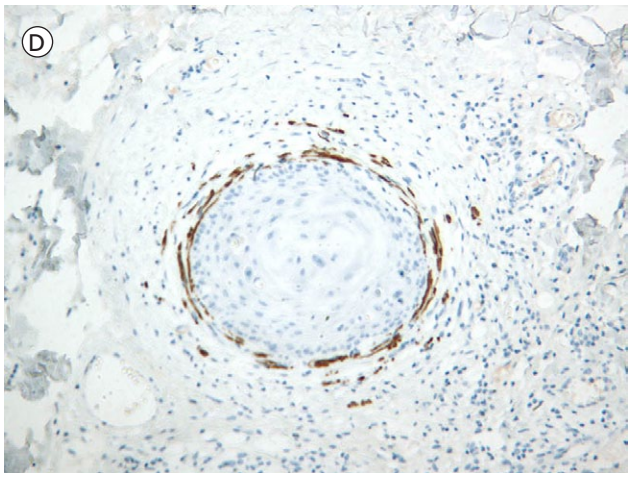
Conclusion

KA is a commonly encountered lesion on sun-damaged skin and it is characterised by benign behaviour without metasta-









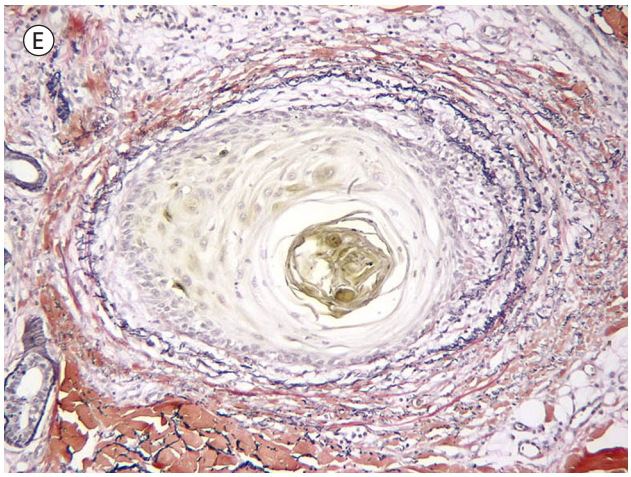


Figure 3. Histopathology of reported tumour. (A) Overview H&E-Stain. (B) Close-up of venous invasion. (C) Immunohistochemistry smooth muscle actin (SMA). (D) Immunohistochemistry desmin. (E) Verhoeff-van Gieson stain revealing elastic fibres within the venous wall.

sis and with ultimate complete regression expected. We have reported a case with venous invasion, a feature normally indicative of malignant behaviour and guarded prognosis. This case has been managed by wide surgical excision and scheduled follow-up.

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