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Keratoacanthoma of the Scalp Presenting as a Verrucous Growth: A Diagnostic Challenge

Kirthika Arunachalam, Mohanapriya Thyagarajan, Kishor Rasipurathanur Jaghannathan, Monisha Parasuraman

Sri Ramachandra Institute of Higher Education and Research, Chennai, India

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KEYWORDS
Keratoacanthoma, Scalp tumor, Ulceroproliferative lesion, Cutaneous neoplasms, Histopathological diagnosis

ABSTRACT:

Keratoacanthoma (KA) is a rapidly growing, low-grade skin tumor that mimics squamous cell carcinoma (SCC) clinically and histologically. Its presentation on the scalp is uncommon and may pose diagnostic challenges.We report a 59-year-old female with a 3-year history of a scalp lesion that became painful and ulcerated. Examination revealed a 4×3 cm exophytic ulceroproliferative swelling with regional lymphadenopathy. Initial biopsy suggested verruca vulgaris. However, wide local excision with histopathology confirmed keratoacanthoma. The patient recovered well postoperatively, with no recurrence on follow-up. KA can be difficult to distinguish from SCC both clinically and microscopically. Misdiagnosis may lead to overtreatment or undertreatment. Excisional biopsy remains critical for definitive diagnosis and it is crucial to give adequate margins. This case highlights the importance of considering KA in the differential diagnosis of scalp lesions and reinforces surgical excision as both diagnostic and therapeutic.

1. Introduction

Keratoacanthoma (KA) is a relatively rare, fast-growing neoplasm arising from the epithelium that usually arises on sun-exposed areas of the skin. It is considered a low-grade variant of squamous cell carcinoma (SCC), with reported incidences of spontaneous regression. However, due to its clinical and histological resemblance to SCC, KA is often managed aggressively (1,2).

Verrucous lesions on the scalp often prompt clinical concern due to their diverse etiologies, spanning from benign entities like seborrheic keratosis and viral warts to premalignant and malignant conditions such as verrucous carcinoma and squamous cell carcinoma. Differentiating between these lesions can be particularly challenging when features like hyperkeratosis, nodularity, or ulceration are present. (6,7)

This case report describes an unusual presentation of a verrucous lesion on the scalp in a elderly female, which was initially suspected to be malignant, initial biopsy showed verruca vulgaris but was subsequently excised and confirmed as keratoacanthoma on histopathological examination. This case aims to highlight the importance of including KA in the differential diagnosis of scalp tumours and highlight the critical role of excision in establishing a definitive diagnosis. To our knowledge, similar presentation of a keratoacanthoma as a verrucous lesion has not been reported previously.

2. Case Report

A 59-year-old female with no medical comorbidities came with the complaints of swelling over her scalp for 3 years, which was initially small and progressed to attain present size (Figure 1). She also complained of pruritis, pain and bleeding from the swelling for the past 2 days. She did not have any significant family history. Physical examination revealed an ulceroproliferative exophytic lesion measuring 4x3cm over the left parieto-occipital region, associated with blood-stained discharge, tender on touch, with maggots from within the lesion. She also had a 2x2cm mobile lymph node swelling in posterior triangle of left side of the neck.

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With the working diagnosis of Squamous cell carcinoma of scalp with metastasis to ipsilateral cervical nodes, we proceeded to do further evaluation. CECT Neck showed an exophytic soft tissue lesion measuring 3.1x1x3.5cm arising from the subcutaneous plane and few enhancing nodes in left occipital and posterior triangle, largest measuring 12x10mm. Fine needle aspiration cytology of the lymphnode revealed reactive changes. She then underwent Edge wedge biopsy of the scalp lesion, which showed Verrucous keratinocytic proliferative lesion with dense inflammation (Figure 2). Case was discussed in Multi-disciplinary team meeting, Wide local excision of the swelling was advised. Hence, the patient underwent Wide local Excision of the scalp lesion with split skin grafting. The scalp lesion was highly vascular and was excised completely with adequate margins of 2cm all around and with depth of 1cm. Resulting raw area was covered with a Split skin graft harvested from the patient's thigh (Figure 3). Intraoperatively, the left posterior triangle lymphnode was excised and sent for Frozen section, which was reported to be negative for malignant cells, hence no further dissection was carried out. Post operatively the graft uptake was found to be good and wound was healing well. Histopathology was reported as Keratoacanthoma and margins were free of tumour. Microscopically, sections showed a dome-shaped lesion that consists of a cup shaped epidermal rim with a large plug of keratin and is seen filling and expanding the papillary dermis. Lesion was surrounded by a mild patchy lymphoplasmacytic infiltrate (Figure 4). The patient has been on close follow-up and has had no further complaints or recurrence till date.

3. Discussion

KA was first described by Sir Jonathan Hutchinson in the year 1888, however its epidemiology, diagnostic criteria, prognosis and treatment guidelines remain debatable till date. This is commonly found to affect fair skinned individuals, and peak incidence has shifted to late 60s from early 50s. These are more commonly encountered in men.

Unlike squamous cell carcinoma, KA is believed to arise from the hair follicle. It is a triphasic tumour and comprises of an initial proliferative phase where there is growth of the tumour, stabilisation phase and a regression phase. The most frequently encountered variant is the sporadic or solitary type. They may range from few centimetres to large lesions (>20cm) which are termed as Keratoacanthoma centrifugum marginatum and are rare. They occur in sun- exposed areas. There are few reports describing KA arising from mucus membranes and have occasionally found to arise in conjunctiva or vulva.

KA commonly presents as a dome-shaped, skin-coloured or erythematous nodule with a central keratin-filled crater (3). Although the face and upper extremities are the most common sites of involvement, occurrence on the scalp is relatively rare, and such presentations can easily be mistaken for other verrucous or nodular lesions, including SCC, verruca vulgaris, seborrheic keratosis, or basal cell carcinoma (4).

On Histopathological examination, KA is characterized by a symmetrical, well-circumscribed crateriform lesion with central keratin, epidermal hyperplasia, and glassy eosinophilic keratinocytes showing minimal atypia. Differentiating KA from well-differentiated SCC can be difficult, often necessitating expert dermatopathological evaluation (5). The cellular features are similar to those of SCC; the architectural pattern is a critical factor in establishing the diagnosis. Tissue diagnosis is crucial to differentiate it from other conditions which may present as a crateriform papules, nodules or verrucous lesion as in our case.

The gold standard management for KA remains surgical excision (8) mainly to give the optimal specimen for the pathologist. There are no established guidelines for margins, but similar to non-invasive SCC, 5mm is believed to be adequate (9). Intralesional chemotherapy is the second line of treatment but has limited evidence showing benefit. Drugs such as Methotrexate, 5-Fluorouracil, Bleomycin and interferons are variably used (10). Solitary KA can also be managed by other alternative methods such as Ablative lasers, Cryotherapy, radiotherapy and photodynamic therapy when surgery is not amenable. Systemic therapy with drugs such as Erlotinib and retinoids are used in cases of KA centrifugum when other options are not available or contraindicated. Even though KA is commonly mistaken for SCC, they tend to have a favourable course and outcome.

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4. Conclusions

KA is frequently misdiagnosed due to its varied presentation and accurate diagnosis is necessary to decide on the right line of management.

Diagnosis is established by clinical and histopathological examination confirmed by excision

Difficulty in differentiating KA from SCC is well established, thereby necessitating meticulous pathological analysis.

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Figure 1

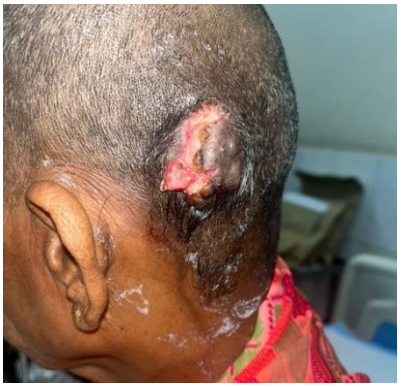

Figure 2 Edge wedge biopsy showing Verrucous keratinocytic proliferative lesion with dense inflammation

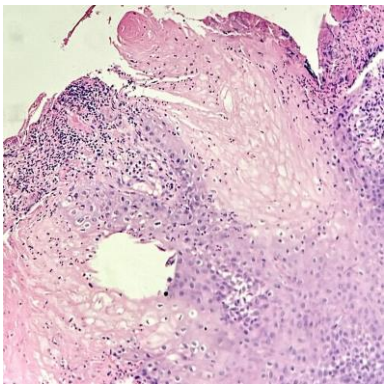

Figure 3 Post operative wound- specimen excised and raw area was covered with a Split skin graft

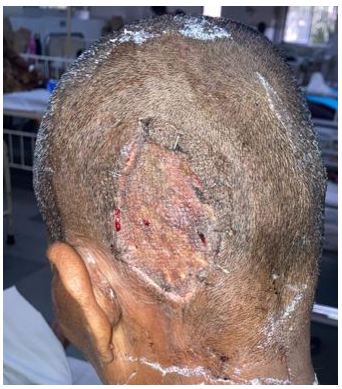

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Figure 4 Final Histopathology showing features of Keratoacanthoma with keratin plug and patchy lymphoplasmacytic infiltrate