

# Pseudoepitheliomatous Hyperplasia Mimicking Squamous Cell Cancer in a Post-burn Scalp Wound: Case Report and Review of Literature

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## ABSTRACT

**Introduction:** Pseudoepitheliomatous hyperplasia is a benign condition characterized by hyperplasia of the epidermis and adnexal epithelium commonly occurring in reaction to several conditions including chronic burn wound.

**Case Report:** An 18 month old male patient presented with scald burns to the scalp and face with chronicity and infection of the burn wound as consent for skin grafting was not given by the parents. Initial histology of incision biopsy specimen revealed a well-differentiated squamous cell carcinoma in a chronic burn wound on the scalp. This did not correlate with the clinical picture of the wound necessitating a second histologic review of the biopsy specimen, which this time was confirmed as pseudoepitheliomatous hyperplasia. Patient further declined excision and grafting with the wound eventually healing with scarring after 10 months.

**Conclusion:** A very high index of suspicion is required in making the diagnosis of PEH. Public enlightenment is needed to educate people on wounds and their management if optimal results must be obtained.

**Keywords:** Pseudoepitheliomatous Hyperplasia, Squamous Cell Carcinoma, Scald Burns, Skin Grafting

## INTRODUCTION

Pseudoepitheliomatous hyperplasia (PEH) is a benign proliferation of the epidermis into irregular squamous strands extending down into the dermis, characterized by hyperplasia of the epidermis and adnexal epithelium.<sup>1,2</sup> It is in most cases associated with persistent inflammation of the subjacent dermis due to a chronic wound, ulcer, infection, malignancy, retained foreign material or an inflammatory dermatitis.<sup>2</sup> PEH may be misinterpreted as squamous cell carcinoma (SCC), especially in cases in which the primary process localized in the dermis is not readily apparent or the biopsy is superficial and does not include sufficient portion of the dermis.<sup>1</sup> Pseudoepitheliomatous hyperplasia in chronic inflammatory conditions is a difficult diagnosis to make. In order to appreciate the difference between PEH and squamous cell cancer, the diagnostic characteristics of each must be properly considered.<sup>3</sup> Renowned pathologists have occasionally been taken aback by the spontaneous healing of wounds they had diagnosed microscopically as squamous cell cancer.<sup>3</sup>

## CASE REPORT

An eighteen (18) month old male patient was brought to the emergency unit of our hospital by the parents with a history

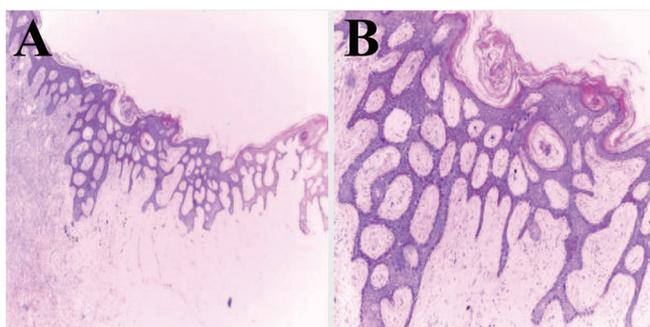
of scald burns to the right side of the face and forehead as well as the right fronto-parietal and temporal scalp regions which he sustained 2 hours prior to presentation. An assessment of majorly deep dermal burns was made. Wound debridement and gentamicin with sufra-tulle occlusive gauze dressing was done. This was continued for 3 weeks after which a decision for skin grafting was made as wound had not healed satisfactorily. However, the patient's parents did not give consent for the procedure, insisting on wound dressing. Wound dressing was continued and assessment at eight weeks revealed the facial wound to have healed up completely. The scalp wound however was noted to be contracting very slowly with presence of granulation tissue, areas of slough with some moderate brownish discharge. It was irregularly shaped, measuring 10cm by 14cm in its widest dimensions with slopping edges but no regional lymph node enlargement. Wound swab microscopy and culture as well as incision biopsy were carried out, especially taking into cognizance the duration of the wound. Wound culture revealed a mix of *Staphylococcus aureus* and *Pseudomonas aeruginosa spp.* for which appropriate antibiotics were given while histopathology of the biopsy specimen revealed a well differentiated squamous cell carcinoma. This did not correlate with the clinical findings and necessitated a second histologic review of the biopsy specimen having in mind a re-biopsy, should the result remain the same. Review of the specimen, this time by 4 pathologists gave a final diagnosis of chronic nonspecific dermatitis and pseudoepitheliomatous hyperplasia (Fig 1). The parents declined wound excision and grafting following this diagnosis, thus the wound was allowed to heal by scarring over 10 months. The patient is

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**Figure-1:** Histological section showing hyperplastic epidermis growing into the dermis with infiltrates of acute inflammatory cells (A: H&E x40, B: H&E x100 magnification)

being followed up with a plan for surgical wound revision when the child is older.

## DISCUSSION

It has been proposed by some authors that every cutaneous scar exposed to continuous irritation has a great risk for malignant transformation. Chronicity of wounds is therefore considered an initiation of carcinoma.<sup>4</sup> Unlike squamous cell carcinoma (SCC), pseudoepitheliomatous hyperplasia (PEH) never has atypical mitotic figures, rarely has dyskeratosis or atypical nuclei and is never involved in vascular, lymphatic or perineural invasion.<sup>2,5</sup> Being aware that the first diagnosis that comes to mind may not always be correct is helpful in many pitfalls, and when a diagnosis of a well-differentiated SCC is contemplated, it is important to consider the possibility of PEH to avoid possible unnecessary surgery.<sup>1,6</sup> Although they mimic a neoplastic growth, this set of lesions has to be differentiated by using criteria that pertain mostly to architectural pattern, so that extensive radical treatment can be avoided in treating these lesions.<sup>5,7,8</sup> Limitation of incision biopsy should be uppermost in the mind of the clinician and the need for a repeat deeper biopsy to include multiple sites (central areas and the margins the) down to the subcutaneous tissue before a definitive diagnosis is made, is essential whenever there is a clinico-pathologic discrepancy.<sup>9,10</sup> This happened to be the case with the index patient. A careful search for a possible ongoing infective process should be done with examination of deeper levels and use of microbiological special stains.<sup>11</sup> Hematoxylin and eosin microscopic evaluation and clinico-pathologic correlation remain the gold standard in reaching the correct diagnosis.<sup>1</sup> The major management challenge for this patient was that of decision making by the parents who felt the child was too little to undergo surgery to excise the wound and graft. Regular enlightenment campaigns to educate the general populace about wounds and best practices in its management are necessary as this will help in reducing the morbidities associated with chronic wounds.

## CONCLUSION

Clinicopathological correlation is of paramount importance in the diagnosis of squamous epithelial lesions. In diagnostic dilemma, seeking a second opinion like was done in this case provides additional perspectives and insight. On the

other hand, a repeat deeper biopsy and excision biopsy histopathology reports often represent the definite surgical treatment for the lesion. Follow up of this patient is essential to forestall any malignant transformation and its attendant complications.

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