

# Bullous Solar Keratosis

D Sarma, P Sharma

## Citation

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## Abstract

Two cases of a rare variant of solar keratosis showing subepidermal bulla formation occurring in two elderly males are reported. Various histologic types of solar keratosis are reviewed.

## INTRODUCTION

Solar keratoses are common lesions occurring among the middle-aged and older fair-skinned people usually caused by prolonged exposure to sun over many years (1). The lesions are located over the sun-exposed areas, such as, face, scalp, ears, and distal upper extremities. Clinically, several types of solar keratoses have been described, such as, hypertrophic, pigmented, and lichenoid variants. Histologically, at least six variants have been described: hypertrophic, atrophic, Bowenoid, acantholytic, pigmented, and lichenoid.

Recently we observed two cases of solar keratoses that on histologic examination revealed subepidermal bulla along with typical epidermal dysplasia and dermal elastosis. We could not uncover any report of such a bullous variant of solar keratosis in the English literature.

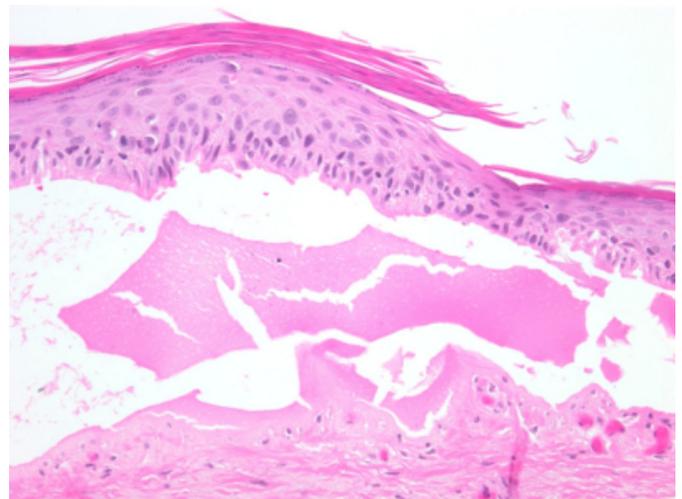
## REPORTS OF CASES

### CASE 1

A 74-year-old Caucasian man presented with an ill-defined 1-cm keratotic lesion of his forehead. A shave biopsy showed (Figs.1 and 2) hyperkeratosis, parakeratosis, and moderate dysplasia of the keratinocytes. Dermis showed solar elastosis and non-specific focal chronic inflammation. The epidermis was raised upward by a subepidermal bulla containing eosinophilic acellular fluid. The basal lamina of the epidermis was intact. The epidermal cells overlying the bulla did not show any acantholysis. We interpreted the lesion as a bullous variant of solar keratosis.

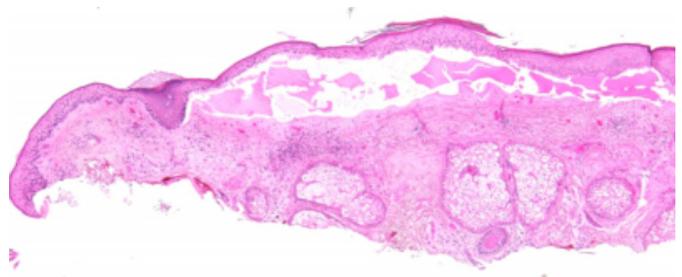
### Figure 1

Figure 1: Epidermis shows hyperkeratosis, parakeratosis, and dysplasia of keratinocytes. Note the subepidermal bulla. Dermis shows solar elastosis and chronic inflammation.



### Figure 2

Figure 2: Higher magnification shows dysplastic keratinocytes and subepidermal bulla containing acellular eosinophilic material.



Additional clinical history did not disclose any other bullous disease or any history of recent topical treatment of the lesion prior to biopsy.

### **CASE 2**

A shave biopsy of a 5mm keratotic lesion of the right distal arm of a 72-year-old Caucasian man showed an acellular subepidermal bulla along with epidermal dysplasia and marked solar elastosis. There was no clinical evidence of any bullous disease.

### **DISCUSSION**

Clinically, solar keratoses may be diagnosed as a hypertrophic, pigmented, lichenoid, or cutaneous horn type.

Histologically, at least six variants of solar keratoses have been observed (2). In hypertrophic solar keratosis, there is marked hyperkeratosis and parakeratosis overlying papillomatous dysplastic epidermal keratinocytes. Atrophic solar keratosis shows thin epidermis with loss of rete ridges, minimal hyperkeratosis, and atypical keratinocytes mostly in the basal layer. In the Bowenoid type of solar keratosis, the entire thickness of the epidermis is composed of dysplastic keratinocytes, mimicking the histologic appearance of Bowen's disease or squamous cell carcinoma in situ. In acantholytic type of solar keratosis, there are clefts and lacunae between the dysplastic keratinocytes near the basal layer due to loss of intercellular bridges between the keratinocytes. The pigmented type of actinic keratosis, the basal as well as atypical keratinocytes show large amount of melanin pigment. In lichenoid type of solar keratosis, in addition to dysplastic keratinocytes there is liquefaction

along the basal layer with necrotic keratinocytes and dense band-like chronic inflammation in the upper dermis.

We are documenting the two cases of bullous variant of solar keratosis, where each lesion shows the histologic appearance of a solar keratosis along with a subepidermal bulla formation. This picture is different from the acantholytic variant of solar keratosis because there is no acantholysis, clefts, or lacunae observed in the epidermis in our cases. Subepidermal bulla seen in bullous pemphigoid usually shows eosinophils and lymphocytes in the bulla and in the dermis. Clinically, the lesions appear as multiple tense bullae of varying size in the elderly. The patients with subepidermal bullae of dermatitis herpetiformis present with intensely pruritic lesions. The skin biopsy usually shows acute neutrophilic papillitis and subepidermal bulla containing neutrophils. The patients with porphyria cutanea tarda may have subepidermal bulla with no inflammation, intact dermal papillae at the base of the bulla, and hyalinization of the dermal capillary walls. Our patients did not have any clinical evidence of any bullous disease. We believe that our two cases represent a rare histologic variant of solar keratosis that may be called bullous solar keratosis.

### **References**

1. Weedon D. *Skin Pathology*, 2nd Ed, Edinburgh: Churchill Livingstone, 2002, pp 761-762.
2. Elder DE, Editor. *Lever's Histopathology of the Skin*, 9th Ed, Philadelphia: Lippincott Williams and Wilkins, 2005, pp 820-824.

**Author Information**

**Deba P. Sarma, M.D.**

Department of Pathology, Creighton University Medical Center

**Poonam Sharma, M.D**

Department of Pathology, Creighton University Medical Center