

Exuberant Verrucous Carcinoma Arising From a Burn Scar

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Verrucous carcinoma (VC) is an unusual, well-differentiated, and low-grade type of squamous cell carcinoma, characterized by slow growth, low metastatic spread, local invasion, and little dysplasia. It occurs predominantly on the genitals, in the oropharynx, or in the palmoplantar region, being less frequent at other sites; however, it can occur on any part of the body. Many factors have been associated with its pathogenesis, including the presence of previous skin lesions, such as varicose, decubitus, traumatic, or neuropathic plantar ulcers. VC arising from a burn scar is rare. We report the case of a patient who developed exuberant VC on his knee many years after having burn injuries at that site.

Cutis. 2007;79:133-135.

Case Report

A 48-year-old man looked for medical attention for a burn on his right knee from an accidental fire 20 years earlier. Approximately 17 years after the accident, the patient started to complain about a painful mass on the periphery of the burn scar that spread throughout the entire knee. The patient was otherwise healthy, except for the history of borderline leprosy, treated with multidrug bacillary therapy 10 years prior. He had difficulty walking due to functional limitation of the knee joint. On examination, the patient was in good health, showed no loss of sensitivity in the affected limb, and no lymphadenopathy or other important findings, except for a whitish,

exophytic, fungating, hemispheric tumor mass on his right knee. The mass had a firm, warty, rough, papillomatous surface, and regular and well-defined borders, measuring approximately 16.5 cm in diameter (Figure 1). Although there was no apparent purulent discharge, the lesion had a foul smell. The hemogram, biochemical tests, and liver function test yielded normal results. Pelvic echography and chest x-ray were normal. Magnetic resonance imaging showed an infiltrative lesion in the soft tissues of the anterolateral face of the knee with the loss of muscular and fatty planes but no bone loss. A biopsy specimen from the border to the center of the lesion revealed a well-differentiated squamous cell carcinoma (Figure 2).

Comment

In 1828, Marjolin¹ described chronic ulcers occurring on scars. Several years later, Da Costa² acknowledged the potential malignancy of these lesions. Currently, the term *Marjolin ulcer* is used to describe the neoplastic transformation of scars and chronic ulcers. Quite often, typical squamous cell carcinoma develops on burn scars and is associated with a high rate of metastasis.³ Some cases of melanoma,^{4,6} basal cell carcinoma,⁷ and malignant fibrous histiocytoma already have been observed on scars.⁸ The appearance of verrucous carcinoma (VC) on burn scars remains quite rare.⁹⁻¹¹ In 1981, a 60-year-old man with burn injuries from childhood developed VC in the anterior tibial region.¹⁰ Almost 2 decades later, 7 cases of VC arising from burns were reported.¹¹

VC occurs more frequently in the anogenital (Buschke-Loewenstein tumor), oroalodigestive (Ackerman tumor or florid oral papillomatosis), and palmoplantar regions (carcinoma cuniculatum). When VC affects other sites, it is variously called cutaneous VC, papillomatosis cutis carcinoids, or cutaneous papillomatosis.¹² The most commonly affected sites are the lower limbs, sacrum, scalp, and buttocks.^{9,13,14} Associated factors include pilonidal cysts, syringocystadenoma papilliferum, abscesses, chronic ulcers, inflamed inclusion cysts, hidradenitis suppurativa,^{12,13} lichen planus, and burn scars.^{9-11,15}

Accepted for publication October 25, 2005.

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The authors report no conflict of interest.

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Figure 1. The right knee shows an exophytic cauliflowerlike tumor 16.5 cm in diameter.

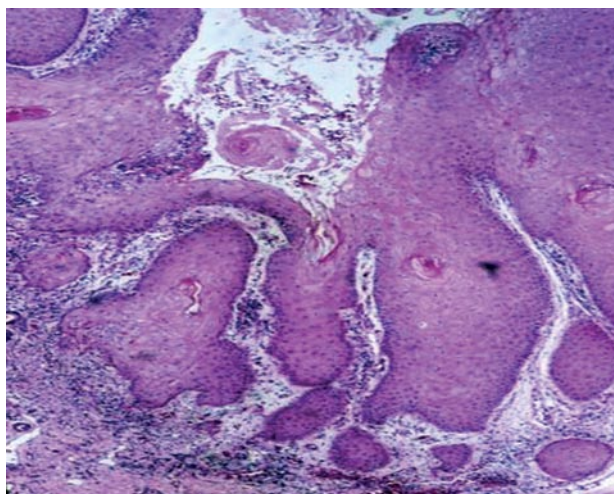


Figure 2. Biopsy specimen of the skin lesion. Blunt proliferation of well-differentiated epithelium with chronic inflammatory cells in the dermis (H&E, original magnification $\times 40$).

The pathogenesis of VC remains obscure. There appears to be a well-documented association between several types of human papillomavirus, Buschke-Loewenstein tumor, Ackerman tumor, and, with less evidence, carcinoma cuniculatum.¹² Many studies, however, have failed to associate *Papillomavirus* with VC in nonclassic sites.¹³

The role of the chronic inflammatory process in the development of VC appears to be important, especially in traumatized areas of the body.¹² The tumor growth rate varies considerably. In our patient, the tumor grew rapidly within a short time.

There is a paucity of available data on the treatment of the cutaneous variant of VC. Treatment should be considered on a case-by-case basis, depending on the site affected, the extent of invasion of underlying structures, and the patient's clinical status.^{9,12}

In our patient, we used conventional surgical treatment; however, Mohs micrographic surgery recently has gained increased importance. Apparently, it is the technique with the best cure rate, but it is not readily available in developing countries.¹⁶

Cryotherapy, curettage, and electrodesiccation should not be used in lesions larger than 2 cm in diameter and in patients with an unreliable follow-up because of a higher risk of relapse and the difficulty of establishing a histologic diagnosis.⁹

Because anaplastic transformation of the tumor remains controversial and the histologic margins of safety are difficult to determine,¹⁷ radiation therapy should be reserved for elderly patients whose clinical status precludes surgical treatment.⁹

According to some reports, Buschke-Loewenstein tumor has responded to adjuvant therapy with systemic retinoids; however, there are few data to confirm its role in cutaneous VC.^{18,19} Because recurrent tumors have a worse prognosis, the primary lesion must be totally resected, regardless of the treatment option.^{9,12}

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