

Extensive Squamous Cell Carcinoma Originating from a Burn Scar: Marjolin's Ulcer with an Unusual Presentation

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Dear Editor:

Cutaneous squamous cell carcinoma (SCC) is a malignant tumor, originating from epidermal keratinocytes, which has an invasive nature and the potential to metastasize¹. Although SCCs can arise in normal skin, they often develop from precancerous lesions (e.g., actinic keratoses and Bowen's disease) and have also been found to occur in burn scars¹. Marjolin's ulcer is a rare and frequently aggressive cutaneous malignancy that arises from chronic ulcers, burns, and chronic inflammatory processes². We report on a case with an extensive SCC originating from a preexisting burn scar.

A 49-year-old man presented with a recent change in his long-standing burn scar. The patient had experienced a severe burn to his scalp at a very young age. There had been an open wound in this region for at least 48-years. The patient complained of a recent increase in discharge, bleeding, and a foul smell for two months. A physical examination revealed an extensive, exophytic, red-gray, ulcerating tumor on the scalp with a scalp bone that was partially absent (Fig. 1A). The neurological examination was unremarkable. A punch biopsy was performed and histopathological findings demonstrated a well-differentiated SCC with irregular nests of epidermal cells, dermal invasion, and keratin production (Fig. 1B). From these clinical and histopathological findings, a diagnosis of SCC was confirmed. The patient was transferred to the department of neurosurgery for further evaluation and management. Brain computed tomography (CT) and angio-CT imaging revealed a large inflammatory mass with osteolysis. The

lesion exhibited heterogeneous enhancement with parietal parenchymal involvement (Fig. 1C, D). Positron emission tomography-CT imaging failed to show systemic metastasis. One month after the initial diagnosis, the patient began developing gait disturbances and experienced occasional loss of consciousness. Surgery was not a treatment option in our case. Palliative radiotherapy was performed to relieve symptoms, but this proved ineffective.

Neoplastic changes in chronically ulcerative wounds are a well-known process³. Marjolin's ulcer is a term which is used to describe the formation of a carcinoma in a non-healing scar². The majority of burn scar carcinomas are reported to be SCCs². SCCs arising from burn scars typically manifest between 20 and 40 years after the original burn². As such, Marjolin's ulcers have a much greater tendency to metastasize than typical SCCs and are also associated with a significantly poorer prognosis³. One study analyzing extensive SCC cases reported most tumors as being localized to the scalp, with a single patient exhibiting cranial infiltration⁴. An SCC which is located in extracranial regions and demonstrates intracranial extensions has rarely been reported. Organ transplant recipients with alopecia, human immunodeficiency virus-infected patients, and patients with burn scars of the scalp are among those most at risk⁵. Mohs surgery and its various modifications represent the gold standard of treatment, but that bears a major risk of brain edema, which is associated with a high mortality rate⁵.

In our case, the intracranial spread and difficulty in treatment emphasizes that SCCs arising from long-standing

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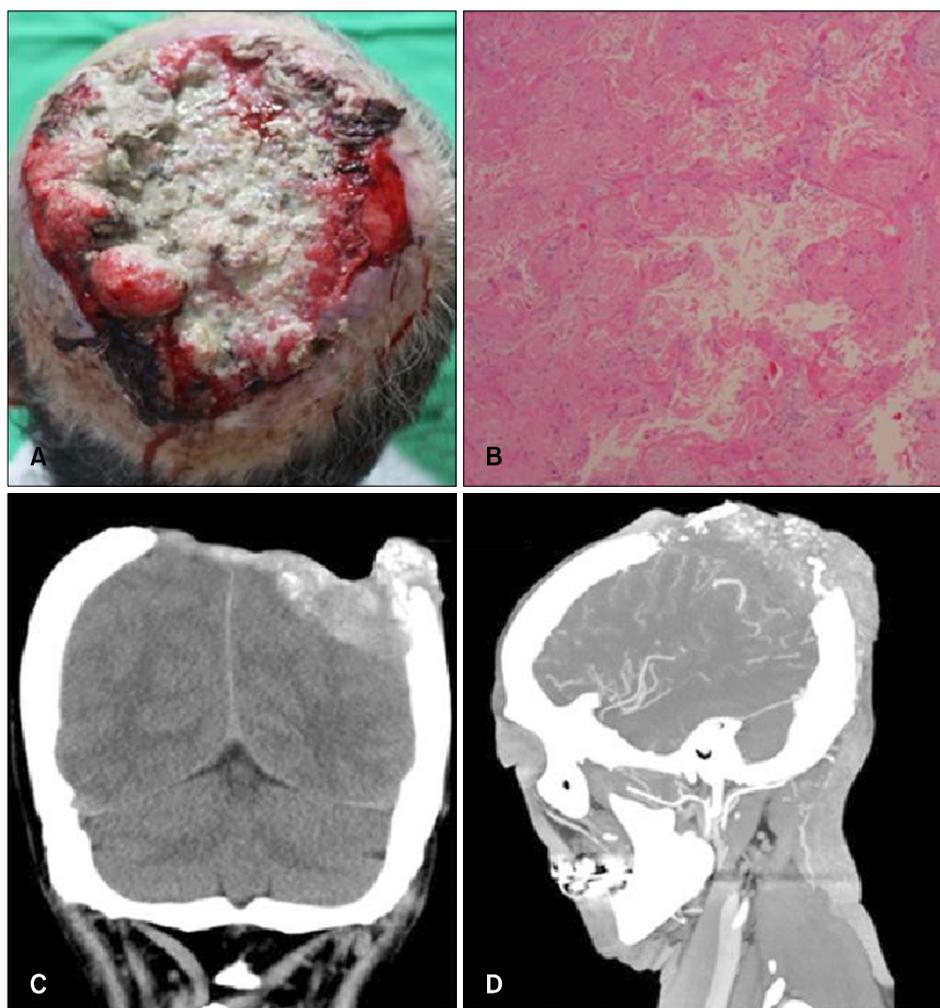


Fig. 1. (A) Extensive squamous cell carcinoma (SCC) of the scalp with giant reddish plaques and yellowish discharge. The scalp bone was partially absent. (B) Histopathological evaluation reveals a well-differentiated SCC with irregular nests of epidermal cells, dermal invasion, and keratin production upon H&E ($\times 40$). (C) Brain computed tomography (CT) and (D) angio-CT imaging identifying a large inflammatory mass formation with osteolysis and extra-axial enhancing mass lesion with heterogeneous density and bilateral parietal parenchymal invasion.

burn scars are too aggressive and extensive that they cannot be treated easily; therefore, early diagnosis is needed.

REFERENCES

1. Sampaio SPA, Rivitti EA. *Dermatologia*. 3rd ed. São Paulo: Editora Artes Médicas, 2007.
2. Sabin SR, Goldstein G, Rosenthal HG, Haynes KK. Aggressive squamous cell carcinoma originating as a Marjolin's ulcer. *Dermatol Surg* 2004;30:229-230.
3. Kweon HJ, Shin HC, Kim DS, Kim SW. Squamous cell carcinoma arising from chronic ulcerative lesion in a patient with disabling pansclerotic morphea. *Ann Dermatol* 1994;6:81-85.
4. Wollina U, Bayyoud Y, Krönert C, Nowak A. Giant epithelial malignancies (Basal cell carcinoma, squamous cell carcinoma): a series of 20 tumors from a single center. *J Cutan Aesthet Surg* 2012;5:12-19.
5. Wollina U, Bayyoud Y, Kittner T, Dürig E. Giant tricholemmal squamous cell carcinoma with cranial infiltration. *J Clin Aesthet Dermatol* 2011;4:34-37.