

# Marjolin's Ulcer in Burn Scars

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## ABSTRACT

Squamous cell carcinoma arising in ulcers is a rare and often aggressive cutaneous malignancy that arises from chronic wounds or old scars and is the most common histological tumor type found in Marjolin ulcer. Most frequently occurs in patients of low socioeconomic status, with limited access to health services, as a result of burns and other neglected injuries. This is a case series of 5 patients of Marjolin's ulcer seen in the Department of Burn and Plastic Surgery, AIIMS, Rishikesh

**Key words:** Burn ulcer, squamous cell carcinoma

## INTRODUCTION

The name Marjolin's ulcer derives from the French surgeon Jean-Nicholas Marjolin, who in 1828 described villous changes arising out of burn scar. Its incidence is estimated to range from 1% to 2% of all burn scars.

The most common tumor reported in a Marjolin's ulcer is squamous cell carcinoma. Marjolin ulcer is a rare and often aggressive cutaneous malignancy that arises from chronic wounds or old scars, and the most common histological tumor type found is squamous cell carcinoma (SCC).<sup>[1]</sup> The transformation from ulcer to malignant disease is typically slow, and the pathogenesis is unknown.

A triad of signs: Nodular formation, induration, and scar-ulceration (this triad clinches the diagnosis) 75% of reported Marjolin's ulcers occur in burn scar sites. The overall rate of malignant transformation in burn scars is no >2%. Malignant degeneration has also been reported in chronic ulcers from trauma, 8 frostbites, 9 discoid lupus erythematosus Marjolin's ulcers have the ability to develop in almost any anatomical location, and predominantly in the lower extremity.

## RESULTS

The sites of occurrence were scalp, sacrum, forearm, popliteal fossa, and, in one case, shoulder, back, and arm were

involved. There were 3 females and 2 male patients. Three were diagnosed as squamous cell carcinoma, one verrucous, and one basal cell carcinoma. Majority of cases were treated with wide local excision and skin grafting; one case-free flap was done. No recurrence was seen.

## DISCUSSION

Relative avascularity of scar tissue leads to a locally depressed immunological state or immunologically privileged site leaving the body without an adequate cell-mediated response. The release of toxins by lysis of scar tissue may have a direct mutagenic effect on cells. Mutations in the p53 gene and Fas gene may disrupt regulated apoptosis and cell homeostasis, respectively, and have been identified in patients with Marjolin's ulcers.

The incidence of burn scars undergoing malignant transformation has been reported to be 0.77 to 2 percent.<sup>[2]</sup>

There is much variability in the anatomical location of Marjolin's ulcers, with the majority occurring in wounds of the upper and lower extremities.<sup>[3]</sup>

The authors reported average latency time between ulcer formation and documentation of a malignancy was 30 years. All wounds were about the pelvis or flank.<sup>[4]</sup>

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Chronic irritation and repeated attempts at healing provide a prolonged stimulus for cellular proliferation and may increase the rate of spontaneous mutations. The evidence supporting this theory is represented in many cases of Marjolin's ulcer occurring at skin zones that have been exposed to long-term irritation, including areas where clothing might cause trauma. These findings support the idea that chronic irritation is an inciting factor. Immunoperoxidase stains for the melanoma-associated antigen are also positive in the presence of Marjolin's ulcer.

The prognosis of Marjolin's ulcer is related to the local extent of disease, location, histological types, and degree of differentiation, patient immune status, latency period, and, most importantly, the presence of lymph node metastases. The SCC originating from chronic ulcers is locally and systemically more aggressive than other types of SCC. As noted before, squamous cell carcinoma is the most common type, followed by basal cell, although other types have also been reported.<sup>[6]</sup>

Senet *et al.* examined 155 chronic leg ulcers in 145 patients and identified Marjolin's ulcer in 10.4% of the cases (9 cases of SSC, 5 of BCC).<sup>[7]</sup>

Marjolin's ulcer can be suspected based on a non-healing ulcer in an area of abnormal or scarred skin. It is an often overlooked or misdiagnosed tumor.

Monitoring of patients should be done carefully for metastasis and recurrence.

The survival rate is 60% in the case of wide excision with free margins and 69% in cases of amputation.

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