

Case report

Clinical presentation of two patients with Marjolin's ulcer presenting in an area of previously burned skin

Biomedicine and Surgery

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ABSTRACT

Marjolin's ulcer (MU) refers to an aggressive ulcerating squamous cell carcinoma (SCC) presenting in an area of previously traumatized, chronically inflamed, or scarred skin. They usually develop in the areas of full thickness skin burns that had been allowed for weeks to months to heal spontaneously by secondary intention or burn wounds which never healed completely over years and the unstable post-burned scars. Lower limbs represent the most frequently affected body parts. Treatment is usually surgical, with a wide excision of the lesion; typically, a 2-5 cm margin all around is required. Despite best efforts, the overall mortality is reported to be 21%. The aim of this case report was to present two of our patients suffering from mistreated and misdiagnosed Marjolin's ulcer, and to evaluate clinical presentation, diagnostic and therapeutic difficulties in this rare condition. Treatment of both patients was surgical and radical, whereas in the first patient, high femoral amputation with the stump reconstruction was performed. In the second patient, after a radical excision in sano and an extirpation of supraclavicular lymph nodes, a defect was reconstructed with rotational tubular miocutaneous latissimus dorsi flap. Reconstructive surgery provided a dramatic cosmetic improvement with significant psychosocial benefit. Unfortunately, high-grade tumours have significantly high amount of recurrence and positive lymph node metastases, so repeated surgical procedures may be required.

KEYWORDS: Marjolin's ulcer; malignant degeneration; post-burned scars and wounds; squamous cell carcinoma; full thickness skin burns; healing by secondary intention

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INTRODUCTION

Background

Marjolin's ulcer (MU) refers to an aggressive ulcerating squamous cell carcinoma (SCC) presenting in an area of previously traumatized, chronically inflamed, or scarred skin. The term was named after French surgeon, Jean-Nicolas Marjolin, who first described the condition in 1828 (1). They are commonly present in the context of chronic wounds including burn injuries, venous ulcers, ulcers from osteomyelitis, and post radiotherapy scars. Furthermore, they usually develop in the

areas of full thickness skin burns that had been allowed for weeks to months to heal spontaneously by secondary intention or burn wounds which never healed completely over years and the unstable post-burned scars. The incidence of MUs in such lesions is reported to be 0.77%-2% (1). The MUs contribute to an overall 2% of all SCCs and 0.03% of all basal cell carcinomas of the skin. Persistence of burn ulcer, induration or elevation of margin of such ulcer, ulceration or nodule formation over a burns scar may indicate malignant transformation.

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Pathogenesis

The exact pathogenesis of Marjolin's ulcer remains unclear. Theories suggest that cellular mutations because of toxins released by damaged, ischaemic and nutritionally deficient tissues are responsible for neoplastic change, with a locally impaired immune function contributing as trigger (1). Radiation, genetic skin disorders and immunosuppression, are other important risk factors often involved in the development of cutaneous malignancies and may also be involved in the development of MU (1).

Pathohistology

Histologically, the tumour is a well-differentiated squamous cell carcinoma. This carcinoma is aggressive in nature, spreads locally and is associated with a poor prognosis. As much as 40% occur on the lower limb and the malignant change is usually painless. This malignant change of the wound happens a long time after initial trauma, usually 10–25 years later. Its edge is everted and not always raised. Diagnosis: Wedge biopsy is the favoured method of diagnosis. Punch biopsy should be avoided, due to the focal nature of the malignant changes in burn scar. Tissue specimens obtained should be taken from both the centre and margin of lesion, as the central ulcerated deposits may be necrotic.

Clinical presentation

Clinically MUs present in two major morphologic forms. The more common form is the flat, indurated, ulcerative variety, while the less common form is the exophytic papillary variety. Lower limbs represent the most frequently affected body parts (1). The latent period is shorter in elderly. Metastasis among squamous carcinomas following a burns scar is much more common than among those associated with actinic damage. MU is more aggressive than non-MU SCC, with a higher potential for early metastasis (2).

Surgical treatment

Treatment is usually surgical, with a wide excision of the lesion; typically, a 2-5 cm margin all around is required. Radiation therapy is also a good alternative in most cases (1). Despite best efforts, the overall mortality is reported to be 21% (3).

The aim of this case report was to present our patients suffering from mistreated and misdiagnosed Marjolin ulcer, and to evaluate clinical presentation,

diagnostic and therapeutic difficulties in this rare condition.

CASE REPORT

A 64-year-old female patient was admitted to our Hospital due to localized, long-lasting, chronic ulceration on her upper leg and proximal part of the lower leg with vast devastation of soft tissue as a consequence of full thickness burned skin (burn grade IIA/IIB) (Fig. 1). She has been diagnosed with SCC (Marjolin ulcer) based on the clinical picture and pathohistological appearance. The second patient was an 83-year-old male patient with a chronic, large ulcer spreading over the left shoulder area to the back in the scapular area as well as to the front area of the neck with oversized, destructed, calcificated supraclavicular lymph nodes after having burned skin (burn grade IIB) 20 years ago (Fig. 2). Treatment of both patients was surgical and radical, whereas in the first patient, high femoral amputation with the stump reconstruction was performed (Fig. 3). In the second patient, after a radical excision in sano and an extirpation of supraclavicular lymph nodes, a defect was reconstructed with rotational tubular miocutaneous latissimus dorsi flap (Fig. 4). Reconstructive surgery provided a dramatic cosmetic improvement with significant psychosocial benefit.

DISCUSSION

Marjolin's ulcers are malignant tumours arising in chronic wounds. Strictly defined, they include carcinomas that transform from the chronic open wounds of pressure sores or burn scars. They behave aggressively and have a propensity for local recurrence and lymph node metastases. The average latency time between ulcer formation and documentation of a malignancy can be as high as 30 years. Major radical oncologic surgical procedures can be done to eradicate the cancer. High-grade tumours have positive lymph node metastases, portending a grave prognosis. A high index of suspicion and early histological diagnosis in chronic wounds and unstable scars with recent changes in characteristics offer the best prognosis with treatment.

Reconstructive surgery provides a dramatic cosmetic improvement with significant psychosocial benefit, in accordance to previous reports of the surgical plastic procedures. Unfortunately, high-grade tumours have significantly high amount of recurrence and positive lymph node metastases, so repeated surgical procedures may be required. Having misdiagnosed this type of tumours can easily mislead experienced clinician not to recognise and



Figure 1. Marjolin's ulcer of the leg; destruction of the soft tissues.



Figure 2. Marjolin's ulcer of the shoulder; ulcer spreading to the anterior part of the neck.



Figure 3. Postoperative result after a high femoral amputation with the stump reconstruction.



Figure 4. Reconstruction with rotational tubular miocutaneous latissimus dorsi flap; early postoperative result.

not to apply the right type of treatment. To conclude, it is essential to analyse the clinical presentation, detailed patient history and histopathologic findings of the affected tissue to administer early, adequate oncologic surgical procedure and endeavour to provide the best chance for cure.

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