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A new wound in an old burn scar:

a guide to Marjolin's ulcers for primary care

INTRODUCTION

Marjolin's ulcers are a cutaneous squamous cell carcinoma (SCC) found in tissue that has been previously traumatised and subsequently healed, such as chronic wounds, including diabetic or vascular leg ulcers, or an old burn scar. There is a long latent period (which can be over 30 years) from original insult to malignant transformation, and risk of malignancy varies depending on type of wound but is estimated to occur in 0.5% of vascular ulcers and 1%–2% of burn scars.[1,2] This article discusses a case referred from general practice to the authors' UK burns centre with a new non-healing wound in a previously completely healed scar, more than 40 years after initial burn.

PRESENTATION

A 56-year-old female presented with a 65 × 30 mm lesion in the right axilla in the scar of a flame injury that had occurred 48 years earlier. The wound had appeared spontaneously 2 years previously and enlarged and progressed over 6 months to a non-healing ulcer, causing itching, pain, and intermittent bleeding. There was no obvious trigger or trauma to the ulcer, and it appeared fleshy and exophytic (Figure 1). Past medical history included asthma, hypertension, hypercholesterolaemia, and smoking. The patient was referred to a specialist burn centre where a punch biopsy was performed that showed no malignancy. However, because of the suspicious appearance of a cancerous lesion, the decision was made to proceed with surgical excision of the whole ulcer. Histology showed a completely excised, well differentiated SCC that was a

Figure 1. Burn scar to right axilla.
Left: exophytic lesion in right axilla, marked with ink; wound from punch biopsy shown by red arrow.
Right: close-up of excised lesion; note the shiny rolled wound edges typical of a chronic wound.

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Marjolin's ulcer. The patient underwent delayed reconstruction of the excised area with a split skin graft. Examination for regional lymph nodes is essential but was not possible due to overlying burn scars. Therefore, a magnetic resonance imaging (MRI) scan was performed, which did not show any lymph node involvement.

The case was discussed in the specialist skin cancer multidisciplinary team meeting and routine SCC follow-up was recommended including clinical examination, and imaging assessment of regional lymph nodes with an MRI scan. The surgical site healed with no sequelae and the patient is well and remains free of cutaneous recurrence or metastatic disease after 105 months.

IDENTIFICATION IN PRIMARY CARE

The classic description of a Marjolin's ulcer is an SCC arising within a chronic burn scar, but this terminology applies to malignancies arising in all wounds whether diabetic or vascular ulcers,[2] keloids,[3] osteomyelitis,[4] pressure ulcers, skin graft donor sites, and even vaccination scars.[5] They can develop in any patient, on any area, regardless of Fitzpatrick skin type. They are most frequently encountered on lower extremities, followed by upper extremities, then scalp and face.[1,2] They metastasise to local lymph nodes more commonly than SCCs not arising in scars, and if untreated can result in death within 2–3 years.[2] It has been postulated that original scar formation leads to decreased blood and lymphatic supply, making the area 'immune-privileged' and protected from anti-tumour antibodies, thus creating an optimal environment for a cancer to develop.[6] This also partly explains the slow, poor-quality healing observed in chronic wounds. Marjolin's ulcers carry a high risk of metastasis and poor prognosis, so should be referred for specialist assessment via a 2-week-wait referral as per existing National Institute for Health and Care Excellence guidance for non-melanoma skin cancers.[7]

In primary care, history should include details of the previous wound, for example, a diabetic ulcer or a burn injury. Recent history should include onset and duration of the new wound, any triggers, and how the wound has changed. It is helpful to note treatment given to date including antibiotics and dressings.

Examination is challenging because Marjolin's ulcers can look like chronic ulcers, so the area should be thoroughly de-crusted and cleaned. Findings include inflammation, oedematous edges, bleeding, and broken-down skin. Anatomy may be distorted by the pre-existing scar, which creates difficulty with assessment of the wound and of local lymph nodes. If lymphadenopathy cannot be evaluated, imaging such as computerised tomography (CT) or MRI will be organised by secondary care.

The value of histology is limited by the extent of a biopsy. If it does not capture a malignant process, the results simply show the absence of malignancy in that sample, but the patient may still have a Marjolin's ulcer. This case illustrates that clinical judgement should always guide further management rather than relying on histology results alone.

Follow-up is determined by the specialist skin multidisciplinary team and will include regular examination in secondary care as well as patient education for self-examination.

CONCLUSION

The authors of this article advocate that a persistent ulcer of over 3 months' duration in a previous scar should be considered a possible Marjolin's ulcer and referred to a specialist 2-week-wait skin cancer clinic.[7]

REFERENCES

1. Copcu E. Marjolin's ulcer: a preventable complication of burns? *Plast Reconstr Surg* 2009; **124(1):** 156e–164e. DOI: 10.1097/PRS.0b013e3181a8082e.
2. Bazaliński D, Przybek-Mita J, Barańska B, Więch P. Marjolin's ulcer in chronic wounds — review of available literature. *Contemp Oncol (Pozn)* 2017; **21(3):** 197–202. DOI: 10.5114/wo.2017.70109.
3. Majumder A, Srivastava S, Ranjan P. Squamous cell carcinoma arising in a keloid scar. *Med J Armed Forces India* 2019; **75(2):** 222–224. DOI:10.1016/j.mjafi.2018.07.018.
4. Bauer T, David T, Rimareix F, Lortat-Jacob A. [Marjolin's ulcer in chronic osteomyelitis: seven cases and a review of the literature]. [Article in French]. *Rev Chir Orthop Reparatrice Appar Mot* 2007; **93(1):** 63–71.
5. Pekarek B, Buck S, Osher L. A comprehensive review on Marjolin's ulcers: diagnosis and treatment. *J Am Col Certif Wound Spec* 2011; **3(3):** 60–64. DOI: 10.1016/j.jcws.2012.04.001.
6. Visuthikosol V, Boonpucknavig V, Nitiyanant P. Squamous carcinoma in scars: clinicopathological correlations. *Ann Plast Surg* 1986; **16(1):** 42–48.
7. National Institute for Health and Care Excellence. Section 1.7 skin cancers. In: *Suspected cancer: recognition and referral. NG12.* 2020. www.nice.org.uk/guidance/ng12 (accessed 13 Jan 2021).

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Patient consent

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