# Marjolin's ulcer: A case report of chronic leg ulcer leading to squamous cell carcinoma

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## Introduction

Marjolin's ulcer is a malignant cutaneous ulcer that undergoes transformation from a previously traumatized or chronically inflammed skin.[1] Causes leading to ulcerations can be burn injury, trauma, chronic osteomyelitis and varicose ulcers.[2] It is named after a French surgeon, Jean Nicolas Marjolin, who first described the condition in patients who developed malignant ulcers from burn scars.[3] We report a case of a chronic non-healing foot ulcer that has become a Marjolin's ulcer after 12 years.

**IeJSME 2016 10(3): 34-36**

*Keywords: Marjolin's ulcer, chronic wound, squamous cell carcinoma, malignancies.*

## Case

Mr AMY is an 80-year-old gentleman with underlying type 2 diabetes mellitus, hypertension and atrial fibrillation. He presented with two non-healing right foot ulcers for the past 12 years. Both ulcers were a result of a wound sustained during a motor-vehicle accident and a wound debridement was done back then. The ulcers did not show signs of healing and he sought alternative treatment with local application of herbs. During one of his clinic follow-ups for atrial fibrillation, he complained of swelling at his right foot, associated with foul-smelling discharge from the ulcers. He claimed that the ulcers were painless but they were progressively enlarging. On examination, there were 2 ulcers at his right foot. The ulcer at the dorsum of the right foot measured 8x8 cm whereas the ulcer at the right heel measured 8x5 cm in size. The right dorsalis pedis and posterior tibialis pulses were palpable. The right ankle-brachial systolic index was 1.24. He was then treated for infected wound and a right foot wound debridement was done. Both ulcer edges were taken for biopsies during the subsequent clinic visit. Histopathological examination revealed a well-differentiated squamous cell carcinoma of the right dorsum ulcer and acanthotic epidermis from the right heel ulcer. The patient was counseled for surgical intervention and further investigations. However, he and his family members have refused the options offered.

**Figure 1:** The ulcer at the dorsum of the right foot measured 8x8 cm whereas the ulcer at the right heel measured 8x5 cm. Biopsies were taken from both ulcers.

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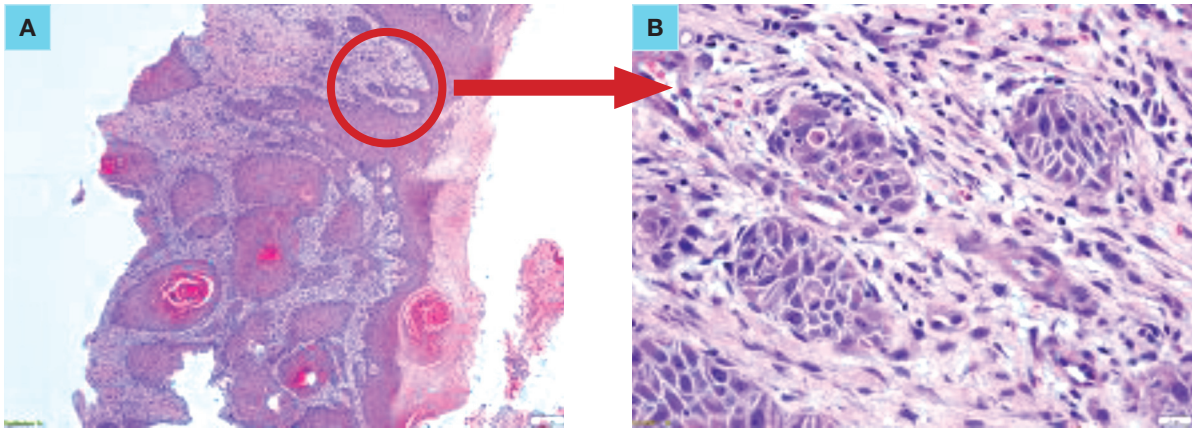


**Figure 2:** Histopathological examination revealed a well-differentiated squamous cell carcinoma of the right dorsum foot ulcer. The 40x magnification showed irregular basement membranes (Figure 2-A) with intradermal clusters of dysplastic squamous epithelium seen under 400x magnification (Figure 2-B).

## Discussion

Marjolin's ulcer is a rare and aggressive malignancy of the skin.[3] The exact pathophysiology of the malignant transformation is controversial. Several hypotheses including chronic inflammation, toxin, immunologic privileged site, environment and genetic interactions have been proposed to explain the malignant changes.

Like other studies, our patient had squamous cell carcinoma of the right dorsum foot ulcer. The majority of the Marjolin's ulcers are squamous cell carcinoma (>90%) followed by basal cell carcinoma as the second commonest carcinoma.[2-5] There have been other rare histopathological types reported such as malignant melanoma, osteogenic sarcoma, fibrosarcoma and liposarcoma. The latent period from the time of injury to the onset of malignant changes is 12 years in our patient, consistent with the long latent period reported (18-36 years).[2-5] The lower limb is the most common site for Marjolin's ulcer, which is the case in our patient. Almost half of the Marjolin's ulcers (40%) arise from the lower limbs, followed by head and face (30%), upper extremity (20%) and trunk (10%).[3]

This malignancy can sometimes be mistaken as infected ulcers occurring at the scar tissue sites. In this patient, the enlarging ulcer and foul-smelling discharge raised the suspicion of a Marjolin's ulcer. Other signs such as elevated and indurated borders, pain with exudates and bloody discharge are also suggestive of a malignant change.[3] It is important not to miss a diagnosis of a Marjolin's ulcer due to its aggressive course and its tendency to metastasize. Metastases to the brain, liver, lung, kidney and distant lymph nodes have been reported. At the time of diagnosis, up to 32.1% of patients have lymph node metastases and 26.9% of the cases have distant metastases.[3] The prognosis of Marjolin's ulcer is poor with a mortality rate of 32% based on a study by Combemale *et al.*[5] This figure rises to 66% if there is lymph node involvement and 83% if distant metastasis is present.

The mainstay treatment of a Marjolin's ulcer is surgery with radiotherapy and/or chemotherapy. Surgical options include wide local excision, block dissection of the regional nodes and amputation of extremities. It is important to obtain a clear margin of 2-5 cm during

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excision to prevent local recurrence.[3] Frozen sections will be useful to aid in intra-operative diagnosis and in determining a safe surgical margin. Amputation is needed when the excision could not yield a clear malignancy-free margin, or it has invaded the bone or joint.[3] Regional lymph node dissection needs to be performed in all cases when there are palpable lymph nodes.[3] Radiotherapy and chemotherapy, either given as neo or adjuvant therapy, are indicated in patients with distant metastases.[3] It will be useful to refer the patient to a center with an oncology specialty for palliative radiotherapy or chemotherapy.

## Conclusion

Marjolin's ulcer is a rare cutaneous malignancy which is aggressive and has a high tendency to metastasize. A high index of suspicion is required during the management of a chronic non-healing ulcer. A delay in diagnosis may lead to a poorer prognosis due to regional and distant metastases.

## Acknowledgement

The authors would like to thank Dr Sarifuddin Saad, the director of Hospital Kuala Lipis for allowing this research to be conducted. The authors received no financial support for the research, authorship and/or publication of this article.

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