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Marjolin's Ulcer: A Case Report With Review of Literature

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Abstract

Marjolin's ulcer is a cutaneous malignant ulcer that arises from a previously injured, long-standing scars, wounds or sinuses. The majority of them are derived from scars developed after burns that were not drafted, appearing several years later. We report of case of a 55-year-old lady who presented with an ulcero-proliferative lesion on her left arm which developed over a pre-existing burn scar. Histopathological examination revealed it to be a squamous cell carcinoma, confirming the diagnosis of Marjolin's ulcer. She underwent wide local excision of growth with adequate margin and reconstruction with local flap. Understanding the pathogenesis and occurrence of such malignant ulcers over a pre-existing chronic scar is important for early recognition and treatment, providing successful treatment results.

Keywords: ***Marjolin's ulcer, Squamous cell carcinoma, Burn, Scar, Ulcer.***

1. Introduction

Marjolin's ulcer (MU) is an umbrella term covering squamous cell carcinoma (SCC), basal cell carcinoma and malignant melanoma that develop in chronic wounds, sinuses or scars [1]. Historically, Marjolin ulcer was named after the French surgeon Jean Nicolas Marjolin, who first described these ulcerations with dense villi arising within a burn cicatrix [3]. Squamous cell carcinoma is the most commonly identified malignancy in a case of MU. The majority of them are derived from burns that were not grafted, appearing several years later [2]. Malignant degeneration occurs in 0.7% to 2.0% of burn scars that have been allowed to heal by secondary intention [3]. It also develops in scar tissues of other origins, as a result of chronic tissue injury such as chronic osteomyelitis in sinuses, post-traumatic wounds, decubitus ulcers, and chronic fistulas [4]. Understanding the importance of such an entity is important for the surgeon to diagnose early and

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treat, providing good results. Here, we report a case of Marjolin's ulcer in a 55-year-old female, which developed over a long-standing burn scar.

2. Case Presentation

A 55-year-old woman suffered flame burn injury to her left arm and forearm 15 years ago and was treated at a local hospital with regular sterile dressings. The burn wound healed by secondary intention with formation of a post burn contracture.

Fig. 1. Lateral view of the ulcer over left arm.

Following this she presented to our hospital with complaints of a chronic non healing ulcer since two months which developed over the preexisting burn scar (as shown in Figs. 1-3). The ulcer was progressive and had increased to two times its initial size in the past two months. Patient also complained of pain at the site of the lesion.

Fig. 2. Anterior view of the ulcer over left arm.

On examination there was an ulcero-proliferative growth of size 4 x 5 cm over the lateral aspect of left arm over the previous burn scar. The lesion was surrounded by scar tissue on all sides with a post burn contracture over the elbow joint. The margins were well defined and the edges were rolled out and everted. The base was induration, not fixed to the underlying structures. The lesion bleeds on touch and was malodourous with a serosanguinous discharge.
No palpable axillary lymph nodes were noted.

Fig. 3. Posterior view of the ulcer over left arm.

An edge wedge biopsy was done which showed features consistent with Squamous Cell Carcinoma (Fig. 4). Radiological evaluation did not reveal any lymph nodal or distant metastasis. A diagnosis of Marjolin's ulcer was made and the patient underwent Wide local excision of lesion with adequate margins in all directions. Reconstruction with a local flap of the defect was performed. Final histopathology confirmed the diagnosis, with tumor free margins.

The post-operative course was uneventful and the flap healed well. Sutures were removed on post-operative day 10 and patient is currently on regular follow up with no recurrence.

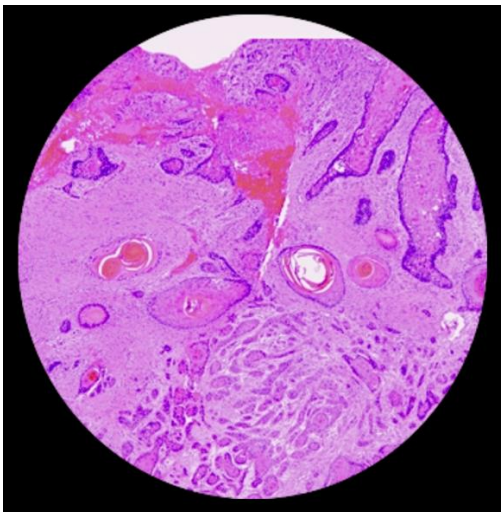

Fig. 4. Photomicrograph of biopsy specimen showing features of squamous cell carcinoma.

3. Discussion

Marjolin's ulcer, originally described by Marjolin in 1828, is a rare and aggressive type of Squamous cell carcinoma originating from previously chronic non-healing inflamed skin or trauma, and often after burns in up to 2% of cases.[5] Although most frequent wound or scar type causing Marjolin ulcers is burns, cancer development on discoid lupus erythematosus lesions, osteomyelytic scars, amputation stumps, regions of chronic fistulas, regions of insect bites,

vaccination sites, frostbites and other chronic wounds was previously defined in literature [6]. Although skin tumors are frequently detected on the head and neck region, Marjolin ulcers mostly develop on the extremities.

The malignant transformation (latency time) is often slow and takes around 30–35 years to develop and the mechanisms of malignant degeneration are not fully understood [5]. It is likely a multifactorial process with both a genetic and environmental component. It is known that these malignancies tend to develop in locations where there is constant inflammation and inadequate blood flow, such as burn scars. Therefore, repeated ulceration and poor healing from constant irritation are the most widely agreed-upon theory [7]. Patients with depressed immune systems may be more susceptible to a malignant transformation, and this may be a potential factor in patients with underlying lupus. chronic irritation, seen at flexion creases or repeated trauma, causes cell atypia and continuous mitotic activity of regeneration and repair leading to a malignant change. Some suggest that scar tissue has impaired immunologic reactivity to tumour cells [8].

In our case a relatively short latency period of 15 years since burn was noted. According to the time interval between the burn injury and cancer development, Marjolin ulcers can be presented in two types. First is the acute type that develops in less than one year after the injury and this type is quite rare. Chronic type is much more common and develops after an interval of more than one year after the burn injury [6]. Suspicion should be raised for a malignant process such as squamous cell carcinoma when there are certain characteristic changes in chronic wounds. These include foul odour, change in drainage or an increase in drainage, enlarging or exophytic mass, increase in pain, continued unresponsiveness to therapy, lymphadenopathy, haemorrhage, progressive bone destruction on radiographs, or recalcitrant lesion [9].

The patient's history and clinical and laboratory findings are used to diagnose Marjolin's ulcer. The classic triad of nodule formation, induration, and ulceration at a scar site suggest the diagnosis. Other clinical signs of a malignant ulcer include chronic ulceration greater than three months, rolled or everted wound margins, exuberant or excessive granulation tissue, foul smelling purulence, increase in size, bleeding on contact, crusting over, “epithelial pearls,” and pain. Many times Marjolin's ulcerations are rapid growing and flat, with indurated elevated margins, but they may also be a slow-growing exophytic papillary type, which is less severe [10].

The current standard diagnostic test for MU is histologic analysis via biopsy. An excisional, incisional, or punch biopsy may be obtained. These should be taken from multiple locations of the ulcer including the margins to minimize false-negative results [7]. Physical examination of local lymph nodes should be performed. Some centers perform an ultrasound of regional nodes due to the high rate of nodal involvement. Lymphatic mapping and sentinel node biopsy have also been suggested. Other imaging (i.e., chest radiograph, brain computed tomography) can be considered on a case-by-case basis to assess for metastases [3]. Staging and grading generally determine prognosis. Cancerous tumours are generally staged according to the size, lymph node involvement, and metastasis. Marjolin's ulcers also follow this system, and there is a positive correlation with the duration of ulceration and chance of malignant transformation. The

grade of the tumour can be defined as follows: grade I: more than 75% of the cells are differentiated; grade II: 25% to 75% of the cells are differentiated; grade III: less than 25% of the cells are differentiated [8].

The most effective treatment method for Marjolin's ulcer is complete surgical excision. Radiotherapy is often used for inoperable patients or as a consolidating treatment after surgery. Extended lesion resection and amputation were the major surgical methods applied. Extended resection usually includes the areas >2 cm away from the ulcer tissues. In certain cases, extension to 5 cm from the wound edge is recommended. The resection depth is determined by the invasion level of the tumour cells, which may reach the superficial layer of the deep fascia, the deep sarcolemma, the muscle tissue or even the periosteum. Deep tissue invasion and/or bone and joint invasion makes the radical resection of the lesion difficult to complete. Radical resection may cause severe impairment of limb function, and wounds cannot be covered after the extensive resection of tumours; the requirement for such extensive resection in Marjolin's ulcer patients is an indicator for amputation [11].

Defects are usually skin grafted either with free flaps or split-thickness skin grafts (STSG). If there is a clinically palpable lymphadenopathy, lymph node dissection is recommended with an exception for malignant melanoma, where the sentinel lymph node biopsy should be performed regardless of the presence of enlarged lymph nodes [12]. A reasonable approach for patients with clinically node-negative MU is sentinel lymph node biopsy or regional nodal irradiation. Lymphatic mapping may be useful, especially in patients with MUs at sites in which the lymphatic drainage is unpredictable [7].

In cases where surgery is impossible or inadequate, radiotherapy alone or combined with chemotherapy should be performed. Chemotherapy is usually based on 5-Fluorouracil with a combination of Cisplatin and Methotrexate [12]. Ozek et al proposed clear indications for radiotherapy in MUs: inoperable regional lymph node metastasis; grade 3 lesions with positive lymph nodes after nodal dissection; MU diameter greater than 10 cm with positive lymph nodes present after node dissection; grade 3 lesions with an MU diameter greater than 10 cm and negative lymph nodes after node dissection; and MU of the head and neck with positive lymph nodes after lymph node dissection [13]. Patients must be followed up regularly to look for recurrences and formation of new ulcers over the scar tissue.

4. Conclusion

Marjolin’s ulcer must be suspected in all chronic non healing ulcers, especially in those developing over previous burns scars and a biopsy is imperative before starting treatment. A high index of clinical suspicion among surgeons is required for early diagnosis and treatment. Complete surgical excision is the mainstay of management with radiotherapy and chemotherapy indicated in specific situations. The prognosis of such malignancies is usually good with prompt treatment.

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