# Answer

## *Marjolin Ulcer*

Clinical suspicion led to an incisional biopsy, the specimen of which demonstrated a verrucous squamous cell carcinoma. Inguinal lymph nodes were not palpable. The patient was taken to the operating room for wide local excision and skin grafting. Further histopathologic examination of the excised lesion revealed a moderately differentiated squamous cell carcinoma measuring 11 × 6.5 cm with a depth of 15 mm and clear excisional margins. The patient made an uneventful recovery. The patient was closely followed up and at 15 months remained free of recurrence.

Marjolin ulcer is a malignant change in a longstanding ulcer and/or scar tissue. Commonly, these lesions are treated as chronic ulcers or infections, leading to delayed diagnosis and resulting in the need for more extensive surgery and increased risk of metastasis.[1] Suspicion of malignant change should be raised with crusting, ulceration of scar tissue, increase in pain or size of the ulcer, and bleeding.[2]

Marjolin ulcers have a 1% to 2% incidence in all burns but can also develop from previously traumatized and scarred tissue of other etiologies.[3] The malignant transformation has no predilection for race but is more predominant in the late 50s, with a typical lag time after injury of 20 to 40 years.[4]

Malignant transformation presents as squamous cell carcinoma in 75% to 96% of the cases. Other neoplasms, such as basal cell carcinomas, melanoma, osteogenic sarcoma, fibrosarcoma, and liposarcoma, have been reported.[5,6] Grades of differentiation vary and are described as well differentiated (35%), moderately differentiated (55%), and poorly differentiated (10%).[7]

The exact pathophysiologic mechanism is unknown, although many plausible theories have been postulated. The consensus is that a cancerous environment is formed by the lack of blood supply and decreased immunity in the scar tissue. The epithelium is destroyed by repeated local trauma, healing with increased difficulty each time. The regenerated epithelium is progressively inferior and the persistent stimulation to the marginal epithelium may lead to a loss of tissue restraint and neoplastic changes.[8]

Malignant ulcers can present as flat with indurated elevated margins or as exophytic (less frequent).[6] Biopsy of the central area as well as the margin is indicated for diagnosis. The best treatment is to prevent the malignant transformation by skin grafting full-thickness burns, addressing wound infections early, and excising chronic ulcers.[9] Once a Marjolin ulcer is diagnosed, a wide local excision with excisional margins of at least 2 cm, including muscle fascia, is indicated. Amputation is considered when there is erosion into a large vessel, deep lesions that extend into joint cavities and bone, gangrene, unsatisfactory functional result, or involvement of major nerves. Lymph node dissection is controversial, because some authors advocate sentinel lymph node biopsy or dissection in all cases, and others indicate it when palpable nodes are present or the tumor is high grade.[3,10] Adjuvant radiation and/or chemotherapy may be indicated in cases where unresectable tumors are present or if the patient refuses surgery.[11]

Long-term follow-up is recommended in all cases. Survival rates are reported as 52%, 34%, and 23%, respectively, at 5, 10, and 20 years.[10] Regional lymph node invasion is the most important prognostic indicator. There is a high risk of metastasis to the brain, liver, kidney, and lungs, with a doubled risk in lesions found in the lower extremities.[7] This report highlights the possibility of malignant change in a chronic wound and the importance of prevention, early identification, and treatment.

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