CASE REPORT

EARLY ARISING MARJOLIN’S ULCER IN THE SCALP

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SUMMARY. Chronic wounds and scar tissues are prone to an increased risk of skin cancer. In 1828 Jean-Nicholas Marjolin described the occurrence of tumours in post-traumatic scar tissue. The commonest type of carcinoma arising from Marjolin’s ulcer is squamous cell carcinoma. The latent period between the injury and the appearance of cancer is 25-40 years. Early arising Marjolin’s ulcer has rarely been described in the literature. In this case report, we present such a case of an early appearance of Marjolin’s ulcer.

Introduction

Chronic wounds and scar tissues are prone to an increased risk of skin cancer. In 1828 Jean-Nicholas Marjolin described the occurrence of tumours in post-traumatic scar tissue.1

Marjolin’s ulcer most frequently occurs in old burn scars, but it has also been reported in relation to osteomyelitis,2 frostbite,3 venous stasis ulcers,4 skin graft donor sites,5 chronic decubitus ulcers,6 gunshot wounds, puncture wounds, dog bites,7 occult trauma,8 injection sites,9,10 and scar tissue around colostomies.11 In adults the usual time for the appearance of carcinoma in scar tissue is around 53-59 years of age. As a general rule, the latency period between the burn injury and the appearance of cancer is 25 to 40 years.12

Early arising Marjolin’s ulcer has rarely been described in the literature. In this case report, we present such a case of early appearance of Marjolin’s ulcer.

Case report

A 23-year-old patient with a 6 ¥ 8 cm ulcerated, infected, bad-smelling lesion in the frontoparietal region was admitted to our clinic (Fig. 1). He had suffered burn injury when 9 years old. The incisional biopsy taken from the lesion was reported as an undifferentiated epidermoid carcinoma. Destruction in the cranium and invasion of the dura mater were evident in the cranial CT (Fig. 2).

A general research of the systems revealed no other pathologies. The patient had no regional lymphadenopathies. He was operated on and a wide-margined excision with the surrounding hypopigmented scar tissue and the infiltrated cranial bone was performed. The invasion sites of the dura mater were also excised and duraplasty was performed (Fig. 3). The bone defect was reconstructed with methylmethacrylate (Fig. 4). Finally, the resulting 14 ¥ 20 cm skin defect was reconstructed with a local scalp flap and the flap donor sites were grafted with a split-thickness skin graft (Fig. 5). There were no problems...
during wound healing in the post-operative period after a sudden onset of neurological deficit, and the

The patient had a one-year disease-free period in the routine follow-ups. At the end of one year he was admitted to the emergency department, two days after admission.

MRI analysis reported brain infiltration and occipital lymphadenopathies. The patient passed away while still in the emergency department.

Discussion

The commonest type of carcinoma arising from Marjolin's ulcer is squamous cell carcinoma, followed by basal cell carcinoma as the second commonest carcinoma. Other reported neoplasms are malignant melanoma, osteogenic sarcoma, fibrosarcoma, liposarcoma, carcinocarcinoma, and carcinoma in situ. Old burn scars are reported as the leading cause, followed by chronic osteomyelitis. The condition is found three times more frequently in men than in women. Marjolin's ulcer occurs in 40% of cases in the lower extremities, in 30% in the head and neck region, in 20% in the upper extremities, and in 10% in the trunk. Flexion creases are prone to the occurrence of Marjolin's ulcer. Another interesting observation is that the latency period is inversely proportional to the patient's age at the time of burn - the younger the patient at the time of injury, the longer the interval for malignant change, while the older the patient at the time of burning, the shorter the lag period. In addition, Wofford et al. reported Marjolin's ulcer cases after alkaline burns in the third, seventh, and ninth year after exposure. Çeliköz et al. reported mesenchymal malignancy occurring 3 years after scalp burn. A late-onset Marjolin's ulcer case after burn injury was presented by Uzunismail.

The mechanism of tumour development from scar tissue has not yet been identified. In early grafted burn cases, the risk of Marjolin's ulcer is very rare. Researchers agree that insufficiency of immunity and of blood flow to scar tissue lead to the formation of a carcinogenic environment. The number of T cells decreases in the Marjolin's ulcer patient. The dry,
thin, and fragile scar tissue skin can be easily damaged in minor traumas.\textsuperscript{14,20,26}

The incidence of Marjolin’s ulcer has been reported to be as high as 2%. Marjolin’s ulcer usually occurs in burn sites that were not skin grafted and were left to heal secondarily.

Changes in old burn scars may suggest malignancy. These changes include an increase in the size of the ulcer and a change in appearance, particularly with the appearance of rolled or elevated borders or induration. Bad odour and pain can also be recognized. Exudate and blood drainage can be seen in these sites. Bone destruction can be seen by radiography.\textsuperscript{2}

Infection can frequently be noticed. The non-healing of an ulcer treated with appropriate topical ointments is a warning sign. For differential diagnosis, multiple biopsies must be taken from the sides and centre of the lesion. If the biopsy reveals pseudoepitheliomatous hyperplasia, it should be repeated at three-month intervals until complete healing because of the risk of malignant degeneration.\textsuperscript{22} Regional lymph nodes should be palpated.

Lymphadenopathies can be observed in up to 30\% of Marjolin’s ulcers.\textsuperscript{13,18,20,21}

The easiest way to prevent the occurrence of Marjolin’s ulcer is skin grafting of the burn sites. Chronic ulcers should also be excised and reconstructed with either skin grafts or flaps. A wide excision should be performed with 3 to 4 cm of normal skin and the muscle fascia should be included.\textsuperscript{12} Performing the excision with cautery is said to be safer as it can prevent metastasis by preventing tumour cells from seeding into the blood and lymphatics.\textsuperscript{27} Amputation is recommended for lesions that have entered joint cavities and metastasized to bone tissue in the extremities.\textsuperscript{28} Lymph node dissection is recommended in cases with only clinically palpable lymphadenopathies.\textsuperscript{19} The three-year metastatic recurrence rate is reported as being 98\%.\textsuperscript{22}

In the literature, carcinosarcoma,\textsuperscript{30} fibrosarcoma, and sebaceous carcinomas are reported as malignancies of the scalp region.\textsuperscript{31} But the commonest scalp tumour is squamous cell carcinoma. Because of the presence of hair, the recognition of malignant formations in the scalp may take time. The incidence of malignancy arising from intact skin is very low. A primary aetiological factor is solar radiation. Chronic irritation and states of immunosuppression can also lead to squamous cell carcinoma.\textsuperscript{1}

Although it is believed that there is a latency period of 25 to 40 years after traumatic injury before the occurrence of malignancies, in the case we present here the malignancy occurred in a period as short as 11 years. It is also reported that the latency period is longer in younger patients, but this was not the case in our patient.

Bleeding and ulcerated lesions of the scalp and other body regions should arouse suspicion. We must bear in mind that Marjolin’s ulcer can also be seen in younger patients and that biopsies should be taken for differential diagnosis.

**RESUME.** Les lésions chroniques et le tissu cicatriciel sont exposés à un risque augmenté de cancer de la peau. En 1828 Jean-Nicholas Marjolin a décrit la manifestation de tumeurs dans le tissu cicatriciel posttraumatique. Le type le plus commun de carcinome qui dérive de l’ulcère de Marjolin est l’épithélioma spinocellulaire. La période de latence entre la lésion et la manifestation du cancer varie entre 25 et 40 ans. L’ulcère de Marjolin qui se présente en manière précoce a été rarement décrite dans la littérature. Les Auteurs présentent ici un cas de cette sorte de la manifestation précoce de l’ulcère de Marjolin.
BIBLIOGRAPHY