

# MARJOLIN'S ULCERS WHICH TRANSFORMED TO SQUAMOUS CELL CANCER LEADING TO AMPUTATION OF THE EXTREMITIES: CASE REPORTS AND OVERVIEW

\*Mehmet BOZKURT, \*\*Emin KAPI

\*Assistant Profesor, Dicle University, Department of Plastic and Reconstructive Surgery, Diyarbakir, TURKEY

\*\*Resident, Dicle University, Department of Plastic and Reconstructive Surgery, Diyarbakir, TURKEY

## ABSTRACT

Marjolin's ulcers commonly arise on chronic wounds, irritated skin areas and have a potential to transform into squamous cell skin cancer (SCC). These lesions have a poor prognosis and differentiation when transformed into squamous cell cancer. When transformed to squamous cell cancer this malignant skin tumor can cause recurrent metastasis and death. This condition had shows a variety of curative treatment modality. Amputation can be a surgical treatment in cases that have positive lymph node and bone invasion. Herein, we present two cases with skin squamous cell cancer involving the left cubital area and posterior thigh arising from the burn scar leading to extremity amputation.

**Keywords:** Marjolin ulcer; Squamous cell cancer; Osseous metastasis; Amputation

## ÖZET

Marjolin ülserleri, sıklıkla, kronik yaralarda, irrite cilt bölgelerinde gelişir ve yassı hücreli kansere (SCC) dönüşme potansiyeli mevcuttur. Bu lezyonların, yassı hücreli kansere dönüşüklerinde, kötü bir prognoz ve diferansiyonları mevcuttur. Yassı hücreli kansere dönüştüğünde, bu malign deri tümörü, rekürren metastaz ve ölüme yol açabilir. Bu kondisyon, çok çeşitli küratif tedavi modaliteleri sergiler. Amputasyon, pozitif lenf nodu ve kemik invazyonu olan vakalarda, cerrahi bir tedavi olabilir. Burada, sol kübital bölge ve posterior uylukta, yanık skarı zemininde gelişen yassı hücreli deri kanseri olan ve ekstremitte amputasyonuna giden, iki vakayı sunmaktayız.

**Anahtar kelimeler:** Marjolin ülseri, yassı hücreli kanser, kemik metastazı, amputasyon

## INTRODUCTION

Marjolin's ulcer is a skin lesion that has a tendency of turning into skin cancer. It emerges from repetitive irritated chronic scars.<sup>1-3</sup> These lesions may have a poor prognosis and have the tendency of turning into squamous cell cancer.<sup>3-5</sup> In literature, aggressive squamous cell cancer is not always directly related to sun light exposure like lesions on extremities which may be protected by clothes.<sup>6-8</sup> Marjolin's ulcers which transforms to squamous cell cancer at the extremities are also hard to treat. In these types of tumors, the beginning, the behavior of the tumor during treatment, the formation time and the probable metastasis must be evaluated in detail.<sup>9-11</sup> In literature, there are limited data belonging to aggressive skin-related squamous cell carcinoma in the body and extremities. Additionally, various findings about the possibility of the limb amputation and true incidence are unknown. However, the lesions of extremities carry a higher risk for metastasize and may cause amputation. In this respect, we aimed present in our paper, two cases of neglected Marjolin's ulcers undergoing extremity amputation.

### Case 1

A 28-year-old male patient admitted at our center because of red circular lesion with irregular border protruding over the skin on his left forearm. The patient's history revealed that he had a second-degree burn on his left arm and forearm about 14 years ago due to a

burn injury. The lesion was increasing in size in the past 2 years.

The physical examination revealed 8x10 cm. red vegetative lesion on the left lateral proximal radioulnar and cubital region (Fig. 1). By palpation the axillary area revealed a three lymph node ranging from 2 to 3 cm in the left arm pit. A skin biopsy was performed which revealed a poor differentiated squamous cell cancer. Radiological and scan studies showed any visceral involvement.

After orthopedic consultation, the necessity for a left arm amputation revealed, because of the radiologic examination of the left radial area showed destruction of bony structures. With the orthopedic surgeons, an arm amputation above the elbow and axillary dissection was performed. This patient went to another medical center after the amputation for medical oncologic treatment and did not return to our clinic.

### Case 2

A 61-year-old male whom had an irregular 10x15 cm. ulcerating lesion on the posterior left thigh was referred to our center. The patient's history revealed that he had a deep second-degree burn on his left femur about 35 years ago due to a scalding burn injury. It was understood that any operation was performed and it was secondarily healed. An ulcerated lesion, which occurred in the burn scar area, had been there for 6 years. It was



**Figure 1** - Preoperative view of the first patient. The lesion on the left arm area is circular with irregular borders.



**Figure 2** - Preoperative view of the second patient. Lesion is on the left femoral area posterior, its borders are irregular and with ulcer.

seen that the lesion had been getting bigger in the past one year. In the past 6 months, it also had odor.

Around the ulcer, sclerosing of the skin tissue was determined (Fig. 2). Physical examination of the inguinal area revealed 2 lymph nodes on the left inguinal field (ranging from 3 to 4 cm.) and the skin palpation revealed crepitation. The X-ray showed destruction and erosion in the femoral bone tissue (Fig. 3). The computed tomography (CT) scan revealed there was an attachment on the left femoral osseous tissue (Fig. 4). After his skin incision biopsy, a squamous cell cancer diagnosis was confirmed.

The patient and his family was informed, it was said that the lesion was not only limited to the skin but had also invaded the bony structures. After the orthopedic consultation, the necessity for a high femur amputation was revealed. With the orthopedic surgeons, we planned a leg amputation above the knee and inguinal dissection. In the early postoperative period, no complication was observed. After the surgery, patient was referred for department of oncology to purpose given for radiotherapy. Following one year, no recurrence was seen (Fig. 5).

### DISCUSSION

Marjolin's ulcer can be termed as a kind of squamous cell cancer which is known as scar tissue

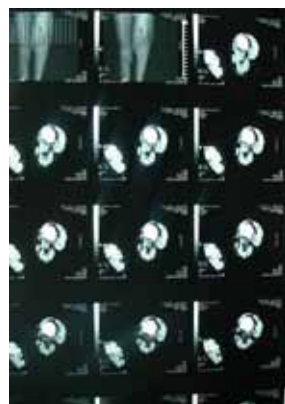
differentiation into a malignancy.<sup>3,4,12</sup> It frequently develops at scar areas caused by burns.<sup>3,8</sup> Also chronic inflammation areas, lupus vulgaris and smallpox vaccine scars, urinary fistulas, osteomyelitis and chronic sinuses, venous ulcers, compression ulcers, and hydradenitis suppurativa can be the other etiologic factors.<sup>4,5,12</sup> Clinically, Marjolin's ulcers show themselves as streamy, bad smelling and fragile lesion. Marjolin's ulcers have poor differentiation and prognosis; in addition, they have a tendency to form metastasis by turning into high-rate pseudoepitheliomatous hyperplasia and squamous cell cancer.<sup>3,5</sup> Near or distant metastasis could be observed in late and neglected cases.<sup>4,13</sup>

The latent period for Marjolin's ulcers, which follows the first formation progress of a skin lesion, is approximately 30 years.<sup>3,4</sup> In 1952, Lawrence hypothesized that there is an opposite proportion between the age of the patient and the latent period needed for the cancer to develop from the burn formation.<sup>3</sup>

In macroscopic view, there are two types of Marjolin's ulcers and squamous cell carcinomas that occur; Ulcerous and exophytic type 14. Secondary infection and metastasis can be observed in both types. In our cases, there were nodular lesions in some places around the irregular bordered lesion. Also these lesions were characterized with fragile tissues that have a tendency to invade deeper tissues at the center of the ulcer. It was



**Figure 3** - Destruction and erosion view of the left femoral osseous tissue.



**Figure 4** - View of attaching osseosis in CT.



**Figure 5** - Late postoperative view of the second patient.

observed that there were necrotic tissues, which were clearly seen in the center of the ulcer. These findings led us to believe it may show a poor differentiation and may invade deep tissue.

Regional lymph nodes are the most frequently seen squamous cell carcinoma metastasis region.<sup>8,15</sup> It is mentioned that distant metastasis occurs mostly in the lungs, liver and bone tissues.<sup>15,16</sup> Spreading to the bone tissue occurs via distant metastasis, direct invasion or iatrogenic implantation.<sup>15,16,17</sup> It is thought that this way of spreading is much more frequent.<sup>16,17</sup> There is a correlation between the early diagnosis of this illness and the success of an early operation.<sup>5,13</sup>

The treatment choices include surgical excisions, regional lymph node dissection, chemotherapy, radiotherapy or combinations of all three.<sup>14,16</sup> Wide radical excision is the basic treatment method in cases of poor differentiation and spreading. Johnson and Kempson emphasized the necessity for amputation in pseudoepitheliomatous hyperplasia treatment, which generally develops in the lower extremity scar field.<sup>12</sup> Amputation is may be needed in metastatic lesion. Radiation treatment can be carried out after the palliative treatment step, but is rarely needed.<sup>5</sup>

In conclusion, the patient must be educated of his or her illness and when ulceration occurs he or she must be alert and immediately apply to their physician. Also findings such as increasing in size, bleeding or pain should be noticed. More clinical follow up must be done toward the prevention for malignant transformation. This condition is observed at a higher rate in developing country or undeveloped countries. These patients must periodically admitted to controls. Surgeons must be aware that Marjolin's ulcers which are adjacent to bony structures, as these lesions may invade bony structures easily. Also when these lesions appear, biopsy must be performed. In this study, we wanted to emphasize that invasion to bony structures may be aggressive in squamous cell cancer, which develops in scarred areas. So we can say that Marjolin's ulcer is not a simple precancerous lesion.

YRD. DOÇ. DR. MEHMET BOZKURT  
DİCLE ÜNİVERSİTESİ TIP FAKÜLTESİ  
PLASTİK, REKONSTRÜKTİF VE  
ESTETİK CERRAHİ ANA BİLİM DALI  
21280 DİYARBAKIR  
Tel: 0 532 276 02 09  
Fax: 0 412 228 44 77  
e-mail: drmbzkurt@yahoo.com

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