

# Post burn scar carcinoma: Case Report

I Wani, M Maqbool

## Citation

I Wani, M Maqbool. *Post burn scar carcinoma: Case Report*. The Internet Journal of Surgery. 2007 Volume 17 Number 1.

## Abstract

A rare case of malignant degeneration of a burn scar into a squamous cell carcinoma of the left leg is presented. The patient had a burn 48 years back with development of malignancy and presented with an infected exophytic lesion on the medial aspect of the leg with inguinal lymphadenopathy. Wide local excision with inguinal node dissection was done. No recurrence was noted in follow-up after four years.

## INTRODUCTION

Malignancy arising in a chronic burn scar is simply referred to as Marjolin's ulcer. Approximately 2% of burn scars undergo malignant transformation. A malignant neoplasm commonly appears in burn scars in the lower and upper extremities, the presternal region, the scalp region or other parts of the body. <sup>1</sup> Most lesions of Marjolin's ulcer occur on the extremities (60%), with ulcers on the head and face occurring less frequently (30%) and the lowest frequency (10%) on the trunk. <sup>2</sup> An unstable burn scar on the lower extremity has an ever present malignant potential. <sup>3</sup> Most Marjolin's ulcers arise in full-thickness burns. Sites that remain ungrafted or where grafts have failed are more vulnerable for developing malignancy. These grafts often develop chronic and recurrent ulcerations before undergoing malignant transformation. Slow initial healing and scar instability result in recurrent ulceration and, in the end, neoplastic changes. <sup>4</sup> Surgical excision is the recommended modality of treatment.

## CASE REPORT

A 61-year-old female presented with an exophytic mass on the right aspect of the left leg of one year duration. It was progressive in size, and there was associated mild pain. Knee movements were normal. She had suffered a burn 48 years ago by accidental contact with a burning log of wood. General and systemic examination was normal. Local examination showed a tender, mobile swelling with dimensions of 6x5x2cm and with stigmata of an adjacent post-burn scar as in figure 1.

## Figure 1

Figure 1: showing a growth arising from a previous burn scar of the leg



The mass had a raised border with purulent exudates on the floor and foul odour. There was significant inguinal lymphadenopathy of 2-2.5cm. A biopsy of the mass was taken showing a necrotic mass and few whorls suggestive of squamous cell carcinoma. Fine-needle aspiration of inguinal nodes was inconclusive. X-ray of the knee showed a soft-tissue mass. Control of the infection of the mass with antibiotics was done. Wide local excision with 2cm normal margin and grafting was done (figure 2).

**Figure 2**

Figure 2: showing the graft placed at the wound site



Inguinal node dissection was done. Histopathology was consistent with that of squamous cell carcinoma. Regional nodes showed reactive hyperplasia. The patient is regularly attending our follow-up clinics with no recurrence.

**DISCUSSION**

Long-standing burn scars are notorious for malignant degeneration. Burn scar carcinoma has a propensity for the extremities, specifically to flexion creases of the extremities, where blood supply is decreased and vulnerability to trauma is increased.<sup>5</sup> Burn scar carcinoma is seen more commonly in males.<sup>6</sup> The usual average time for appearance of squamous cell carcinoma is 35 years (and the latency period is inversely proportional to the age of the patient at the time of injury.<sup>7</sup> However, there are some reports of Marjolin's ulcer arising as early as after 18 months to 3 years<sup>8,9,10</sup>, though latencies of over 50 years have been reported. The tumor starts at the ulcer margin and grows slowly. Only a portion of the ulcer becomes malignant, thus false negative reports on biopsy are not uncommon. Localized pain may accompany malignant transformation.<sup>11</sup> The commonest histological type of burn scar carcinoma is squamous cell carcinoma. Rarely, basal cell carcinoma, melanoma, malignant fibrous histiocytoma and sarcoma have also been reported to occur.<sup>2,13,14,15</sup> Basal cell carcinoma is believed to occur when the burn is more superficial and the hair follicles and sebaceous glands are intact. A role of depressed immunity has been suggested in the development of carcinoma in burn scars.<sup>16</sup> It is speculated that a carcinogenic toxin produced from the burned tissue or the cicatricial tissue prevents the immunological mechanisms from checking the new tumor formation and may subsequently lead to tumor development.<sup>17,18,19</sup> Burn scar-related squamous cell carcinoma and conventional squamous cell carcinoma differ at the molecular level.<sup>20</sup> Fas gene

mutations might be involved in the pathogenesis of burn scar-related squamous cell carcinomas. Wide excision (surgical margin of at least 2 cm), together with skin grafting primarily or primarily delayed, is usually considered appropriate in the treatment of Marjolin's ulcer.<sup>21</sup> Amputation is reserved for lesions involving joint spaces or invading the bones of the limbs or for deep extensive local invasion. Where bone is involved, or on the foot, skin flaps should be used. Regional lymph node dissection is indicated whenever nodes are palpable.<sup>22,23</sup> In contrast to most other tumors of squamous cell carcinoma, Marjolin's ulcer has an aggressive natural course and has a poor survival rate. Long-term follow-up is recommended in all cases of Marjolin's ulcer. Most series indicate that the incidence of recurrence is in the range of 20% to 50%. The metastatic rate is 34% with overall 5-year survival rates of less than 10%.<sup>24,25</sup>

**CONCLUSION**

This case report emphasizes the long-term follow-up in patients with large post-burn scars to look for any formation of malignancy. Superadded infection of these lesions usually makes the patient seek medical advice. Wide local excision is the recommended modality.

**CORRESPONDENCE TO**

Imtiaz Wani Post Graduate Scholar, Amira Kadal, Srinagar Kashmir, India, 190009 Cell Phone No. 9419904864 e-mail: imtazwani@yahoo.com

**References**

1. Casson PR, Robins P. Malignant tumor of the skin. In: "Plastic Surgery" (ed. McCarthy), vol. 5, p. 3614. W.B. Saunders Co., Philadelphia, 1990.
2. Treves N, Pack GT. Development of cancer in burn scars. *Surg Gynecol Obstet* 1930;512:749-82.
3. AcartOrk S., Dalay C., Yavuz M, Irik G, Kesiktas E. Extensive burn scar carcinoma in the scalp and its treatment with free flaps: three cases. *Annals of Burns and Fire Disasters*, vol. IX, n. 1, March 1996.
4. Horton CE, Crawford HH, Love HG, Loeffler RA. The malignant potential of burn scar. *Plast Reconstr Surg* 1958;22:348-53.
5. Fishman RAJ, Parker MG. Malignancy and chronic wounds: Marjolin's Ulcer. *J Burn Care Rehabil* 1991;12:218-23.
6. Sirsat MV, Shrikhande SS. Histochemical studies on squamous cell carcinoma of the skin arising in burn scars with special reference to histogenesis. *Indian J Cancer* 1967;3:157-69.
7. Lawrence EA, Moore TC. Carcinoma arising in the scars of thermal burns, with special reference to the influence of the age at burn on the length of the induction period. *Surg Gynecol Obstet* 1952;95:579-90.
8. Manncoll JS, Phillips LG. *Grabb and Smith's Plastic Surgery*. 5th ed. Philadelphia: Lippincott-Raven; 1997. p.92-9.
9. Çeliköz B, Demiriz M, Selmanpakolu N. A shorter

lagperiod of mesenchymal malignancy in Marjolin's ulcer. *Burns* 1997;23:72-4.

10. Thio D, Clarkson JHW, Misra A, Srivastava S. Malignant change after 18 months in a lower limb ulcer: Acute Marjolin's revisited. *Br J Plast Surg* 2003;56:825-8.
11. Phillips TJ, Salman SM, Bhawan J, Rogers GS. Burn scar carcinoma. Diagnosis and management. *Dermatol Surg* 1998;24:561-5.
12. Gargan TJ, Mitchell L, Plaas W. Burn scar sarcoma. *Ann Plast Surg* 1988;20:477.
13. Kikuchi H, Nishida T, Kurokawa M, Setoyama M, Kisanuki A. Three cases of malignant melanoma arising on burn scars. *J Dermatol* 2003;30:617-24.
14. Kim GI, Lee JH, Kim HK, Park SH, Kim CH. Malignant fibrous histiocytoma in a chronic burn scar: a rare case report and review of the literature. *Burns* 2004;30:742-745.
15. Spring PM, Myers JN, El-Naggar AK, Langstein HN. Malignant melanoma arising within a burn scar. Case report and review of literature. *Ann Otol Rhinol Laryngol* 2001;110:369-376.
16. Dellon AL, Potvin C, Vhretien PB, Rogentine CN. The immunobiology of skin cancer. *Plast Reconstr Surg* 1975;55:341-54.
17. Kennaway EC, Hieger I. Carcinogenic substances and

their fluorescence. *BMJ* 1930;1:1044-6.

18. Castillo JL, Goldsmith HS. Burn scar malignancy in a possible depressed immune setting. *Surg Forum* 1968;19:511.
19. Bostwick J, Pendergrast WJ, Vasconez LO. Marjolin's ulcer: An immunologically privileged tumor? *Plast Reconstr Surg* 1976;57:66-9.
20. Lee SH, Shin MS, Kim HS, et al. Somatic Mutations of Fas (Apo-1/CD95) gene in cutaneous squamous cell carcinoma arising from a burn scar. *J Invest Dermatol* 2000;114:122-126.
21. Fleming MD, Hunt JL, Purdue GF, Sandstad J. Marjolin's ulcer: a review and reevaluation of a difficult problem. *J Burn Care Rehabil* 1990;11:460-469.
22. Berkwits L, Yarkony GM, Lewis V. Marjolin's ulcer complicating pressure ulcer: case report and literature review. *Arch Phys Med Rehabil* 1986;67: 831-3.
23. Barr LH, Menard JW. Marjolin's ulcer. LSU experience. *Cancer* 1983;52:173-5.
24. Blake GB, Wilson JSP. Malignant tumor of the ear and their treatment. *Br J Plast Surg* 1976;27:67.
25. Novick M, Gard DA, Hardy SB, Spira M. Burn scar carcinoma: A review and analysis of 46 cases. *J Trauma* 1977;17:809-17.

**Author Information**

**Imtiaz Wani**

Postgraduate Department of Surgery, S.M.H.S Hospital

**Muddasir Maqbool**

Postgraduate Department of Surgery, S.M.H.S Hospital