

Pathological Fracture Secondary to Squamous Cell Carcinoma: A Case Report and Review of Literature

Dinesh Dhar, TP Varghese

Nizwa Regional Referral Hospital, PO Box 1222, Postal Code 611, Nizwa, Oman

Abstract

Citation: Dhar D, Varghese TP. Carcinoma: A Case Report and Review of Literature. Maced J Med Sci. doi:10.3889/MJMS.1957-5773.2010.0126.

Keywords: ulcer; squamous cell carcinoma; pathological fracture; marjolins ulcer; lymphadenopathy.

Correspondence: Dr. Dinesh Dhar, M.S. (Ortho). Senior Specialist Orthopaedics, Nizwa Regional Referral Hospital, PO Box 1222, Postal Code 611, Nizwa, Oman. Mobile: +968-92357505. E-mail: d i n e s h 6 1 2 0 0 3 @ y a h o o . c o m , dinesh612006@rediffmail.com

Received: 18-May-2010; Revised: 24-Jul-2010; Accepted: 01-Aug-2010; Online first: 23-Nov-2010

Copyright: © 2010 Dhar D. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Competing Interests: The author have declared that no competing interests exist.

Squamous cell carcinoma (SCC) is a malignant transformation of the epithelial tissue. We report a case of SCC in a 80 years old male Omani patient with six years history of chronic ulcer in his left leg. Patients radiographs of left leg revealed pathological fracture. Histopathology of ulcer was reported as Squamous cell carcinoma. High index of suspicion and low threshold to biopsy is fundamental to early diagnosis. Bony infiltration denotes advanced disease and therefore certainly not the sign one has to find before malignancy is excluded.

Case Report

80 years old male Omani patient with six years history of chronic ulcer of his left leg with history of healing and recurrent breakdown of the ulcer presented to accident and emergency department of Nizwa regional referral hospital with sudden increase in pain and inability to bear weight on left leg for last two days. Patient denied any history of trauma. He had no past history of diabetes, claudication, or any addiction. He was however known case of Chronic obstructive pulmonary disorder (COPD) for which he was on treatment.

On examination: Old frail patient, haemodynamically stable, no pallor, icterus or regional lymphadenopathy. Local examination there was a fungating cauliflower ulcer 9 x 5 x 4 cm over the anteromedial aspect of middle third left tibia. Ulcer was foul smelling with everted margins, granulating base and erythema of skin. No active discharge was found (Fig. 1).

Patients total blood counts, serum biochemistry profile was normal. His erythrocyte sedimentation rate was 60 mm/hr. Chest x-rays showed changes suggestive of COPD, abdominal ultrasound was normal and pelvic



Figure 1: A fungating cauliflower ulcer 9 x 5 x 4 cm over the anteromedial aspect of middle third left tibia.

ultrasound revealed mild prostomegaly. Bacterial cultures obtained from the ulcer showed mixed infection. The radiograph of the left leg revealed osteolytic lesion which had destroyed the anterior and posterior cortex producing pathological fracture (Fig. 2). Biopsy obtained from the ulcer was reported by histopathologist as "Malignant spindle cell carcinoma a variant of squamous cell carcinoma".



Figure 2: The radiograph of the left leg revealed osteolytic lesion which had destroyed the anterior and posterior cortex producing pathological fracture

Patient was evaluated by two Consultants and decided for above knee amputation of left leg awaiting biopsy report, but on 5th day of admission patient started having fever with signs of respiratory infection. Repeat chest radiographs revealed bronchopneumonia, patient

was started on broad spectrum antibiotics after obtaining appropriate blood culture samples. Patient condition deteriorated in days to come and finally on 13th day of admission he died due to bronchopneumonia. His blood culture report showed no growth.

Discussion

SCC is a malignant transformation of the epithelial tissue and can arise from chronic ulcers. This phenomenon is known as Marjolin's ulcer [1, 2]. Described in 1828 Marjolin's ulcer designates malignant transformation of chronic inflammatory skin lesion like burn scar, chronic ulcers, pressure sores, discharging chronic osteomyelitis [3, 4]. These ulcers are malpighias epithelial keratinizing proliferations from the epidermal keratinocytes and in majority of cases is SCC.

Yang et al [5] have reported incidence of malignancy of 2.2 per 100 leg ulcers, SCC being more common than the Basal cell carcinoma [6]. These malignant tumours with unlimited growth are susceptible to infiltration, destruction and metastatic spread if not managed early [7]. Longer the duration of chronic leg ulcers more likely is the malignant transformation.

The physiopathological mechanism of transformation of chronic ulcers into malignancies is not well understood. Chronic skin irritation or exposure of soft tissues to differential growth factors undoubtedly plays an important role [8]. This cycle of damage, irritation and repair can lead to malignant transformation [2].

Ulcer features suggestive of malignant transformation include duration more than 03 months, everted wound edges, shiny granulation tissue affecting ulcer margins, recurrent breakdown of ulcer after healing, ulcer that increases in size or pain even after treatment [5, 6].

Malignant transformation of chronic leg ulcers presenting as pathological fracture has been reported by few other authors [9, 10]. Kubler [11] reports a rare case of SCC of skin with bone involvement in hereditary dystrophic epidermolysis. SCC have risk of metastasis reported in literature ranging from 0.5 % to 15% [10]. SCC have definite risk of metastasis to regional nodes and distant visceral sites such as liver, lung and kidney [4]. Fitzgerald [12] reported 10% metastasis in his series of 36 patients of SCC. Vishniavsky [13] reported metastasis in 14.4% of 112 cases of malignancy in his series.

Metastatic carcinoma is located mostly at the junction of metaphysis and diaphysis and is the most

common radiolucent lesion seen in patients above 40 years [10]. Pathological fracture is clearly as a result of direct infiltration of the tumour and therefore may occur at any portion of the bone where chronic soft tissue carcinoma is situated.

Many treatment options for the SCC ulcer have been described in the literature. The mainstay of treatment of marjolin's ulcer remains wide excision. Amputation of the limb is certainly not indicated as first line of management. Soft tissue loss as well as bone loss can be reconstructed with appropriate methods. However both patient factors as well as the unavailability of the complex reconstructive expertise may force one to go for amputation. Mohs micrographic surgery [14] is now regarded as standard for management of SCC ulcers. Mohs micrographic surgery for marjolin's ulcer is not practical as it is only practiced for non marjolin's ulcers (basal cell carcinoma and squamous cell carcinoma) in the head and neck region in attempt to preserve aesthetically and functionally vital structures. SCC with lymphnode metastasis have 5 years survival rate of 39% compared to 90% in lesions without metastasis [6].

The role of therapeutic lymphadenopathy is controversial. Likelihood of negative but reactive nodes is high. If nodes persist for 3 months after primary treatment of marjolin ulcer it warrants biopsy and surgical intervention [12]. However a Fine needle aspiration should be performed prior to primary management of the malignancy.

Conclusion

Regular follow up of patients with chronic ulcer with high index of suspicion and any change in the character of ulcer should arouse suspicion of malignant transformation of ulcer. Therefore biopsy and early appropriate management of the ulcer will help prevent complication as pathological fracture and metastasis.

References

1. Marjolin JN. Dictionnaire de medicine, 1828;1:31-50.
2. Fleming MD, Hunt JL, Purdue GF, Sandstad J. Marjolin 's Ulcer: a review and reevaluation of a difficult problem. J Burn Care Rehabil, 1990;11:460-69.
3. DaCosta JC. Carcinomatous changes in the area of chronic ulceration or Marjolin's ulcer. Ann Surg, 1903; 37:496-502.
4. Noona KJ Goetz DD, Marsh JL, Peterson KK. Rapidly destructive squamous cell carcinoma as a complication of

chronic osteomyelitis: A case report and review of literature. The IOWA Orthop Journal. 1991;11:165-70.

5. Yang D, Morrison BD, Vandergen YK, Singh LA et al. Malignancy in chronic ulcers. Med J Aust. 1996;164(12):718-20.

6. Enoch S, Miller DR, Price PE, Harding KG. Early diagnosis is vital in management of squamous cell carcinoma associated with chronic non healing ulcers: case series and review of literature. Int Wound J. 2004;1(3):165-75.

7. Bauer T, David T, Rimareix F, Lortat-Jacob A. [Marjolin's ulcer in chronic osteomyelitis: seven cases and a review of the literature]. Rev Chir Orthop Reparatrice Appar Mot. 2007;93(1):63-71.

8. Gebhart M, Fabeck L, Muller C. Malignant transformation of chronic osteomyelitis and its scar issue: report of three cases. Acta orthop Belg. 1993;59:327-32.

9. Burrows NP, Lyall HA. Venous ulcer presenting as a pathological fracture. Clin Exp Dermatol. 1994;19(3):238-9.

10. Oburu E, Kimani M. Pathological fracture complicating squamous cell carcinoma. A case report. East Central Afr J Surg. 2007;12(2):92-94.

11. Kubler W. Squamous cell carcinoma of skin with bone involvement in hereditary dystrophic epidermolysis. Source Radiologe. 1982;22(12):566-567.

12. Fitzgerald RH Jr, Brewer NS, Dahlin DC. Squamous cell carcinoma complicating chronic osteomyelitis. J Bone Joint Surg (Am). 1976;58:1146-48.

13. Vishniavsky S. Squamous cell carcinoma in sinus tracts of chronic osteomyelitis. Virginia Med Month. 1970;97:645-50.

14. Rowe DE, Carroll RJ, Day CL Jr. Prognostic factors for local recurrence, metastasis and survival rates in squamous cell carcinoma of skin, ear, and lip. Implications for treatment modality selection. J Am Acad Dermatol. 1992;26(6):976-90.