ISSN 2689-8268 | Volume 6

American Journal of Surgery and Clinical Case Reports

Research Article Open Access

The Prevalence of SCC at Al-Amal Oncology Center, Taiz City, Yemen During The Period (From May 2020 To December 2021)

Maha Alq[1*] and Aldaqaf M[2]

[1]Consultant General Surgery, Faculty of Medicine and Health Science, Taiz University, Yemen

[2]Consultant Surgical Oncology, Faculty of Medicine and Health Science, Taiz University, Yemen

[*]**Corresponding author:**

Mohammad Aldaqaf,
Consultant Surgical Oncologist, Faculty of Medicine and Health Science, Taiz University, Taiz, Yemen, E-mail: aldakafm@yahoo.com

Received: 26 Jan 2023
Accepted: 21 Mar 2023
Published: 29 Mar 2023
J Short Name: AJSCCR

Citation:

Maha Alq. The Prevalence of SCC at Al-Amal Oncology Center, Taiz City, Yemen During The Period (From May 2020 To December 2021). Ame J Surg Clin Case Rep. 2023; 6(8): 1-6

Keywords:

Skin cancer; Squamous cell carcinoma (SCC); Cancer after the burn

1. Abstract

1.1. Introduction: It is estimated that 2.3% of burn scars undergo malignant transformation. How can we explain the large number of cases reports with an association of burn injuries and skin cancer if such an association does not exist? One can propose a number of possible explanations. Skin cancer is common and SCC is a disorder of the elderly, and it is not surprising that some patients develop skin cancer in a scar or ulcer by chance (publication bias). Burn injuries are also common and affect a certain area of the skin and the larger the area, the greater is the probability for a skin cancer, arising at a normal rate, to appear in that area by chance.

1.2. Objective: This study aimed at one general goal which is To study the prevalence of SCC in post-burn scars in patients admitted to Al-Amal Oncology Center ,Taiz City, Yemen during the period (From May 2020 to December 2021).

After that, it branched into a group of special goals, which were:

✓ To determine the relation between the, size and location of the burn and skin cancer (SCC).

✓ To determine the relation between skin cancer (SCC) after burn and family history of skin cancer (SCC).

1.3. Materials and Methods: A cross-sectional descriptive study, which consists of 50 patients who have SCC from 2200 burn patients examined retrospectively. The records of those 50 cases were analyzed in terms of age, sex, status, education level, occupation and residence type as demographic characteristics, and classification of burn, burn size, anatomic localization of the burn, family history with cancer These records were analyzed with SPSS software (IBM Corp, version 25). Data presented in tables and figures and summarized as frequencies, percentages, means and standard deviations.

1.4. Results: The number of SCC developing on burn scars among the 2200 burn cases was 50 (2.3%), 24 of which were women (48%) and 26 were men (52%). The mean age was 45 ± 15.5 years, and the most frequent group of age was (41-60) years. (40%) of SCCs were uneducated, (22%) were working as farmers and (66%) were living in rural areas. The SCC presented more in people who had large or average size of burns (88%). It should be mentioned that (88%) of cases did not have a family history of cancer. In addition, burn scar carcinoma was more likely to localize on lower limbs (48%) . Also, in our study, the records showed that as a treatment modality, 90% of patients scar carcinomas were totally excised with wide safety margins in the first step.

2. Introduction

Burns are tissue damage that results from heat, overexposure to the sun or other radiation, or chemical and electrical contact [3]. characterized by severe skin damage that causes the affected skin cells to die [4].

Most people can recover from burns without serious health consequences, depending on the cause and degree of injury [3,4]. There are three primary degrees of burns: first-, second-, and third-degree. Each degree is based on the severity of damage to the skin.

Burn symptoms vary depending on how deep the skin damage is. It can take a day or two for the signs and symptoms of a severe burn to develop [5,6].

Most skin cancers are locally destructive cancerous (malignant) growth of the skin. They originate from the cells of the epidermis, the superficial layer of the skin. Unlike cutaneous malignant melanoma, the vast majority of these sorts of skin cancers rarely spread to other parts of the body (metastasize) and become life-threatening [7]. Skin cancer most often develops on skin exposed to the sun. But this common form of cancer can also occur on areas of your skin not ordinarily exposed to sunlight [8,9].

Risk of skin cancer can be reduced by limiting or avoiding exposure to ultraviolet (UV) radiation. Checking skin for suspicious changes can help detect skin cancer at its earliest stages. Early detection of skin cancer gives the greatest chance for successful skin cancer treatment [8].

Since most skin cancers are caused by ultraviolet light exposure, skin cancers are generally not considered to be inherited. But the fact that skin cancer is much more common among poorly pigmented individuals and that skin color is inherited does support the proposition that genetics are very important. There are some very rare genetic syndromes that result in an increased number of skin cancers in those affected [10].

Except in rare instances, most skin cancers arise from DNA mutations induced by ultraviolet light affecting cells of the epidermis. Many of these early cancers seem to be controlled by natural immune surveillance, which when compromised, may permit the development of masses of malignant cells that begin to grow into tumors [7], [11].

Unstable scar formations following burn or radiation injury frequently result in malignant degeneration, particularly squamous cell carcinoma and fibrosarcoma [1]. This malignant change is the ultimate expression of burn and radiation injuries [1].

Burn scar carcinomas, are uncommon tumors that have been reported to arise from an antecedent burn. They are also called Marjolin's ulcers, after Jean-Nicolas Marjolin who first described the development of skin carcinoma in old burn scars in 1828 [13].

The association between malignancies and burn scars, chronic ulcers and wounds has subsequently been established ever since the turn of the 19th century. Voluminous reports on burn scar neoplasms have continued to appear, usually in the form of cases reports [14,15].

3. Study Objectives

3.1. General Objective

To study the prevalence of SCC in post-burn scars in patients admitted to Al-Amal Oncology Center ,Taiz City, Yemen during the period (From May 2020 to December 2021).

3.2. Specific Objectives

1) To determine the relation between the size and location of the burn and skin cancer (SCC).

2) To determine the relation between skin cancer (SCC) after burn and family history of skin cancer (SCC).

4. Material and Methods

4.1. Study Design and Study Population and Sampling

An descriptive cross-sectional study was conducted from May 2020 to December 2021in dermatology and burn department at Al-Amal oncology center in Taiz city. Yemen. During the study period, fifty patients were targeted from 2200 burn patient ,who get skin cancer after burn.

Inclusion Criteria include Any patient of any age and both gender, who had skin cancer after burn.

All aforementioned data were recorded in the questionnaire and data entry and analysis were performed using SPSS program version 25, and were presented in tables and figures and summarized as frequencies, percentages, means and standard deviations. Graphic presentation was made by Microsoft Excel 2019.

Size in our study defined as , small size is from 2 cm and less, average size from 2-5 cm and large size more than 5 cm. Safety margin in our study defined as margin with at least 2cm.

5. Results

According to the Statistics Center of Al-Amal Oncology Center , the number of burn cases that arrived to the hospital during the year 2020-2021 was 2200 cases, fifty cases of them had skin cancer. That takes 2.3% of all burn cases (Figure1-5).

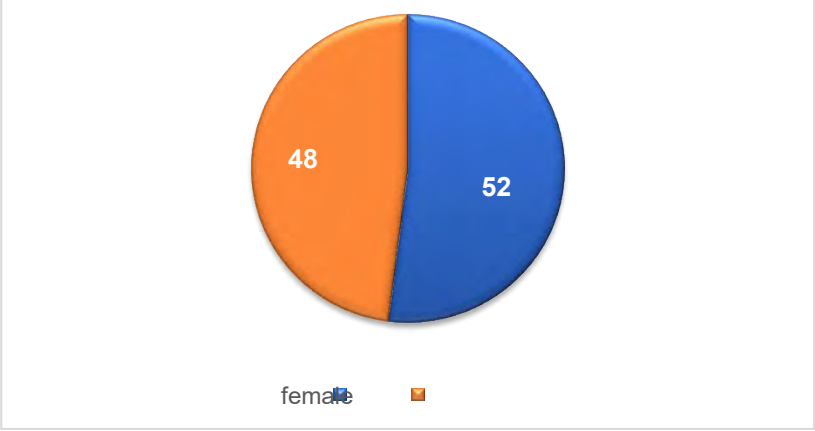

Figure 1: shows the distribution of patients according to gender

As the diagram shown the fifty cases of skin cancer after burn was composed of 24 women (48%) and 26 men (52%).

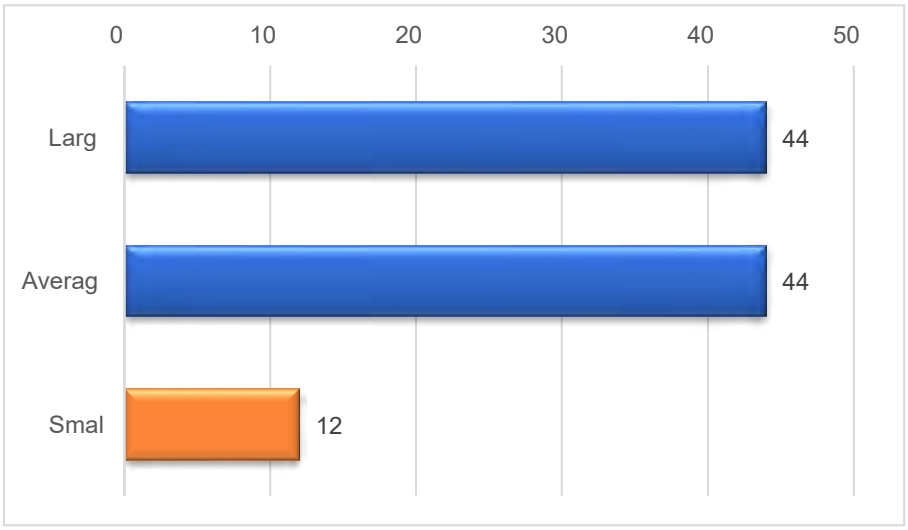

Figure 2: shows the distribution of patients according to size of burn

As the diagram shown, twenty-two of fifty SCCs cases with a percentage of 44% had large size of burns, and twenty-two (44%) had average size of burns , followed by 6 (12%) had small size of burns.

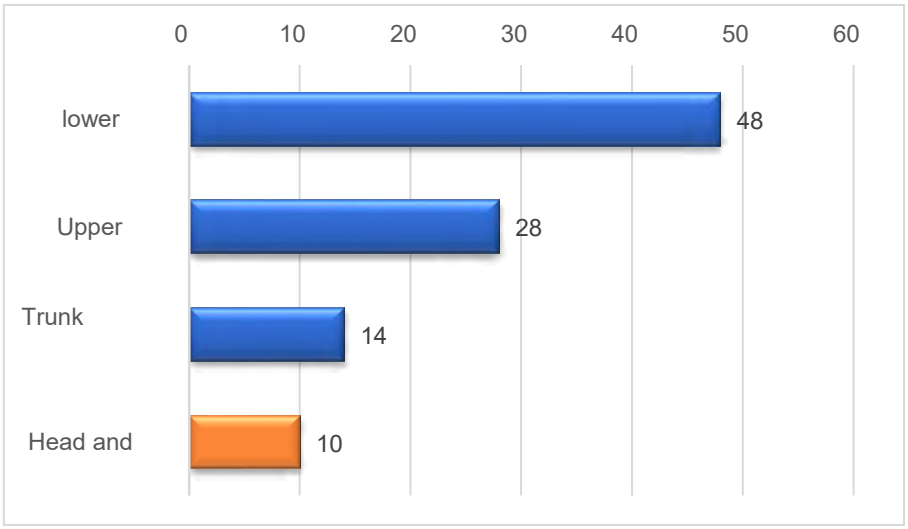

Figure 3: shows the distribution of patients according to Anatomic Location of Carcinoma

As the diagram shown, twenty-four of fifty SCCs cases with a percentage of 48% had the burn in the lower limb , followed by 14 (28%) had the burn in the upper limb, followed by 7 (14%) had the burn in the trunk, followed by 5 (10%) had the burn in the head and neck.

Figure 4: shows the distribution of patients according to family history of cancer.

As the diagram shown, forty-four of fifty SCCs cases with percentage of (88%) did not have a family history of cancer, followed by 6 (12%) had a family history of cancer.

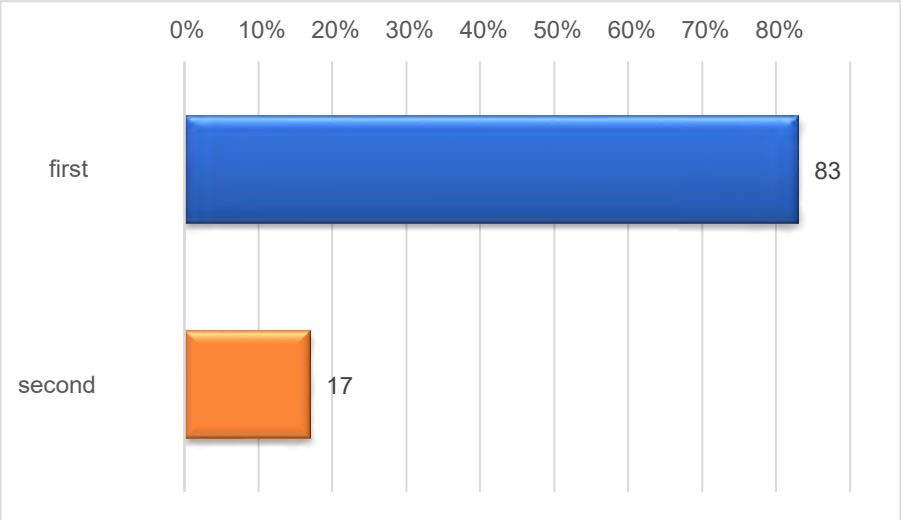

Figure 5: shows the distribution of patients according to family relative degree of cancer

From the 6 (12%) who had a family history of cancer, 5 (83%) had a first degree relative with cancer, followed by 1 (17%) had a second degree relative with cancer.

6. Discussion

SCC arising on burn scars is a rare condition. It is also known as Marjolin ulcer. This term is also used for the SCCs developing on chronic wounds, venous stasis ulcers, chronic osteomyelitis sinus, chronic hidradenitis suppurativa and decubitus ulcer-like lesions [17,18,19].

Development of malignant tumors in chronic burn wounds or scars is extremely rare, but a frequently reported complication. Most of these tumors are squamous cell carcinoma and, more occasionally, basal cell carcinoma and malignant melanoma are reported [2].

Approximately 2.3% of the burn scars undergo malignant transformation to SCC[16,20]. In our study, all of our cases had a malignant transformation to SCC.

Although the precise pathogenesis of burn scar carcinoma is not known yet, various factors that induce malignant transformation on burn scar have been identified. It is mostly believed that malignant degeneration is caused by repeated ulcers and healings [16,20].

SCC arising on burn scars is frequently observed in men. In most studies, men are more frequently affected than women[17,24,25]. Lefebvre et al[25] reported 71.4% of all cases were men, and 28.6% of them were women. Our results are also convenient with these findings; 48% of our cases were women, while 52% of them were men.

Ulker Gul, MD, and Arzu Kılıc ,MD[30] study shows that 74 of 510 SCCs did not have a family history of burn or cancer. in our study 44 of 50 SCCs (88%) did not have a family history of cancer and (12%) had a family history of cancer, (83%) of them were first degree relative and (17%) of them were second degree relative.

Burn injuries are also common and affect a certain area of the skin and the larger the area, the greater is the probability for a skin cancer, arising at a normal rate, to appear in that area by chance. However, it is well-known that SCC is a complication of chronic venous leg ulcers, although the absolute risk is very small [10].

In our study, 22 of 50 SCCs had large size of burns (44%) and (44%) had average size of burns followed by (12%) had small size of burns which is the least frequency

SCC is frequently seen at the head/neck localization, whereas SCC arising on burn scars is mostly localized on lower extremities, where the blood flow is low and the trauma risk is high [25]. In our study, 24 of 50 SCCs developing on burn scars were localized on lower limbs (48%), with the upper limbs occurring less frequently (28%) and trunk (14%) and head/neck (10%) the least frequent.

Anatomic localization seems to have a role in the metastatic potential of tumor. The lesions of lower extremities carry a higher risk for metastasizing than other localizations [27,28]. Carcinomas on lower extremities were more likely to metastasize [29].

The prognosis of SCC arising on burn scar is related to the carcinoma's stage. According to the studies of Spring et al[17] and Phillips et al[20], it was shown that in the acute latent period, the localization of carcinoma on head/neck and upper extremities is the criterion for good prognosis, while chronic latent period and localization on trunk and lower extremities is for poor prognosis [17,20,21].

Complete excision of cancer with precise safety margin control followed by skin coverage with a flap or graft is the treatment of choice for burn scar carcinoma[20]. Wide excision with a surgical margin at least 2 cm is suggested[26]. It has been recommended that regional lymph node dissection be performed only in the presence of clinical-histologic positive nodes and not as a prophylactic measure, while some believe that prophylactic lymph node dissection is necessary in all patients[26,27,]. Lymph node metastases were cured by lymph node dissection and/or radiotherapy.

The indications for limb amputation include joint space involvement, bone involvement, and extensive local tissue invasion [20,26].

In cases of recurrences, the patients were included in an aggressive treatment modality such as amputation, disarticulation, lymph node dissection, chemotherapy, and/or radiotherapy [22,23] (Supplementary Figures).

Supplementary Figures

7. Conclusion

In conclusion, it should be kept in mind that burn scars have a tendency for a malignant transformation, so these cases should be followed up periodically. In cases of a suspicion of a malignant condition, multiple biopsies (especially incisional and excisional biopsy with orientation of the specimen) should be performed. To prevent burn scar carcinoma, we have to be careful in local wound care of the burn scar, we have to protect burn scars from trauma, to provide epithelization and early skin grafting of the burned area; and in cases of notifying changes like malignant transformation, radical excision with safety margin should be performed. After the excision, the patient should also be closely followed up for early detection of recurrence and distal metastasis.

References

1. Kokkalis G, Trichifis E, Mixiou M. Burn Scars and Cancer Development. Annals of the MBC - vol. 5 - n' 3 - September 1992.
2. Saaiq M, Ashraf B. Marjolin's ulcers in the post-burned lesions and scars. World J Clin Cases. 2014; 2: 507- 14.
3. Hall JB, Schmidt GA, Kress JP. Critical care of the burn patient. In. Principles of Critical Care. 2015; accessed on October 25, 2019.
4. Morgan ED, Bledsoe SC, Barker J. Ambulatory managements of burns. American Family Physician. 2000; 62: 2015-26.
5. Mayo Clinic Staff: Diseases & Conditions: Burns. 2020; 31.
6. Heimbach D, Mann R, Engrav L. Evaluation of the burn wound. Management decisions. In: Herndon DN ed. Total burn care. 2018; 1996: 81-7.
7. Alam, Murad. Guidelines of Care for the Management of Cutaneous Squamous Cell Carcinoma. J Am Acad Dermatol 2017: 1-18.
8. Jameson JL. Cancer of the skin. In: Harrison's Principles of Internal Medicine. 20th ed. New York, N.Y.: The McGraw-Hill Companies. 2018.
9. Sebaceous carcinoma: Signs and symptoms. American Academy of Dermatology.
10. Arielle NBK. Consensus for Nonmelanoma Skin Cancer Treatment: Basal Cell Carcinoma, Including a Cost Analysis of Treatment Methods. Dermatol Surg. 2015; 41: 550-1.
11. American Society of Clinical Oncology. "Skin Cancer (Non-Melanoma): Symptoms and Signs". June 2015.
12. American Academy of Dermatology: TYPES OF SKIN CANCER.
13. Lindelöf B, Krynitz B, Granath F, Ekbom2 A. Burn Injuries and Skin Cancer: A Population-based Cohort Study. Unit of Dermatology and Unit of Clinical Epidemiology, Department of Medicine, and Department of Pathology, Karolinska University Hospital and Institute, Stockholm, Sweden, 2007.
14. Vern AK, Criswell BK. Burn scar neoplasms: a literature review and statistical analysis. Burns. 2005; 31: 403-13.
15. Heideman M, Bengtsson A. The immunologic response to thermal injury. World J Surg. 1992; 16: 53-6.
16. Love R, Breidahl AF. Acute squamous cell carcinoma arising within a recent burn scar in a 14-year-old boy. Plast Reconstr Surg. 2000; 106: 1069-71.
17. Spring PM, Myers JN, El-Naggar AK. Malignant melanoma arising within a burn scar. Ann Otol Rhinol Laryngeol. 2001; 110: 369-76.
18. Aron NK, Tajuri S. Postburn scar carcinoma. Burns. 1989; 15: 121-4.
19. Tu¨regu¨n M, Nis¸ancı M, Gu¨ler M. Burn scar carcinoma with longer lag period arising in previously grafted area. Burns. 1997; 23: 496-7.
20. Phillips TJ, Salman SM, Bhawan J. Burn scar carcinoma. Dermatol Surg. 1998; 22: 561-5.
21. Kikuchi H, Nishida T, Kurokawa M. Three cases of malignant melanoma arising on burn scars. J Dermatol. 2003; 30: 617-24.
22. Baliarsing AK. Will Fas gene help to diagnose burn scar squamous cell carcinoma? Plast Reconst Surg. 2000; 106: 203.
23. Lee SH, Shin MS, Kim HS. Somatic mutations of Fas (Apo-1/CD 95) gene in cutaneus squamous cell carcinoma arising from a burn scar. J Invest Dermatol. 1999; 114: 122-6.
24. Scharnagl E, Smola MG, Hellbom BA. Narbenkarzinom: Beobachtungen und Ergebnisse in 23 Fallen. Langenbecks Arch Chir. 1991; 376: 341-5.
25. Lefebvre PH, Rouge D, Costagliola MC. Scar carcinomas: report of fourteen cases in French. Ann Chir Plast Esthet. 1991; 36: 330-5.
26. O¨ zek C, C¸ elik N, Bilkay U. Marjolin's ulcer of the scalp: report of 5 cases and review of the literature. J Burn Care Rehabil. 2001; 22: 65-9.
27. Sabin SR, Goldstein G, Rosenthall HG. Aggressive squamous cell carcinoma originating as a Marjolin's ulcer. Dermatol Surg. 2004; 30: 229-30.
28. Strom SS, Yamamura Y. Epidemiology of nonmelanoma skin cancer. Clin Plast Surg. 1997; 24: 627- 36.
29. Grossman D, Leffell DJ. Squamous cell carcinoma. In: Freedberg IM.
30. Eisen AZ, Wolff K. Dermatology in General Medicine. 6th ed.
31. New York, NY: McGraw-Hill; 2003: 737-47.
32. Ulker Gul, Arzu Kılıc A. Squamous Cell Carcinoma Developing on Burn Scar. 2006; 56: 406-8.