

Superficial skin ulcers

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ABSTRACT

Objective: To determine the underlying cause of superficial skin ulcers over a 15-year period.

Methods: A retrospective histopathological analysis of 670 cases of superficial skin ulcers diagnosed in the Department of Pathology, Ahmadu Bello University Teaching Hospital, Zaria, Nigeria from January 1991 to December 2005.

Results: A total of 670 superficial skin ulcers were analyzed. The male to female gender ratio was 409:261 (1.5:1.0) and a peak age frequency of 44.3% (297) in the 5th and 6th decades. Spectrum of lesions encountered was categorized into inflammatory, infections, benign and malignant diseases. The malignant lesions were 309 (46.1%), non-specific inflammation 302 (45.1%), granulation tissue 25 (3.7%) and pseudoepitheliomatous hyperplasia 14 (2.1%). A total of 18 (2.7%) specific infections were encountered, which included bacterial, fungal and viral infection. Benign lesions were 2 (0.3%), comprising of neurofibroma and Bowen's disease. The most common malignant lesion was squamous cell carcinoma 203 (30.3%) with a male to female ratio of 128:75 (1.7:1.0). Of these, 161 were well-differentiated tumors. The lower limb was the prevalent site distribution of all the ulcers.

Conclusion: Superficial ulcers may be harbinger of malignant diseases. Squamous cell carcinoma remains the most common malignant lesion arising from chronic superficial ulcers in our setting. Adequate tissue biopsy and early diagnosis may reduce the attendant morbidity of these ulcers.

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The skin is the largest organ in the body and is subjected to varying environmental factors such as trauma, infections, extremes of temperatures and ultra violet rays.^{1,2} Skin ulcers may result from these environmental assaults. These superficial ulcers are often neglected or treated locally with traditional herbs or over the counter medication, which further deter healing in our environment. Our objective in this study is to determine the underlying cause of superficial ulcerations of the skin. This present report is a retrospective analysis of superficial ulcers in a referral teaching hospital laboratory in Zaria, Northern Nigeria.

Methods. A total of 670 patients with superficial skin ulcers were retrospectively analyzed over a 15-year period (January 1991 to December 2005). Tissue biopsies of these patients were sent to the Pathology Department of Ahmadu Bello University Teaching Hospital, Zaria, Nigeria in 10% formalin and processed in paraffin wax. Histology slides stained with hematoxylin and eosin (H&E) were reviewed. The archived tissue blocks were reprocessed for new slides where necessary. Special stains were used in selected cases such as malignant melanoma for melanin, chronic inflammation for fungus, mycobacterium or foreign body and to demonstrate reticulin fibers in cases of Kaposi sarcoma (KS) using Fontana-Masson, Periodic Acid Schiff, Gomori's methenamine silver nitrate, Ziehl Nelson and Retic stains. Clinical information and bio-data of patients were extracted from referral history. Only patients with ulcers of 3 months and above duration were included in the study.

Results. The duration of the ulcers ranged from 3 months to 2 years. The male to female gender ratio was 409:261 (1.6:1.0) and a peak age frequency of 44.3% (297) in the 4th and 5th decades (Table 1).

The spectrum of lesions encountered was categorized into inflammatory, infections, benign and malignant diseases (Table 2).

Malignant lesions were 309 (46.1%). The most common were squamous cell carcinoma (SCC) 203 (30.3%), malignant melanoma (MM) 45 (6.7%) and KS 14 (2.1%). Of the SCC, 161 were microscopically well-differentiated tumors, composed of nests and sheets of polygonal cells having prominent intercellular bridges and forming keratin

perls. Histologically, all the MM cases were melanotic and tumor cells were large, ovoid with prominent eosinophilic nucleolus. None of the patients with KS was tested for HIV positivity.

Non-specific lesion were 341 (50.9%), chronic inflammation accounted for 302 (45.1%), granulation tissue 25 (3.7%) and pseudoepitheliomatous hyperplasia 14 (2.1%). Eighteen (2.7%) specific infection includes tuberculosis 7 (1%), mycetoma 5 (0.7%) and verruca-3 (0.4%), Buruli ulcer 2 (0.3%) and lichen planus 1 (0.15%). Tuberculous cases were microscopically composed of granulomata, Langerhans and foreign body type giant cells. Histology of mycetoma cases showed aggregates of central homogenous amorphous eosinophilic granules surrounded by microabscesses and occasional multinucleated giant cells. Benign lesions were 2 (0.3%), comprising neurofibroma and Bowen's disease (Table 2). The prevalent site distribution of these ulcers were the lower limbs in 417 (62.2%) patients.

Discussion. Ulcers are results of discontinuity of the skin with varying erosion of the underlying subcutaneous tissue.³ The early recognition of the cause of skin ulceration is necessary for patient management. Four categories of diseases were identified in this study.

The male population was predominantly affected. Over 40% of cases occurred in patients in their prime of life, thus, with adverse impact on the quality of their lives.

Malignant diseases were the most frequent and SCC was the most common in this category. Several studies have reported malignant transformation of superficial chronic and neglected ulcers in black Africans.⁴ The lower limbs were the predominantly affected sites in our study. This finding is consistent with other reports.⁴⁻⁸

Malignant melanoma was the second most common tumor causing superficial ulceration in this study.

Table 1 - Age distribution.

Ages	Male	Female	Total	(%)
0-10	15	9	24	(3.6)
11-20	37	29	66	(9.9)
21-30	72	41	113	(16.8)
31-40	93	48	141	(21)
41-50	88	68	156	(23.3)
51-60	68	40	108	(16.1)
>61	36	26	62	(9.3)
Total	409	261	670	(100)

Histologically, all were high grade (Clarke's histological grading) lesions located in the feet. This prevalent high grade is attributable to neglect and late hospital attendance. Our findings on melanoma are comparable to other studies from Nigeria and other parts of Africa.⁹⁻¹⁶

Many factors such as impaired blood supply, presence of foreign body, immunosuppression, bony deformity and systemic diseases like diabetes mellitus may contribute to failure of wound healing.¹⁷ Immunosuppressive states as seen in acquired immunodeficiency disease syndrome is associated with KS.^{18,19} However, none of our patients was tested for HIV positivity. Young adult males were more affected in our review. Patients with cutaneous ulcers will benefit from specific investigations to identify the presence of wound healing limitations.

The percentage of non specific lesions including chronic inflammation, granulation tissue and pseudoepitheliomatous hyperplasia was rather high (51%). Pseudoepitheliomatous hyperplasia may mask underlying diseases such as seborrheic keratosis or malignant lesions.

Table 2 - Pattern of disease distribution.

Histological diagnosis	Male	Female	Total	(%)
Malignant				
Basal cell carcinoma	7	0	7	(1.04)
Invasive ductal carcinoma	0	12	12	(1.8)
Malignant melanoma	22	23	45	(6.71)
Squamous cell carcinoma	128	75	203	(30.3)
Syringocarcinoma	1	0	1	(0.15)
Metastatic carcinoma	3	4	7	(1.04)
Cloacogenic carcinoma	1	0	1	(0.15)
Undifferentiated tumor	4	4	8	(1.2)
Liposarcoma	1	0	1	(0.15)
Kaposi sarcoma	10	4	14	(2.1)
Angiosarcoma	2	0	2	(0.3)
Fibrosarcoma	1	0	1	(0.15)
Dermatofibrosarcoma protuberance	6	0	6	(0.9)
Malignant fibrous histiocytoma	1	0	1	(0.15)
Benign				
Neurofibroma	1	0	1	(0.15)
Bowen's disease	1	0	1	(0.15)
Non-specific lesions				
Chronic inflammation	174	128	302	(45.07)
Granulation tissue	14	11	25	(3.73)
Pseudoepitheliomatous hyperplasia	9	5	14	(2.08)
Infections				
Tuberculosis	3	4	7	(1.04)
Buruli ulcer	1	1	2	(0.3)
Lichen planus	0	1	1	(0.15)
Verruca	1	2	3	(0.44)
Mycetoma	3	2	5	(0.75)
Total	394	276	670	(100)

The predilection for the lower limbs may not be unrelated to repeated trauma to this site in our mainly rural farming population. This may invariably cause some degree of walking disability, which may become permanent if untreated.

Superficial ulcers are common and may be harbingers of underlying diseases. Squamous cell carcinoma is the most common malignant lesion arising from chronic superficial ulcers in our setting. Adequate tissue biopsies for early histological diagnosis and other supportive investigations should be encouraged to aid in optimal patient management. This may reduce the attendant morbidity of these ulcers.

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Related topics

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