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Chronic Wounds at Aného Prefectural Hospital Centre (Togo): Epidemiological, Etiological and Therapeutic Aspects about 373 Cases

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Abstract

Introduction: Chronic wounds represent a public health problem due to the high cost of their nursing and the deterioration of patients' quality of life. Their nursing may be confronted with delays in consultation or lack of specialists in secondary hospitals. **Aims:** To determine the epidemiological, etiological and therapeutic aspects of chronic wounds in the general surgery department of the Aného Prefectural Hospital Centre. **Materials and Methods:** This was a restrospective and descriptive study over five years (2019-2024) including patients aged 15 years and over, admitted to hospital for a chronic wound with a minimum follow-up of four months. The frequency, age, sex, duration of evolution, topography and etiology of wounds; the type of surgical treatment and the evolution were studied. **Results:** A total of 373 cases of chronic wounds were collected from 4127 hospitalised patients, giving a frequency of 9.04%. The medium age of the patients was 58.65 ± 17.70 years [17; 98], the sex ratio W/M was 1.5. The wounds were located on the foot in 45.31% (n = 169); extended from the foot to the leg in 27.61% (n = 169). The average duration of evolution of the wounds before admission was 20.02 ± 16.54 weeks [3; 56]. Wounds of diabetic origin were noted in 43.70% (n = 163) followed by wounds coming from infections 34.58% (n = 129) then wounds of venous origin in 7.50% (n = 28). The treatment consisted of necrosectomy completed by skin graft in 37.26% (n = 139), and amputations were noted in 15.30% (n = 57). Crossectomies and stripping of the saphenous veins were associated with skin grafts in 5.63% (n = 21). The average duration of hospitalisation was 19.90

±15 days [6; 98]. The mortality rate was zero, morbidity was linked to amputation and the long hospital stay of some patients. **Conclusion:** Chronic wounds are regular and serious at Aného Hospital. Raising awareness among the population and implementing health coverage for all will enable early nursing and reduce morbidity.

Keywords

Chronic Wounds, Surgery, Aného, Togo

1. Introduction

A chronic wound is a loss of substance of the body covering, of variable location and extent, of which the healing time exceeds six weeks [1]. It is due to the disruption of one or more normal stages of the healing process. Its prevalence is generally estimated at between 1% and 2% of the population and concerns 2.4 to 4.5 million individuals in the United States [2]-[4]. In sub-Saharan Africa, overall wound prevalence derived from combined active and passive case finding was 13.0% [5]. This prevalence is increasing with ageing, the frequency of lifestyle-related pathologies such as obesity, diabetes and cardiovascular diseases in industrialised countries. They represent a public health problem due to treatment costs, suffering inflicted on patients, job losses; deterioration of quality of life and desocialisation or social exclusion. The cost of chronic wound nursing is estimated at between 28 and 96.8 million US dollars and represents 2% to 3% of the health budget of developed countries [6] [7]. Research and specialised nursing of the causes of chronic wounds guarantee healing, are becoming essential. The etiologies are multiple and varied but dominated by venous pathologies, pressure sores and chronic complications of diabetes [8] [9]. In sub-Saharan Africa, the nursing of chronic wounds, which aims to be multidisciplinary, faces challenges related to social beliefs [10], the absence of universal coverage of care, and the lack of specialists in hospitals not located in metropolises. The Aného Prefectural Hospital Centre (APHC) is a secondary hospital located 35 km from the Togolese Capital where general surgery activities are partly dominated by the nursing of chronic wounds. As a matter of fact, these wounds were the second reason for hospitalisation in general surgery with a hospital prevalence of 22.14% in 2023. The aim of this study was to determine the epidemiological, etiological and therapeutic profiles of chronic wounds at the APHC.

2. Materials and Methods

This was a retrospective and descriptive study from August 2019 to July 2024, *i.e.* over five years including patients aged 15 and over, hospitalised for a chronic wound in the general surgery department of the APHC with a minimum follow-up of four months. Patients who signed a discharge during hospitalization and

post-operative chronic wounds were excluded. The materials used consisted of patient observation notebooks and surgical report notebooks. The parameters studied were represented on the epidemiological level by the frequency, age, sex, duration of evolution; on the diagnostic level by the topography of the wounds, the etiologies; on the therapeutic level by the type of treatment received before admission; the type of surgical treatment, the dressings and adjuvant treatments instituted during hospitalisation at the APHC then the duration of evolution and the prognosis. For each patient, studied parameters were recorded. The data obtained were entered into a design form using Microsoft Office. Quantitative variables were expressed as averages and standard deviations and qualitative variables as proportions.

There is no ethics committee at APHC, but administrative authorisations have been obtained and confidentiality was respected.

3. Results

Over the five-year period, 373 cases of chronic wounds were retained out of a total of 4127 patients hospitalised in general surgery giving a hospital frequency of 9.04% and an average of 74.6 cases per year. The medium age of the patients was 58.65 ± 17.70 years [17; 98]. The sample included 223 women (59.79%) for 150 men (40.21%), the sex ratio W/M was 1.5. The foot was the segment where the wounds were most located in 169 cases or 45.31% (**Figure 1**) followed by an extended localisation from the foot to the leg in 103 cases or 27.61%. **Table 1** summarizes the distribution of patients according to the location of the wounds. The average duration of evolution of the wounds before the admission of the patients to the hospital of Aného was 20.02 ± 16.54 weeks [3; 56]. Nearly half of the patients 48.79% (n = 182) admitted to having tried in vain indigenous treatment while 28.42% (n = 106) followed dressings without consulting a surgeon and 22.75% (n = 85) tried both methods of treatment. In terms of etiology, wounds of diabetic origin (diabetic feet, **Figure 1(A)**, **Figure 1(B)**) were the most preponderant 43, 70% (n = 163) followed by wounds of infectious origin 34.58% *i.e.* 129 patients (**Figure 1(C)**) then come wounds of venous origin (**Figures 2(A)-(C)**) in 7.50% (n = 28); additionally, two cases of wounds of cancerous origin were noted, in the breast and scalp (**Figure 3(A)**, **Figure 3(B)**) and one case of chronic wound related to fascio-cutaneous gangrene of the right inguino-femoral region complicating a psoas abscess of appendicular origin. **Table 2** recapitulates the distribution of patients according to the etiologies of the wounds.

Four patients were referred to after initial care at Aného hospital: it was a question of two cases of chronic wounds of cancerous origin (in the breast and scalp, after a few days of hospitalisation and diagnostic confirmation biopsies), and two cases of Buruli ulcer confirmed as bacterial on local samples. In fact, there is a centre in Togo specialised in the nursing of Buruli ulcers.

On the therapeutic level, the surgical treatment of chronic wounds at Aného hospital consisted mainly of necrosectomy completed by skin grafting in 37.26%

or in 139 patients (Table 3); Amputations were noted in 15.30% (n = 57) or 39 cases in trans-tibial, three cases at the level of the forefoot and 15 cases at the level of the toes. Crossectomies and stripping of the saphenous veins were associated with skin grafts in 5.63% (n = 21). VAC (Vacuum Assisted Closure) dressings were necessary in 14.47% of cases (n = 54) in addition to other therapeutic procedures. The other types of dressings were sugar and greasy tulle dressings.

Figure 1. showing: A gangrenous wound on the left foot (A); A wound of the left foot with gangrene of the big toe (B); A wound with extensive fascio-cutaneous necrosis of the left foot and ankle (C).

Table 1. Displaying the distribution of patients in accordance with the wound topography.

	Number	Percentage
Foot	169	45.31
Ankle + Leg	59	15.82
Foot +Ankle + Leg	103	27.61
Thigh	11	2.95
Trochanteric area	3	0.80
Presacral area	13	3.49
RIF + proximal third thigh	1	0.27
Breast	2	0.54
Occipital scalp	1	0.27
Hand	3	0.80
Forearm + arm	8	2.14
TOTAL	373	100

RIF: right iliac fossa.

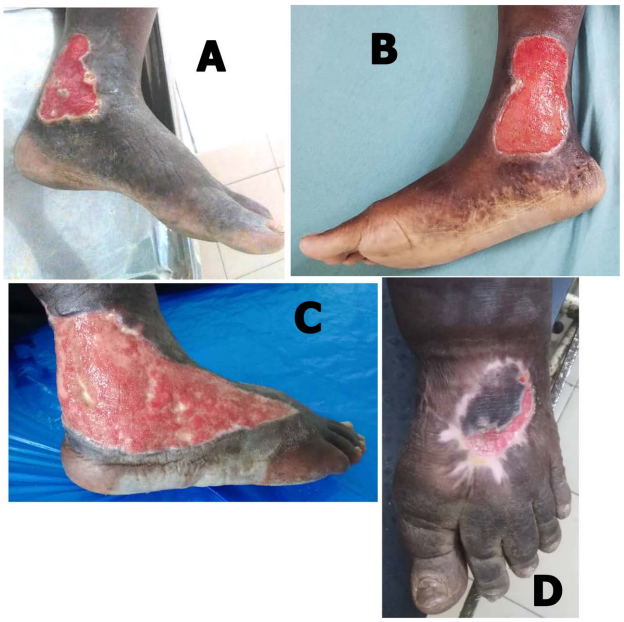

Figure 2. Showing wounds of vascular origin: medial side of the left ankle (A) and right ankle (B) due to chronic venous insufficiency of the great saphenous vein with reflux; Dorsal and lateral side of the ankle and dorsum of the right foot (C) caused by chronic venous insufficiency of the small saphenous vein with reflux; A sore on the dorsum of the left foot of mixed origin(D), arteriopathy and chronic venous insufficiency.

Figure 3. Showing: Two wounds of tumoral origin: scalp (A) and right breast (B). A wound with fasciocutaneous necrosis of the left hand and wrist (C). A wound on the right hand and wrist with infectious lysis of the thumb (D).

Table 2. Displaying the distribution of patients in accordance with the wound etiology.

	Number	Percentage
Diabetes (Diabetic foot)	163	43.70
Infection	129	34.58
Chronic venous insufficiency (CVI)	28	7.50
Arteriopathy	7	1.87
CVI + Arteriopathy	9	2.41
Chronic bedrest (pressure sores)	16	4.30
Burn	19	5.10
Tumor	2	0.54
TOTAL	373	100

Table 3. Displaying the distribution of patients in accordance with the wound management.

	Number	Percentage
Necrosectomy	21	5.63
Necrosectomy + skin grafting	139	37.26
Crossectomy-veinage + skin grafting	21	5.63
Crossectomy-veinage	9	2.41
Skin grafting	15	4.02
VAC dressing + skin grafting	47	12.60
Crossectomy-vein stripping + VAC + skin grafting	7	1.87
Amputation	57	15.30
Controlled healing with various dressings	41	10.99
Amputation + skin grafting	12	3.22
Dressing + biopsy/local sampling	4	1.07
TOTAL	373	100

VAC: Vacuum Assisted Closure.

Adjuvant treatment consisted mainly of functional rehabilitation in 85.79% of cases; "nursing" therapy; and devices for the stumps of leg amputations (27 patients out of 39) and forefoot (8 patients out of 15). Additionally, adjuvant treatment also included drug management of diabetes, antibiotic, vasodilator and anticoagulant treatments (at prophylactic doses).

The average duration of hospitalisation was 19.90 ± 15 days with extremes of 6 and 98 days; the evolution was marked by a zero mortality rate and a limb amputation rate of 15.30%.

4. Discussions

Chronic wounds are a public health problem throughout the world, including Af-

rica, where few studies have been devoted to the issue at the national level. They pose a problem of care linked to the direct but also indirect cost represented by the deterioration of the quality of life of patients. This is a problem that deserves to be studied at the national level. This study carried out in the general surgery department of the APHC provides an overview of certain aspects of chronic wounds in Togo and can serve as a basis for further large-scale studies.

The hospital frequency of 9.04% found seems high and should alert on the real prevalence in Togo of chronic wounds. It is close to the 11.2% found in Belgium in a retirement and care home in 2011 [11]. These hospital frequencies do not necessarily reflect national realities. In studies in the West, in fact, the national prevalence reports 1.69% in England; 0.24% in Sweden and 1.04 in Germany [12]. Whether hospital or national, the frequency of chronic wounds continues to increase according to the socio-demographic characteristics of the populations from one country to another. In Nigeria, chronic wounds represented 11% of patients seen in the department of plastic, reconstructive and aesthetic surgery each month [13]. According to Ayodele *et al.* founding, new chronic wounds were seen at an average of 54 cases per year [14]. The female predominance found in the studies listed above is comparable to our results reporting 59.79% of women. Women represented 61% and 64% respectively in the studies in Germany and England [15] [16] and 53% in Côte d'Ivoire [17]. This observation can be explained by the percentage of chronic venous insufficiency in the causes of chronic wounds; it is no longer necessary to demonstrate that women are more inclined to develop venous pathologies because of genetic and hormonal factors. Moreover, women presented more necrotizing fasciitis on erysipelas which is more regular in African women because of skin depigmentation by the use of cosmetics based on local corticosteroids. The medium age in our study was 58.65 years; according to Kristina *et al.* [15], the risk of developing a chronic wound would be multiplied by two between 40 and 60 years and generally increase with age. Indeed, advanced age can be the basis for the apparition of wounds through reduction of mobility, venous stasis, diabetes and arteriopathies.

About the mechanisms of occurrence of chronic wounds, let us note that chronic wound is related to the disruption of one or more phases of healing. In fact, the healing of a wound goes through four phases: the inflammatory phase, the granulation and neovascularization phase, the re-epidermisation phase and then the remodeling phase [18] [19]. According to Thomas, chronic wounds would be due to the coexistence of three factors: cellular and systemic modifications linked to age, repeated ischemia-reperfusion injuries and bacterial colonisation [20]. In terms of etiopathogenesis, diabetic foot wounds occupy the first place in our study with 43.70%, unlike in the West where venous causes and pressure sores predominate over the others [12]. In Nigeria, the most common chronic wounds were diabetic wounds, followed by pressure ulcers and postinfection ulcers [14].

The place of diabetic foot wounds in our study can be explained by: either the

ignorance of the disease which is only discovered at the stage of complications, or by poor compliance with treatment linked to the direct cost of care, especially since our system does not provide health coverage for all. Then, the delay in consultation makes us discover these wounds at the gangrene stages with the heavy toll of limb amputations. The second place was occupied by wounds of infectious origin in 34.85%. These were most often necrotizing fasciitis complicating erysipelas, myositis and minimal open trauma poorly cared in indigenous centres by application of mixtures or in centres unsuitable for care. Indeed, more than half of our patients admitted to having tried treatments in indigenous and unsuitable centres. Treatment by applying mixtures to wounds with disastrous infectious consequences is often encountered in our experience. It is not uncommon in African environment that chronic wounds be considered as the wrath of a divinity, the punishment for a transgression of social norms and as a result these wounds cannot be treated according to the rules of conventional medicine but rather by ancestral practices [21].

Wound care has experienced a real boom in recent years, driven by fundamental research allowing a better understanding of the mechanisms of occurrence of chronic wounds and consequently the development of new treatment techniques [22] [23]. Formerly referred to as "wounds and healing", wound nursing has become a transversal discipline with a neologism "vulneology" [23]. New wound care techniques range from VAC to the use of virtual realities, not forgetting growth factors, hyperbaric oxygen and the dressing using bloodworms recently developed by a team from Nantes in France [24]-[32]. In our practices, it is common to use the VAC dressing, or rather an adaptation of VAC according to our practice conditions, the effectiveness of which was demonstrated in a study in Cameroon recently [33]. Whatever the type of dressing, the care of the cause is the guarantor of healing. Crossectomies and stripping, vasodilator treatments were the treatments adapted to vascular causes and amputations in irreparable vascular lesions at APCH.

5. Conclusion

A public health problem, chronic wounds are regular in practice at the Aného Prefectural Hospital Center. Their care is often confronted with the delay of consultation with serious injuries. Raising awareness among the population and implementing health coverage for all will allow early care and reduce morbidity in relation to the frequency of limb amputations.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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