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Case report

Palestinian Experience in Stage Four Pressure Ulcer

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ABSTRACT

Pressure ulcer (now called Pressure injury) happens when the bony prominence like the sacrum exposes to pressure for a long period and also can cause soft tissue injury. In order to prevent and cure pressure-induced wounds, continuous and attentive repositioning is necessary. Wound management begins with the identification and aggressive management of the modifiable factors, such as positioning, incontinence, spasticity, diet, devices, and medical comorbidity, which contribute to pressure injury formation. Initial interventions include washing, cleaning, and maintaining the surfaces of the wound. In certain cases, it may be sufficient to debride the non-viable or contaminated tissue; however, operational care in more severe cases or to encourage patient satisfaction may be necessary. Our patient is a 50-year-old overweighted man, nonsmoker, and confined to a wheelchair presented with 20*20*8 stages 4 ulcers in the sacral area after multiple failed bedside debridement. When we use the fasciocutaneous we should consider the depth of the wound and fill dead space. Here we the local situation in Palestine as those patients are usually neglected and their management is restricted to bedside debridement, with no experience in flap reconstruction operations which would dramatically improve patients' lives. We believe that further awareness is demanded for such procedures.

Introduction

Pressure injury (previously called pressure ulcer or decubitus ulcer) is a localized injury that includes the skin and underneath soft tissue, it commonly happens on a bony protuberance or is associated with a medical or another device (1). This in turn leads to ischemia, decreased oxygen, and nutrition to the affected tissue, leading eventually to necrosis and irreversible tissue damage. External forces themselves, however, are not sufficient to result in an ulcer, but the association between these influences and host-specific elements someday results in tissue damage. Data from the literature suggest that prevalence and incidence of pressure injuries occur at a much higher rate in patients who have spinal cord damage and older age - particularly in those who are undergoing an acute care hospitalization-(2), both of which apply to the case discussed in this case. The number of adults who have a pressure ulcer is nearly 1.3 million to 3 million, and the cost of treatment reaching up to $500 to $40000 to heal each ulcer (3). Those high numbers are probably

attributable to the magnificent number of risk factors evidenced in research throughout the years including diabetes mellites, hypotension, and peripheral vascular diseases, all of which affecting the microcirculatory system (4). However, the Prevalence of pressure injuries was found to drop due to more effective management plans and better prevention (5).

The patient presentation depends on the stage of the ulcer, the most broadly acknowledged methodology was that of Shea, which was altered and, in this manner, refined by the National Pressure Ulcer Advisory Panel (NPUAP). Which is described as follows: Stage 1— is distinguished by a non-blanchable skin region. External changes can precede the presence of blanching erythema or changes in temperature, sensation, or rigidity. The maroon or violet discoloration are not included in color changes, which suggests deep tissue stress damage. Stage 2- is an apparent dermis because of partial loss of skin thickness. The bed of the wound is wet, renewable(viable), and can also be a serum-filled blister that is intact or ruptured. Fat and deeper tissues are not visible. There is no tissue granulation, scar(eschar), or scratches. Stage 3— is marked by a loss of the skin's full-thickness. Fat, granulation tissue, slough, eschar, and epibole (rolled wound edges) are often existing. The tissue damage extent varies with the anatomical location; deep wounds may occur in areas of substantial adiposity.

There is no exposure to muscle, tendon, ligament, fascia, bone, or cartilage. If the degree of tissue damage is hidden by slough or eschar, this is an unstageable pressure injury. Stage 4— is completely identical to Stage 3, but with muscle, tendon, ligament, fascia, bone, or cartilage directly exposed or detectable in the ulcer (6). The Management of pressure injuries begins with a thorough examination of the general medical condition of the patient to determine reversible complications and clinical assessment of the injury. Infections hinder the healing of wounds. Although the deficiency of systemic signs such as leukocytosis and high temperature, the risk of infection should always be considered (7). The most common complication of pressure ulcer is an infection, which can show local signs of involvement in soft tissue, such as warmth erythema, tenderness, purulent discharge. Nevertheless, infection symptoms can vary, with delayed wound healing being the only sign of infection. The offending pathological organism may be aerobic and anaerobic. In all pressure injuries, aerobic pathogens are the predominant (8), while anaerobic pathogens tend to occur more commonly in larger lesions (9). Moreover, pressure lacerations can be complicated by the following; communicating with the deep viscera (including the bowel or bladder), heterotrophic calcification, Systemic amyloidosis, and the more worrisome Squamous cell carcinoma (10).

Patient Description and Surgical Technique

A 50-year-old overweight man, nonsmoker, paraplegic, and confined to a wheelchair due to a 4 - 5 C work accident about 20 years ago with a complex urological background. He suffers from Stage 4 pressure injuries since many years ago in the buttock and sacral region. Physical examination reveals a huge 20*20 cm ulcer in the mentioned area, it's deep under the muscles with a depth of more than 8 cm. At first, the patient used to be treated conservatively by local dressing -Bedside debridement- and vac wound therapy which normally yielded minimal improvement. It all started about 6 years ago when he underwent an operation in Rambam Health Care Campus in which the wound was closed by local flaps. After which his wound opened again due to dehiscence. The ulcer was reexamined and it's as described above (figure 1). Preoperatively, the patient underwent both CXR and ECG, received IV cefazoline. The operation was done under minimal sedation, there was debridement of wound borders in all sites deep up to the sacrum, all unviable tissue was also removed (figures 2). Hemostasis has done by diathermy and two turn-over flaps from the sides to cover the internal defect and secured by 2-0 vicryl stiches (figure 3). After that, two hemovac drains were inserted, one being deep to the internal flaps and the other superficial. The wound was closed by 2 fasciocutaneous gluteal flaps, with preservation of blood supply to the flaps as much as possible by minimal undermining and decrease the size of the lateral scars to increase the blood supply from lateral lower buttocks. The closure was in layers by PDS 2-0 in deep tissue for approximation, then vicryl 3-0 then close the skin by nylon stiches 3-0 continuous (figure 4). Local dressing over the wound with dry pads - foam over that to prevent local pressure. Postop everything was stable, the patient was discharged home on the same night with ciproxin P.O. for 1 week, drains were removed separately after 1-3 weeks, no wound infection, no dehiscence, patient very happy about the result (figure 5).

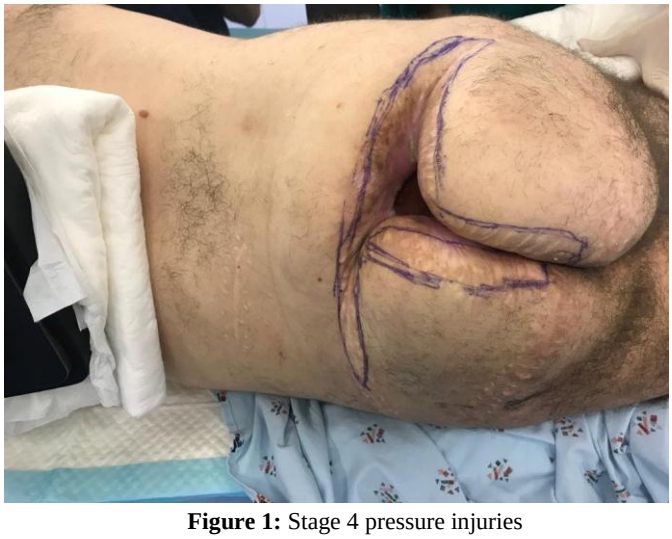

Figure 1: Stage 4 pressure injuries

Figure 2: debridement of wound borders in all sites deep up to the sacrum, with all unviable tissue removed

Figure 3: Hemostasis **with covering and securing of internal defect**

Figure 4:

Figure 4: result of operation

Discussion

Pressure ulcers (also known as pressure sores or bedsores) are defined as injuries to the skin and its underlying tissue, which are mainly caused by prolonged pressure on the skin. We described a case of a pressure ulcer of 20*20 cm, it's deep under the muscles with a depth of more than 8 cm stage 4 in the sacral area after multiple failed bedside debridement. It may be necessary to debride the infected or unviable tissue in some cases; however, surgical treatment may be required to improve patient satisfaction or in severe cases. The fundamental pillars of pressure injury management

are Preoperative medical improvement, extensive (thorough) debride, tension-free soft tissue coverage for closure of defects (10). Multidisciplinary specialty team care is essential for long-term success because of increasingly complex patient populations suffering from these often-debilitating wounds. Patients with pressure injuries should undergo intrinsic factors control before attempting surgery, which includes, medical optimization, nutrition, infection management, neurologic spasm, and contracture management, and then as a last resort; procedural intervention. In this patient, fasciocutaneous flaps were chosen. With this precise technique and carefully maintaining blood supply, we believe there will be a reduced risk of complications, like wound dehiscence and recurrence which are the most common complications (12,13). There are a lot of obstacles when dealing with large, pressure injuries. The particular mixture of risk factors in this patient with a huge deep pressure injury in the sacrum area with an associated necrotizing buttock wound lead up to use a large adjacent flap harvested from the buttocks area. We dealt with the defect of soft tissue with the adjacent buttock flap and reduced lymphedema by maintaining lymphatics and a skin bridge across the area and preserving the blood supply to avoid feared necrosis due to multiple previous injuries and procedures in the mentioned area. A great result from such destructive injuries can assist as a reminder that this kind of huge soft tissue reconstruction choice is usable when the need occurs. This case represents the local situation in Palestine as those patients are usually neglected and their management is restricted to bedside debridement, with no experience in flap reconstruction operations which would dramatically improve patients' lives. We believe that further awareness is demanded for such procedures.

Declaration of Conflicting Interests

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Statement of Human and Animal Rights

This article does not contain any experimental studies with human or animal subjects.

Statement of Informed Consent

Informed consent was obtained from the individual participant included in the study.

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