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Original Article

Comparative study between fasciocutaneous and myocutaneous flaps in the surgical treatment of pressure ulcers of the sacral region

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ABSTRACT

Introduction: Decubitus ulcers of the sacral region are common conditions in bedridden patients. Deep lesions (Stages III and IV) often require surgical treatment for closure. Flaps of the region are the first choice for treatment. We present our experience in the treatment of these lesions and compare two different approaches: local fasciocutaneous flap and gluteus maximus myocutaneous flap with V-Y advancement.

Method: From March 2009 to May 2014, 32 patients underwent closure of sacral pressure ulcers by flaps, 17 of them with rotational local fasciocutaneous flaps and 15 with myocutaneous flaps of the gluteus maximus muscle with V-Y advancement. Evolution regarding complications and rate of success after two months was compared between the groups.

Results: Out of the 32 operated patients we obtained resolution of lesions after two months in 23 (71.8%), 10 patients in the fasciocutaneous flap group (58.8%) and 13 cases in the myocutaneous flap group (86.6%). The most common complication was partial dehiscence of sutures in 12 patients (37.5%), 8 patients in the fasciocutaneous flap group (47%) and 4 patients in the myocutaneous flap group (26.6%). The group of patients reconstructed with local fasciocutaneous flaps presented 3 cases with seroma, one with hematoma and 6 with partial cutaneous necrosis; these patients also required more drainage time.

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Conclusions: Both the local rotational fasciocutaneous flap and the myocutaneous flap of the gluteus maximus muscle in V-Y flap can be used in the surgical treatment of sacral ulcers. In our experience, a reduced success rate and more complications were found in the local fasciocutaneous reconstructive method.

Introduction

Pressure ulcers commonly affect patients who are bedridden, suffering from acute or chronic diseases.[1] Among patients who are subject to a long hospital stay, the prevalence rates of these lesions reach 27.7% in the United States,[2] and 10.95% in a study conducted in the city of São Paulo.[3] Recent data indicate a 63% increase in the number of hospital admissions related to decubitus ulcers during the last 10 years, and the main diagnosis at admission was sepsis.[4]

Pressure ulcers are caused by various pathogenic mechanisms. Factors such as direct pressure, tissue slippage, friction and local humidity are directly related to the onset of these lesions.[5,6,7,8] In addition, factors directly related to the patient are also influential, such as age, decreased mobility, loss of awareness, mental deficiency, fecal or urinary incontinence, infection, anemia, hypoproteinemia and diseases that impair microcirculation.[6,7] However, molecular mechanisms responsible for its emergence have not yet been fully understood.[9]

Recently, an update of the classification of decubitus ulcers by degree of depth and tissue involvement was published[10]:

- Suspicion of deep tissue injury: localized purplish area of intact skin or bullous lesion filled with blood because of underlying soft tissue damage due to pressure or shear.
- Stage I: intact skin with hyperemia in an area normally located over bone prominence.
- Stage II: loss of partial thickness of the dermis presenting as a shallow ulcer with pink bed, or bullous lesion with exudate.
- Stage III: total loss of tissue thickness, with visible subcutaneous but without muscular or tendinous exposure, with possible presence of detachment and tunneling.
- Stage IV: total loss of tissue thickness with bone, tendon or muscle exposure.
- Unclassifiable: Total tissue loss in which the base of the lesion is covered by necrosis or fibrin.

In patients with stage I and stage II lesions, treatment is aimed at removing the causal factor to avoid progression and local care to promote healing. In patients with stage III and IV lesions, the treatment is focused on preventing secondary complications such as infection, and on promoting the closure of the lesion.[11] Treatment of lesions at these stages is often surgical, since conservative treatment is associated with a high failure rate and recurrence.[12–14] The treatment consists of adequate surgical debridement of the lesion, including the affected bone tissue, and subsequent tissue transfer to fill the dead spaces and provide adequate skin cover.[15,16]

Surgical debridement of the lesion removes the necrotic tissue, reducing the bacterial load at the site and preparing the wound bed for subsequent surgical closure.[11,17]

Regarding surgical closure, in general it is advisable to wait until the lesion has no devitalized tissue, and without any signs of infection. The primary closure of the lesion presents high rates of recurrence,[18] which leads most surgeons to avoid this approach. That is local flaps in the region are the first choice for reconstruction of sacral pressure ulcers, and several designs of previously described fasciocutaneous and myocutaneous flaps have been used.[5,19] The myocutaneous flap of the gluteus maximus muscle with advancement in V-Y, and the rotational fasciocutaneous flap have been those we elected for reconstruction of the site.