Letter to the Editor

Letter to the Editor: Negative Pressure Wound Therapy in Grade IIIB Tibial Fractures: Fewer Infections and Fewer Flap Procedures?

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To the editor,

We would like to support the interesting conclusions from a systematic review recently presented by Schlatterer and colleagues [1]. Their study addresses treatment for Grade IIIB tibial fractures and points to negative pressure wound therapy as an option that is changing the way many traumatologists think about the treatment of these difficult-to-manage wounds. As

Schlatterer and colleagues point out, some clinicians support wound closure or stable muscle flap coverage within 72 hours to limit complications. The authors, however, found evidence to suggest that negative pressure wound therapy can be performed safely beyond 72 hours without increasing the risk of infection.

These complex wounds can cause terrible morbidity and constitute a public health problem for many centers [2]. Through the years, researchers have devised a hierarchy of procedures within a hypothetical reconstructive ladder to guide the surgical treatment of wounds. This traditional reconstructive ladder, in its various iterations, subsequently has become a paradigm that

helps to inform the choice of closure method across an array of defects.

Currently, the increased availability of negative pressure wound therapy has illuminated its key benefits, including faster granulation tissue formation, less periwound edema, decreased closure time, less-frequent dressing changes, control of bacterial proliferation, and potential cost reduction. Although Janis et al. [3] have now incorporated negative pressure wound therapy as a new step in the traditional reconstructive ladder, we are advocating a different approach. In our experience, a descent in the usual reconstructive ladder (that is, from flaps to skin grafts or primary closure) is feasible if neoadjuvant negative pressure wound therapy is applied in the course of treating some complex wounds.

This downscaled approach was taken in 106 patients with complex wounds seen between February 2011 and August 2014. All patients were initially subjected to negative pressure wound therapy via VAC® system (Kinetic Concepts Inc, San Antonio, TX, USA). In 90 patients whose wounds were measured, the average wound area was 87 cm².

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In some traumatic wounds, a tendency to move down the reconstructive ladder was noted, enabled by negative pressure wound therapy. One particular patient with a Grade IIIB tibial fracture who otherwise might have been managed with a free flap, was successfully treated in a less-invasive manner, undergoing skin graft after 4 weeks of negative pressure wound therapy. In another remarkable situation, we treated a young patient who suffered a Grade IIIB tibial fracture after an automobile accident. Twice during her course of treatment, it appeared that an amputation would have to be performed due to severe infection. However, the immediate use of negative pressure wound therapy, and later application of dermal matrix, remarkably improved the wound conditions, which permitted the closure of an extensive defect with a simple split-thickness skin graft instead of a free flap, one month after her accident.

Various studies conducted during the past decade [1, 4–6], including evidence-based trials, seem to confirm that

the thoughtful use of negative pressure wound therapy can allow surgeons (and their patients) to move down the reconstructive ladder, both in adults and children with complex wounds. Doing so can simplify the reconstruction of these difficult-to-treat wounds, and allow simpler procedures to be used in place of more-complex and risky flap closures. In certain patients with deep lower leg injuries, perhaps negative pressure wound therapy should be a first option, in order to simplify surgical management, decrease the frequency of infections, and reduce cost.

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