International Journal of Medical Science and Clinical Research Studies

ISSN(print): 2767-8326, ISSN(online): 2767-8342

Volume 02 Issue 11 November 2022

Page No: 1243-1244

DOI: https://doi.org/10.47191/ijmscrs/v2-i11-12, Impact Factor: 5.365

VAC System Tortesanal: Alternative for the Treatment of Complex Wounds in the Absence of Commercialized Devices

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ABSTRACT

The *vacuum-assisted closure* (VAC) technique is a relatively recent procedure that consists of administering negative pressure on the wound in conjunction with a closed environment that decreases edema, facilitating vascularization, oxygenation and healing. In addition, it promotes the formation of granulation tissue. We present the case of an 18-year-old woman with a bloody wound on the anterior side of the left thigh. Surgical washing and negative pressure therapy were performed with an artisanal VAC cure system as there were no commercialized systems, performing the healing technique in a simple and cheap way, using materials easily acquired in the hospital environment. Given the high incidence of bloody injuries and the limited availability of negative pressure systems marketed, it is proposed to carry out an artisanal system that can be carried out in any unit.

ARTICLE DETAILS

Published On:
11 November 2022

Available on:
https://ijmscr.org/

INTRODUCTION

At present with the industrialization and the emergence of risk sports, war, etc., complex wounds are increasingly frequent. They tend to be extensive, progressively slow and torpid, requiring prolonged hospitalization,which translates into increased health costs and reduced quality of life. Therefore, the use of negative pressure therapy is a widely used option within the field of surgery. It has been shown to be beneficial and effective for wound healing and has a recognized good cost/effectiveness ratio for health centers for its speed in achieving results. [1] Its effect on ischemic wounds, in which healing is altered by its low vascularization, has been studied, compared with other existing treatments, such as hyperbaric oxygenation. The VAC healing system promotes wound healing through the application of negative pressure, so that the use of controlled levels of subatmospheric pressure and controlled suction, accelerates their resolution favoring vascularization and debridement. ®[2] There are several marketed VAC curing equipment, often complex and with a high associated cost. Our goal is to propose an alternative to these systems, performing the healing technique in a simple and cheap way, using materials that are easy to acquire in the hospital environment. ®[3]

CLINICAL CASE

An 18-year-old woman with a history of an accident in a motor vehicle (motorcycle), with closed trauma to the abdomen, pelvic fracture, which required laparotomy; splenorrhaphy, cystorrhaphy and right oophorectomy. In addition, with a complex bloody wound in the left pelvic limb with abundant loss of substance that was treated ina first surgical periodor with closure and mobilization of local flaps; After several days of evolution, the wound suffered suppuration and dehiscence *(Figure 1 A and B)*, so it was decided to carry out surgical debridement and the need to apply subatmospheric pressures. However, due to the high cost and lack of intermittent vacuum therapy marketed, we opted for an artisanal alternative with material for wound healing (gauze and sodium chloride), a sterile sponge, a vacuum tube (Nelaton probe) and a orwaterproof plastic site (Steri-Drape) for ®coverage with the dimension corresponding to the size of the wound. *(Figure 2*) Once the wound and the surrounding tissue were prepared, the sponge was placed covering the entire wound without exceeding it, dead spaces were avoided, incrustado between the sponge, the suction tube (Nelaton probe) was placed or previously fenestrated and then another cover again with another sponge is é ril, andthe adhesive band (Steri-Drape) ®is placed (*Figure 3)*. The drain tube (Nelaton wave) was then connected to a suction tube which was connected to a negative pressure and suction systemadjustable to a vacuum pump. Subsequently, he checked the absence of leaks through the (®Steri-Drape) by observing the completely collapsed sponges immediately

when aspiration began *(Figure 4).* The cures and changes of the artisanal ACV were performed® every 48 horras for 14 days, finally the absence of infection was corroborated with culture of the wound without development, and epifast cultured skin allograft was placed, favoring wound closure by second intention leaving its dimiclium with a completely epithelialized wound.®

COMMENT

In the hospital environment, prolonged stay of patients with extensive and/or complex wounds is becoming increasingly common, as well as the high cost of commercialnegative pressure therapy systems for wounds.

The application of a VAC system is® effective, being non-invasive and with fewcomplications associated withs. However, its application has been reduced by the high costor treatment. [3.4]

In our case presented after the application of the artisanal VAC ®system protocolized, the considerable increase of local granulation tissue in the treated wound was achieved, the local infection was reduced, the healing time was reduced. ón, served as an indication towards other treatments and betteror the state of the wound prior to complementary coverage procedures. [5]

The artisanal VA C technique® described is a simple, cheap and effective alternative. Its protocolization, low cost and its application make it possible to perform easily in any hospital unit. With a lower cost, prompt wound resolution and better quality of life for the patient were obtained.

CONFLICT OF INTEREST

No conflict of interest on the part of the authors.

AUTHOR CONTRIBUTION

All authors contributed equally to this work. All authors wrote the paper, discussed the case and commented on the manuscript at all stages.

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Figure 1. a and b

Figure. 2

Figure. 3

Figure 4