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RESEARCH ARTICLE

TRADITIONAL NEGATIVE PRESSURE WOUND THERAPY

Ismail Zine-Eddine, Aitbenlaassel Oumnia, Alami Zoubeir, Younes Lamalla, Loubna Idelkheir, Salim Azzouzi, Yafi Imane, Mahrouch Mehdi, El Gueouatri Mehdi, Atiqui Oum Keltoum, Moulay Driss Amrani and Benchamkha Yassine
Plastic Surgery Department in Mohamedvi Hospital University Marrakech Morocco.

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Abstract

Introduction:-

Vacuum AssistedClosure (VAC) could be a closure technique in cases of body covering and muscle loss. it's supported the applying of a negative pressure system to the woundthatpromoteshealing by reducing microorganism proliferation, stimulatingneo-angiogenesis and reducinglesionedema. sadly, its use in daily apply needs specific and expensive materials.

What we are able to do if patient can't afford it ?

Negative pressure wound medical care (NPWT) has become a preferred tool for woundhealing. the utilization of domestic material has been rumored, however itis still not fully documented. we have a tendency to gift the utilization of a domestic NPWT on differing kinds of wounds to attain a final least operation. we have a tendency to treated 3 patients presenting with traumatic skin loss of the abdomen, lower leg, and foot with domestic NPWT. A wall suction was used because the supply of negative pressure and gauzes as interface over the injuries. we have a tendency to documented the dimensions of wounds, the anatomic structure exposed, the quantity and therefore the length of cycles of NPWT, and therefore the final rehabilitative procedure. The cycles of NPWT ranged 3–5 days. a decent granulating tissue appeared in vary 17–21 days. There was no infectious complication. All the injuries healedwith a split thickness tegument.. Domestic material for negative pressure has been a reliable technique within the management of traumatic wounds and helped pass down the rehabilitative ladder.

Participants And Methods:-

We treated 3 patients throughout the amount from July 2021 to Feb 2022. All patients signed the consent formor the procedure and for mistreatment the photographs for a scientific publication. we tend to proceeded the NPWT by when flattening and detersion, the wound is coated with a greasy by a compress of fatty mesh. this may promote budding and facilitate sequent dressings. we tend to use the froth of sterile sponge foam for hand laundry

We use extractor to insert the tip of a cartilaginous tube suction tube into the froth of a cartilaginous tube suction probe into the froth. the complete assembly is covered by a sterile sticky field. The device is connected to a suction

Corresponding Author:- Ismail Zine-Eddine
Address:- Plastic Surgery Department in Mohamedvi Hospital University Marrakech Morocco.

jar connected to the vacuum. Variations area unit possible: many foams is assembled finised is assembled end to finish reckoning on the configuration of the wound.

In this study, onlywallsuctionwasused because the supply of negative pressure and was set at 125mmHg for all patients. every cycle for NPWT wasplanned for five days. a chance of the seal given because the run of wound fluids round the dressing or sensation of respiratory at the listening of the wound. straightforward respiratory while not wound fluids run was thought-about minor and wasn't indicative of dressing modification. once there was a leak of wound fluids, we tend to thought-about it as amajor break which was indicative of dressing modification even before a five days cycle.

We documented wound characteristics (location, size,exposed structures), treatment, and outcome features(delay between admission and starting of NPWT,duration of the treatmentunder NPWT, the woundcoveragemethod, and therefore the healing time). Results were given as a series of cases.

Observation 1:
A 7 years old boy with no significant social and medical history was initially hospitalized in pediatric ICU then transferred to pediatric care for extensive purpura fulminans with multivisceral failure: toe amputation performed by paediatric surgeron team 1 month ago
- conscious, Hemodynamicaly and respiratory stable
- local examination PDS knee and both legs with exposure of the tibial bone in the lower 1/3 of the left leg + exposure of the calcaneum in both feet, Initially, the patient was admitted under emergency surgical team and bony stabilization was done. Once the patient was stabilized VAC dressing was applied, which was changed every third day and continued for 6 days, followed by Skin graft. The graft take was good and the patient had kinesitherapy and followed in orthopedics paediatric departments.

Figure 1:- (A) lower bone exposition lost. (B) Degloved skin in the lower limb. (C) Good granulating tissue ready for skin graft. (D) Manometer for wall suction calibration. (E) Domestic negative pressure wound therapy with gauzes. (F) Wound healed after split thickness skin graf

Observation 2:

A 56 years old women , with medical history of hernia of the white line operated 2 years ago followed in the general surgery department for ventration, operated 2 months ago with cure and installation of synthetic plate, the evolution is marked 1 month ago by a superinfection and skin necrosis opposite the plate, necrosectomy done and healing directed since then.

A wound of the abdominal wall on the midline and left para umbilical with hypertrophic bud and fibrin plaque in places, no signs of infection soft abdominal wall with excess cutaneous fat and good skin laxity

CT scan of the abdomen: infiltration of the subcutaneous fat of the abdominal wall in front of the wound without collection or detectable parietal defect

Negative pressure wound therapy was made with a pressure at 125 mmHg with a good granulating tissue after five cycles of NPWT, the women was discharged and satisfed by the results

Figure 2:- (A) Traumatic abdominal skin lost. (B) Domestic negative pressure wound therapy with gauzes. (C) Wound healed after 30 Days follow-up.

Observation 3:

A 28 years old man single with no significant social and medical history was admitted for traumatic motorcycle accident of his 1/3 lower leg and ankle open trauma with skin loss and partial exposition of the bone, external fixator was and coverage by an external fasciocutaneous flap wich necrose and even a cross leg one fail

After debridement and In front of this therapeutic impasse NPWT was used while keeping the leg and foot in a plasterof posteriorsplint. Ten consecutive cycles of NPWT were performed in 60 days. A good granulating tissue was observed thatcovered the exposed fractured bone. A split thickness skin graft was performed to achieve wound healing. Immobilizationof the leg wascontinuedwith a plaster of paris cast.There was no bleeding or infectious complication duringthe treatment. The cost of the NPWT wasestimated at65 USD. The patient was satisfiedwith the procedurebut expressed concern about the fact to stay bedridden. He reported a minor pain at the baselineof the procedure that quickly disappeared without analgesics.

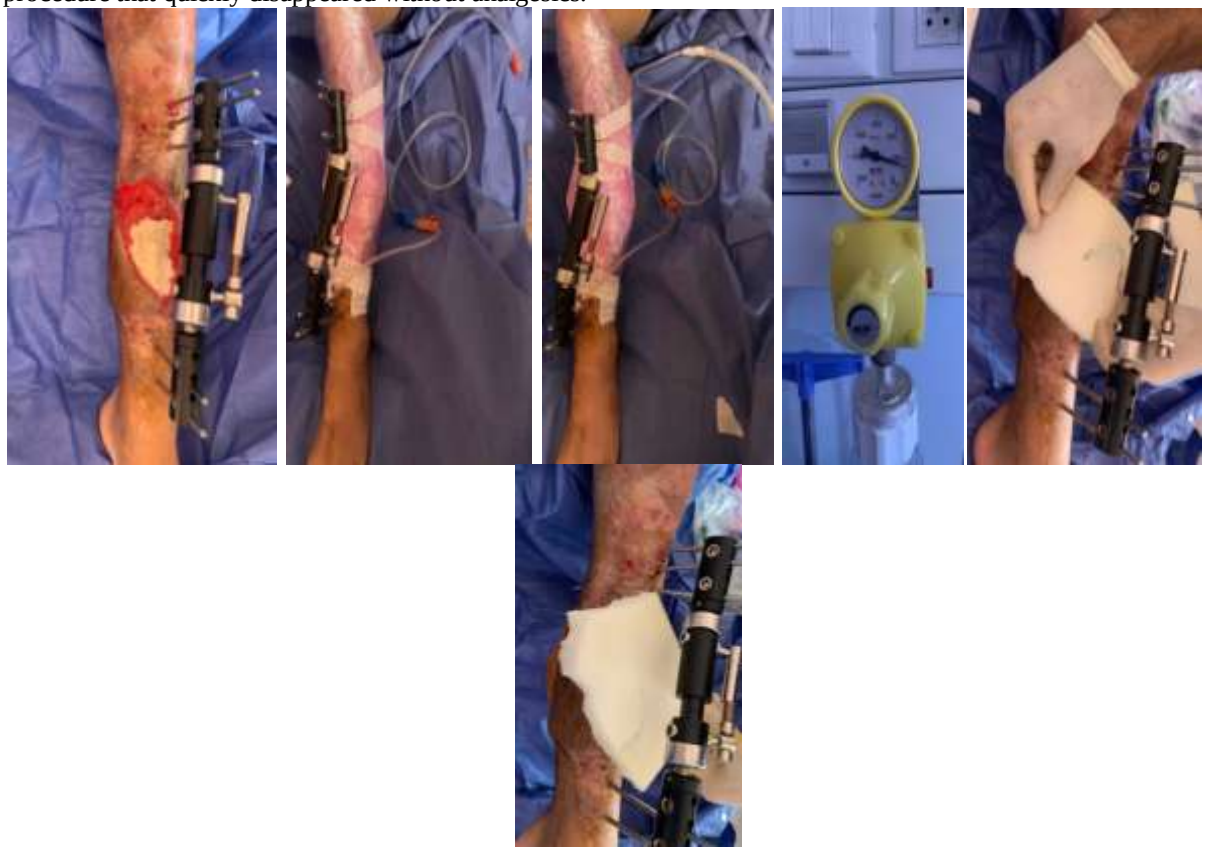

Figure 3:- (A) Traumatic lower leg wound with necrotic tissue. (B) After debridement, partial exposure of the bones. (C) Domestic negative pressure wound therapy with gauzes. (D) Good granulating tissue totally covered the exposed bone and ready for a skin graft.

Discussion:-

The NPWT promotes connective tissue by stimulating growth, reducing puffiness and decreasing microorganism load. The wound is anesthetize a pressure below the air pressure during a closed dressing. A tube connecting the wound to a supply of negative pressure permits continuous suction. The pressure of a hundred twenty five mmHg was adopted following previous studies revealed by Argenta and Morykwas.[1] the utilization of domestic materials to perform a NPWT reduces the value in less affluent settings.

Patients United Nations agency given opened bone fractures and were at the danger of infection. In these patients, the coverage of exposed bones would have required the utilization of flaps. surgery might are thought-about with its associated value and risk of failure in nonexpert hands. the utilization of domestic NPWT has promoted granulating tissue in 3 weeks that lined the exposed bones and eventually required solely a skin. The properties of fast the granulating tissue by increasing growth, removing way over wound fluid, and keeping a nonstop wet atmosphere of the NPWT were wont to deliver the goods this result. the strain over the actual fact of being ill expressed by patients for the domestic NPWT might are worse with a cross-leg flap. additionally, domestic NPWT has been performed with none major complication. Novak et al.[2] supported the potency of NPWT for a delay in traumatic wound coverage with no infectious complication. within the same sense, Joethy et al. [3] compared the two periods of their activity within the management of open fractures in terms of infection. They complete that the utilization of NPWT reduced infection in delayed open fractures reconstruction. though the leads to this study might are influenced by many factors like the gain of expertise by the care team over the time, alternative authors according a similar findings.[4] however, Mouës et al. [5] during a literature review according no proof for a decrease within the microorganism load of wounds treated with NPWT.

All patients expressed a stripped pain at baseline that disappeared while not a use of analgesics, in step with what has been according by Amouzou et al. [6] indeed, the pain related to repetitive dressings was avoided that created the patients happy and glad. The discomfort associated with being ill is that the downside that remained unresolved with domestic NPWT.

Our expertise of victimization holiday medical aid in medical specialty patients showed that the medical aid are often applied in young kids with ease, providing effective wound atmosphere for early healing with stripped or no pain to patients. Wong et al within their study assessed the security and effectivity of negative pressure medical aid in the medical specialty medicine population. They complete that negative pressure wound medical aid may be a valuable adjunct for the management of open wounds, fixation of skin grafts, and as a dressing for incision sites in kids United Nations agency ar undergoing therapy or therapy.[7]

DeFranzo et al in their study of use of VAC therapy for the treatment of lower extremity wounds with exposed bone had shown a nearly 80% increase in the rate of granulation tissue formation. Profuse granulation tissue formations lead to rapid covering of bone and hardware.[8] Mooney et al also demonstrated no complications due to VAC therapy except bleeding during dressing change. [9]

Conclusion:-

Domestic material for negative pressure has been a reliable various within the dressings of traumatic wounds. The absence of major complication, the effectiveness in wound granulation growth, and therefore the low value of the procedure may create it the primary selection in settings with stripped-down resources.

The obligation for the patient to remain ill right along the procedure is rewarded by smart wound healing. Moreover, the reconstruction ladder is downgraded to an easier procedure.

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