

No Cost Vacuum-assisted Closure Therapy in Government Hospital

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Abstract

Majority of the patients in India who avail facilities in government hospitals belong to low socioeconomic status. The incidence of diabetic foot cases in government hospitals is showing an increasing trend. The standard treatment for diabetic foot is thorough surgical debridement followed by daily antiseptic dressings. In the management of diabetic foot abscess, if controlled negative pressure is applied after surgical debridement healing process would be faster than conventional therapy. Negative pressure wound therapy is a newer non-invasive adjuvant therapy system that uses controlled negative pressure using vacuum-assisted closure device (VAC) to promote healing process. Use of VAC therapy reduces the hospital stay, thereby reducing the overall cost to the patient. However, the high cost of VAC therapy unit and disposables become a constraint in using this modality in government hospitals with limited resources. In view of this, a simple but novel technique is developed using suction apparatus and other disposables which are readily available in all government hospitals including Primary Health Centres with good outcome.

Key words: Diabetic foot, Negative pressure, Suction apparatus, Vacuum-assisted closure therapy

INTRODUCTION

Delayed intervention in diabetic foot abscess may end up in complications such as gangrene and osteomyelitis requiring amputation. Therefore, early intervention is recommended to prevent such complications. Application of negative pressure using vacuum-assisted closure (VAC) therapy after thorough debridement along with appropriate antibiotics and controlling the blood sugar improves the outcome. In developing countries like India, it may not be possible to make VAC therapy units available in all government hospitals due to the high cost of unit and disposables required. Hence, an effort is made by employing the materials readily available in government hospital. This can be used where VAC therapy units are not available or cost of therapy of VAC not affordable by the patient. The results are good with no extra cost to the patient since all materials used are available in government hospitals including Primary Health Centres (PHCs).^[1-4]

MATERIALS AND METHODS

Materials

1. Roller gauge - autoclaved.
2. Gamgee pad - autoclaved.
3. Ryle's tube 16–18 G.
4. Urosac bags.
5. Dyna plast/plaster.
6. Bedside suction apparatus.

Method

After prepping and draping the involved lower 1/3 of leg, ankle and foot adequate surgical debridement was done under suitable anesthesia followed by antiseptic dressing with Gamgee pads and roller gauze. The dressing is opened after 8–12 h while ensuring thorough and complete hemostasis. Place 2–3 layers of gauze over the ulcer. Size of the gauze should be more than the ulcerated area. Place a Ryle's tube with multiple holes (additional holes were made) over the gauze. Gamgee pad is placed over the Ryle's tube. Dressing is done with roller gauze. At this stage, one end of urosac was cut to open it and covers the ulcerated wound up to the ankle. The another end of Ryle's tube should be brought out through the open end of the urosac. Opening of the urosac is folded and closed at ankle level with dyna plast/plaster, thus making the entire wrapping airtight. The

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Figure 1: (a) Diabetic foot ulcer, (b) 2–3 layers of Gauze applied over ulcer, (c) Ryle's tube is placed, (d) Gamgee pad is placed over it, (e) tied with roller gauze, (f) covered with urosac, (g) dyna plast is applied at opening of urosac to make airtight, (h) other ends of Ryle's tube attached to bedside suction apparatus



Figure 2: (a) At the time of admission, (b) at the time of admission, (c) 24 h after incision and drainage, (d) 48 h after applying vacuum-assisted closure therapy, (e) at the time of discharge (10 days after admission)

Ryle's tube is connected to bedside suction apparatus where negative pressure of -100 – -125 mm Hg is maintained in the ulcerated area.^[5]

Method of Application of Device [Figure 1]

Diabetic foot abscess treated with no cost vacuum-assisted closure therapy [Figure 2].

Vacuum-assisted closure therapy or negative pressure wound therapy is a newer non invasive adjuvant therapy that uses controlled negative pressure to enhance healing process in wound healing. It reduces bacterial burden, interstitial wound fluid and increases vascularity. Increased blood flow to the wound bed results in delivery of fresh leukocytes and plasma that augments wound healing.

RESULTS

It was noticed that healthy granulation tissue developed within 36–48 h after the procedure. Daily dressing was done and the condition of wound is assessed. There is no extra cost to the patient as all materials used in this procedure were available in all government hospitals including PHCs. Response to the treatment of the diabetic foot ulcers. The results are good with no extra cost to the patient since all materials used are available in government hospitals including PHCs.

Contraindications are similar to VAC therapy like:

- Patient on anticoagulants.
- Patient on antiplatelet aggregators (use with caution).

- High risk for bleeding.
- Exposed blood vessels/nerves.
- Untreated osteomyelitis.

CONCLUSION

This can be used where VAC therapy units are not available or cost of therapy of VAC not affordable by the patient. Suction VAC therapy can be done in any government hospital with no extra cost to the patient. Hospital stay could be minimized with this therapy, thereby decreasing the expenditure to the government.

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