

Successful use of negative pressure wound therapy in a patient with severe Hemophilia A and an inhibitor

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Subject is a 39 year-old Caucasian male with severe Hemophilia A and a history of high titer inhibitor (lifetime peak > 5000 BU/mL). Previous attempts at immune tolerance therapy were unsuccessful, and he currently treats on demand with NovoSeven. He was hospitalized after developing unprovoked pain and swelling in the left hand.

He initially improved with NovoSeven treatment, but following attempts to position his hand for an MRI, he reported excruciating pain in the hand and numbness in the median nerve distribution. On exam, he had significant swelling of the palm, wrist, and hand. A clinical diagnosis of compartment syndrome was made and he was taken emergently to surgery for open carpal tunnel release and deep compartment fasciotomies of the hand. A large hematoma was evacuated from the carpal canal.

Two days later, he developed recurrent compartment syndrome and returned to surgery for repeat decompression and hematoma evacuation. Twelve days later, he went back for wound irrigation and debridement, and skin grafting from a left thigh donor site.

A negative pressure wound dressing was applied, with 200 mmHg intermittent setting, for 5 days, after which he was discharged home with daily dressing changes to wrist and thigh wounds.

At home he had intermittent bleeding and poor wound healing, so was readmitted after one month, and the negative pressure wound dressing was reapplied. This remained in place for 21 days. Throughout his hospital course and until his wound had healed, he received regular NovoSeven infusions and Amicar.



V.A.C.® Therapy promotes wound healing through the following mechanisms of action

- Decreases wound margins
- Removes exudate
- Reduces edema
- Removes infectious material

Promotes granulation tissue formation and perfusion by means of

- Cell proliferation
- Fibroblast migration

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- ✦ **12/12/2009** – Admitted with acute left wrist pain
- ✦ **12/16/2009** – Carpal tunnel release, deep compartment fasciotomies and interossei fascial release
- ✦ **12/18/2009** – Fasciotomy revision, decompression and hematoma evacuation
- ✦ **12/30/2009** – Thigh skin graft, forearm wound closure and wound VAC placement
- ✦ **1/4/2010** - Wound VAC removed. Discharged to home 5 days later.
- ✦ **2/18/2010** – Readmitted due to active bleeding and poor wound healing. VAC reapplied.
- ✦ **3/9/2010** – Discharged to home, ultrasound showed patent collateral circulation to the left hand



Summary of Hemophilia Treatment

- NovoSeven 20 mg (164 mcg/kg/dose) every 2-4 hours around the 3 surgeries and during periods of active bleeding, then tapered to every 12 hours by the time of discharge.
- NovoSeven 20 mg (164 mcg/kg/dose) every 12 hours at home.
- Upon readmission NovoSeven 30 mg (245 mcg/kg/dose) every 3-6 hours initially then every 8 hours for most of hospitalization.
- Wound VAC removed and patient discharged to home on no NovoSeven therapy.
- Aminocaproic acid 3000 mg three times daily throughout treatment and for 7 days after discharge to home.

Conclusion

This subject is wheelchair bound and is dependent on his upper extremities for transfers and in all aspects of his activities of daily living. Although the use of negative pressure wound dressing is strictly contraindicated in those with bleeding disorders, the hemophilia team was able to successfully advocate for its use, the subject's wound completely healed, further surgery was avoided and he now enjoys near normal use of his wrist and hand.