

Metallic Silver Dressing Applications from the Battlefield to Civilian Mass Casualty Care for Combined Burn & Trauma Injuries

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The author of this poster deployed as the commander and orthopedic surgeon of the 27TH Forward Surgical Team (ABN) in Iraq in support of Operation Iraqi Freedom from October 2005 through 3 October 2006. During that period the FST was deployed to Tall Afar in support of 3d Armored Cavalry security and counterinsurgency operations and also as an augmentation element for the 47th Combat Support Hospital in Mosul Iraq. At the request of the United States Army Medical Material Medical Command the unit was supplied with and had extensive opportunity to utilize a broad spectrum metallic-based ionics silver trauma and burn dressing products in the combat environment for the treatment of battle related injuries. The purpose of this report is to summarize some of the applications and the authors experience with these products within the battlefield environment.

Metallic Silver Burn and Trauma Dressing Product Experience:

The 274th FST (ABN) was provided with a generous sample quantity of metallic silver trauma and burn dressing products for field trial during its deployment from October 2005 to October 2006. Initially, the Silverlon products were used almost exclusively by the FST Surgeons. The largest initial utilization was for the drains and packing material and initial utilization by some CSH surgeons was met with skepticism. When it became clear that the outcomes of operative cases in which the Silverlon dressings were used appeared more favorable, most of the surgeons also began to use the Silverlon dressings.

Surgeons who utilized the Silverlon dressings, witnessed fewer complications, fewer returns to surgery for infections, less edema, less scarring and higher rates of graft success than those of surgeons not using the products. Inpatient nursing care demands were greatly reduced and simplified because of the elimination of having to change dressings frequently. This was especially important in the case of management of burn and major wounds management. The silver dressings were kept moist and subsequently required dressing changes every 3-7 days and the product completely replaced the traditional practice of applying, removing and reapplying silver ointment twice a day in the management of burns. This also eliminated the tremendous pain and narcotic medication requirements associated with the traditional method.

By the end of the first 6 months, the majority of CSH surgeons were using the dressings, experimenting with creative and unique applications. Combat Support Hospital had to begin ordering additional dressings and acquisition was approved through USAMWA. Overall product results demonstrated no complications with the benefit of simplistic and time saving dressing application and maintenance.

This poster exhibit displays, but a few of the applications and cases that reflect the applications and success of the silver dressing products. These are all cases performed by the author of this document. The situation, resources and operational tempo of the combat medical treatment facility were not conducive to meticulous record or data collection. Frequently, patients had to be evacuated to other facilities, which made long term follow-up frequently impossible. Hence, no claims are made here of scientific or statistical analytical significance.

Silverlon Burn and Trauma Dressings have been proven effective for the management of all types of soft tissue injuries in austere and civilian environments for open fractures, blast and burn injuries, and are not affected by environmental extremes. These dressings are effective, easy to use, store, and transport, and are not affected by environmental extremes. Because of these attributes and its use for multiple indications, Silverlon Dressings can be considered a true force multiplier.

References

1. Bandt, MM, Tait, MJ, Taddeo, TT & Wahl, WL. Silverlon use in Afghanistan, 2003. Poster session.
2. Barillo, DJ: Military applications of silver-nylon wound dressings. European Wound Management assn. Journal 2011; 11(2): p 131

Case Two

This heroic 35 year-old Iraqi Policeman sustained penetrating and blast trauma to his chest, pelvis, abdomen, scrotum and Shapiro, wounds to all four extremities during a suicide vest bombing attack on his checkpoint in Mosul, Iraq. His injuries were further complicated by second degree burns to 55 percent of his body, including his face and predominantly anterior body surfaces. Unfortunately, his heroism nearly cost him his life. After twelve different surgical procedures and nearly four weeks in intensive care, he ultimately recovered, after losing his left eye, right testicle, a finger and portions of both ears and his nose.



Upper extremities with deep partial thickness burns dressed with Silverlon by author.
The Silverlon dressed burns healed 30% faster and all STSG grafts were 100% successful.
Donor sites that were covered with Silverlon were less painful than those that were not.

Lower extremities with superficial to full partial thickness burns dressed with SSD by another surgeon. The SSD dressed burns healed slower and 70% of the STSG failed due to infection and sepsis.

Primary reduction and stabilization of the comminuted right tibial fracture was achieved with external fixation and vessel loop closure over a Silverlon drain.



Bilateral hand blast and burn injuries; the left middle finger required amputation.



Right foot after delayed primary closure of all wounds.

Right foot penetrating trauma after irrigation, debridement and insertion of Silverlon drains.



Case One

This 32 year old Iraqi Soldier sustained second degree burns to his right upper extremity, face, neck and right chest wall and inhalation injuries when the bus in which he and 42 other Iraqi Soldiers were riding back to their base near Qai West Iraq was hit by an IED. The fuel tanks on the bus were ignited by the blast and 18 Soldiers were killed. He underwent debridement of his burns and his right upper extremity burns were dressed with Silverlon burn dressings and over-wrapped with Kerlix moistened with sterile water and covered with IC wrap. His dressings were changed daily. His upper extremity burns healed faster and with less scarring even though more severe, than his chest wall burns, which were treated with conventional dry dressings and Silvadene. Once stabilized, he was transferred to Baghdad where he is reported to have subsequently recovered.

The patient underwent serial irrigation and debridement every 48 hours with progressive wound reduction and eventual closure of all of his wounds, using the vessel tension closure "Jacobs ladder" technique. Silverlon drains were used in the early phases of wound management. Subsequently, the right Tibia was grafted with iliac crest bone graft and the residual left lateral heel wound was closed with full thickness debrided skin graft which healed completely under Silverlon island dressings after initial Wound VAC over inflated Silverlon fabric placed under the vacuum sponge.

Silverlon fabric dressing material was laid into the wound and covered with a WoundVAC sponge.

Early in our experience we used the Silverlon fabric dressings under wound vacuum dressings and subsequently began using the webbed digital dressings that were split and permitted exudate drainage under suction. The CSH subsequently ordered the Silverlon Wound VAC dressings, but they arrived just prior to my departure from theater in October 2006 and I did not have opportunity to use them. The patient recovered remarkably and was well on his way to a solid tibial union at follow-up twelve weeks after his initial injury (no pictures of wounds were taken).



Appearance of hands 48 hours after initial debridement. Note the dramatic reduction in edema following the Silverlon applications.



Silverlon burn dressing applied to right upper extremity second degree fuel burns.