

# **SOMOS 2007 Poster Abstract**

## ***APPLICATION OF A DYNAMIC CLOSURE DEVICE TO FOUR COMPARTMENT LEG FASCIOTOMY WOUNDS***

### ***CAUSED BY HIGH ENERGY COMBAT INJURIES OBIATED THE NEED FOR SKIN GRAFTING***

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**Objectives:** Closure of four-compartment fasciotomies of the leg in a delayed primary fashion is frequently not possible and may require skin grafting of at least one of the fasciotomy incisions. We sought to determine whether the incidence of split thickness skin grafting required for coverage of leg fasciotomy wounds could be reduced in those with high energy combat injuries through the use of dynamic wound closure.

**Methods:** We applied a novel dynamic wound closure device to 11 consecutive patients who presented to the 28th Combat Support Hospital, Baghdad, Iraq with a diagnosis of compartment syndrome of the leg and subsequently underwent four compartment leg fasciotomies.

**Results:** The etiologies of the compartment syndromes were: IEDs (7), high energy gunshot wounds (2), grenade (1) and unknown (1). There were 6 fractures associated with the injured legs (3 comminuted open tibias, 2 open fibulas and 1 closed pilon). Five patients had vascular injuries (3 SFA injuries and 2 below knee popliteal artery injuries). The wound closure devices were applied an average of 2.1 days (range 0-6) after fasciotomy. The average skin gap at the widest point prior to application of the device was 8.2cm (range 6.7-11.5). Immediately following application this was reduced to 3.4cm (range 2.2-6 cm). Delayed primary closure was possible in 91% of wounds. Mean time to wound closure was 3.0 days (range 1-6). There was one major and one minor complication. The major complication was heparin-induced thrombocytopenia in a patient that subsequently required bilateral above-knee amputations. This complication resulted in the the one patient in whom delayed primary closure was not obtained and was not related to the application of the dynamic wound closure device. The minor complication consisted of a patient with a superficial infection. No patient had recurrence of their compartment syndrome.

**Conclusions:** This dynamic wound closure device is easily applied, highly reliable and obviated the need for skin grafting in those requiring fasciotomies of the leg for high energy military injuries. We recommend that dynamic wound closure devices be available to deployed and non-deployed traumatologists trained in their use. Early and consistent therapy will maximize the number of delayed primary closures obtained in patients for whom their use is indicated.