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**605 Revision Surgery Following Severe Frostbite Compared to Similar Hand and Foot Burns**

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**Introduction:** Severe frostbite is associated with high levels of morbidity through loss of digits or limbs. The current practice is to salvage as much of the limb/digit as possible with the use of thrombolytic and adjuvant therapies. Sequelae from amputation can include severe nerve pain and poor wound healing requiring revision surgery. The aim of this study was to examine the rate of revision surgery after primary amputation and compare this to revision surgery in isolated hand/foot burns.

**Methods:** Frostbite and burn patients from 2006 to 2019 were identified in the prospectively maintained database at a single urban burn and trauma center. Patients with primary amputations related to isolated hand/foot burns or frostbite were included in the study. Descriptive statistics included Student's T-test and Fisher's Exact test.

**Results:** A total of 63 patients, 54 frostbite injuries and 9 isolated hand or foot burns, met inclusion criteria for the study. The rate of revision surgery was similar following frostbite and burn injury (24% vs 33%, P=0.681). There were no significant differences in age, gender, or LOS on the primary hospitalization. Neither the impacted limb nor the presence of infection or cellulitis on primary amputation were associated with future need for revision surgery. Of the 16 patients requiring revision surgery, 5 (31%) required additional debridement alone, 6 (38%) required re-amputation alone, and 5 required both. A total of 6 patients (38%) had cellulitis or infection at the time of revision surgery. Time from primary surgery to revision ranged from 4 days to 3 years.

**Conclusions:** Planned, delayed primary amputation is a mainstay of frostbite management. To our knowledge, this is the first assessment of revision surgery in the setting of severe frostbite injury. Our observed rate of revision surgery following frostbite injury did not differ significantly from revision surgery in the setting of isolated hand or foot burns. This study brings up important questions of timing and surgical planning in these complex patients that will require a multicenter collaborative study.

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**606 Novel application of a surgeon-operated clysis delivery system in burn surgery**

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**Introduction:** Tangential excision of burns is associated with significant bleeding. Sub-eschar insufflation of epinephrine-containing clysis has shown to decrease blood loss and associated complications. Administration of adrenaline-containing infiltrates are also beneficial in the harvest of split thickness skin grafts. Clysis is typically delivered with the assistance of a perfusionist-operated system. This method, however, is associated with significant cost and dependent on personnel availability. This study evaluated the use of a novel surgeon-operated fluid management system in the delivery of clysis in burn surgery.

**Methods:** Our initial experience with a novel fluid management system is presented. Prospective collection of infiltration data, including average temperature, pressure, and volume of clysis was performed. Patient and burn factors were evaluated and complications collected. Finally, a cost-effectiveness analysis was conducted.

**Results:** Thirty-seven consecutive cases comprising 22 adult patients (15/22, 68% male), with a mean age of 49 years (+/- 19) were reviewed. The mean % total body surface area of all patients was 39 (+/- 21.7). The mean temperature, pressure and volume of administered clysis was 32.2 degrees Celsius (+/- 4.4), 265.04 mmHg (+/-56.17), and 5805.8 mL (+/- 4844.4), respectively. The mean dose of epinephrine administered was 14.5mg (+/- 12.1). The mean temperature variability was 1.1 °C (+/- 1.2). Total mean packed red blood cells (PRBC) transfused was 507.6 mL (+/- 624.4). There were no recorded complications. We identified a cost savings of \$20,766 CAD over the cases examined.

**Conclusions:** We present the novel application of a fluid management system in burn surgery. This technique provides rapid and safe infiltration of warmed clysis. We are able to maintain intra-operative euthermia despite a large volume of administered clysis and significant intraoperative vulnerability to hypothermia. In addition, this technique may be transfusion-sparing. The introduction of this method of clysis administration was associated with significant cost-savings.