

A Costly Burn. Warm Saline Irrigation Gone Wrong

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INTRODUCTION:

Orthopedic surgeons swear by the principle of “solution to pollution is dilution”. The most common fluid of choice used is warm saline for being as physiological as possible and preventing hypothermia during prolonged surgeries. We would like to report a case of warm saline irrigation gone wrong.

CASE REPORT:

38-year-old Iban man with underlying recurrent right knee septic arthritis was admitted for another episode of septic knee. He was routinely scheduled for an emergency arthrotomy & washout. Intra operatively there was frank pus requiring copious irrigation as per protocol. Warm normal saline was the fluid of choice for irrigation and was poured directly over the wound from pre-warmed saline bottle from a height. On completing 10L of warm normal saline irrigation, the overlying exposed skin was seen to be inflamed with small blisters forming. To our dismay, wound inspection on the next day revealed second degree burns over the exposed skin over the right knee. A surgical consult later required a series of complex dressings and split thickness skin grafting to allow the knee to heal well.

DISCUSSIONS:

Cutaneous skin damage is very common and can occur from various insults. Moritz and Henriques reported that the temperature and duration of contact are the two parameters that dictate the extent of damage. A 6-hour contact time with a surface temperature of 44°C resulted in complete epidermal necrosis. At 55°C only 30 seconds is required to achieve complete epidermal necrosis. Some methods that may have prevented this scenario is to use a kidney dish to irrigate the warm fluid into the wound. Warmers and water baths also have to be serviced and maintained regularly to prevent over-warming of the stored saline.



Figure 1: Second degree burns over the right knee



Figure 2: Split skin grafting over the right knee



Figure 3: Right knee healed with scarring

CONCLUSION:

Despite documented benefits of warm saline for irrigation, extreme caution should be exercised in handling and delivery of the fluid to prevent unwanted injuries.

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