

Background & Aim

There is no doubt that human cadaveric skin (allograft) has been invaluable for the temporary coverage of large and extensive burns. In such cases, allograft has important systemic effects with respect to fluid and heat loss, inflammation, and metabolism. The incidence of large burns, however, has decreased over time. Small and medium-sized burns remain constant, and are often treated with allograft as a means to test and/or prepare a wound bed after excision. This allows for a conservative, staged approach to burn wound closure but it remains unclear if the use of allograft in this way is advantageous. Knowing the deleterious immunomodulatory effects of allogeneic transplantation and given current applications of negative pressure wound therapy (NPWT), is allografting still a valid option for temporary coverage of small and medium-size burns?

One of the largest U.S. studies (771 patients received allograft) by Sheckter et al. (2018) suggested that the allograft use in major intermediate-sized burns 20–50% TBSA was associated with a significant increase in inpatient mortality. In addition, there was a notable correlation with increased inpatient complications, longer length of stay, more burn operations, and greater total charges.

The **aim** of our project is to raise the issue of allografting in intermediate-sized burns and to better understand the implications of its use in patient outcomes and healthcare costs.

Materials & Methods

A patient with a 20% TBSA full-thickness flame burn underwent tangential excision of the left thigh down to the level of the subcutaneous tissue. A 3x3 cm square of freshly thawed, commercially available, human cadaveric allograft was applied to a portion of the wound and the entire wound was placed into an NPWT dressing for 3 days. The dressing was removed in the OR and photos of the underlying wound bed were obtained.

Results

Macroscopically, the wound bed beneath the allograft appeared markedly less vascular (**figure 2, A**) than that of the control (B). Additionally, the wound bed beneath the allograft appeared to have more necrotic, or unhealthy appearing, adipose tissue. The wound bed beneath the allograft appeared desiccated while the control appeared healthy and vascular.

Conclusions

Allograft may not prevent desiccation, may not prepare a wound bed as well as NPWT, and may not be the best option for the staged treatment of small and medium-sized burns. Controlled trials are needed, as is an open and honest discussion regarding the potentially negative implications this may have on reimbursement. The higher use of allograft at larger trauma centers could possibly result from greater access to allograft, although this hypothesis remains to be proved. The reason why allografts are associated with higher rates of inpatient morbidity and mortality is unclear. Perhaps, allograft causes immunosuppression to the burn patient, therefore he becomes more prone to nosocomial infections. Another explanation would be that because allografting is a temporary measure, it requires more operations, thus longer hospital stay, more complications, and higher charges.

References

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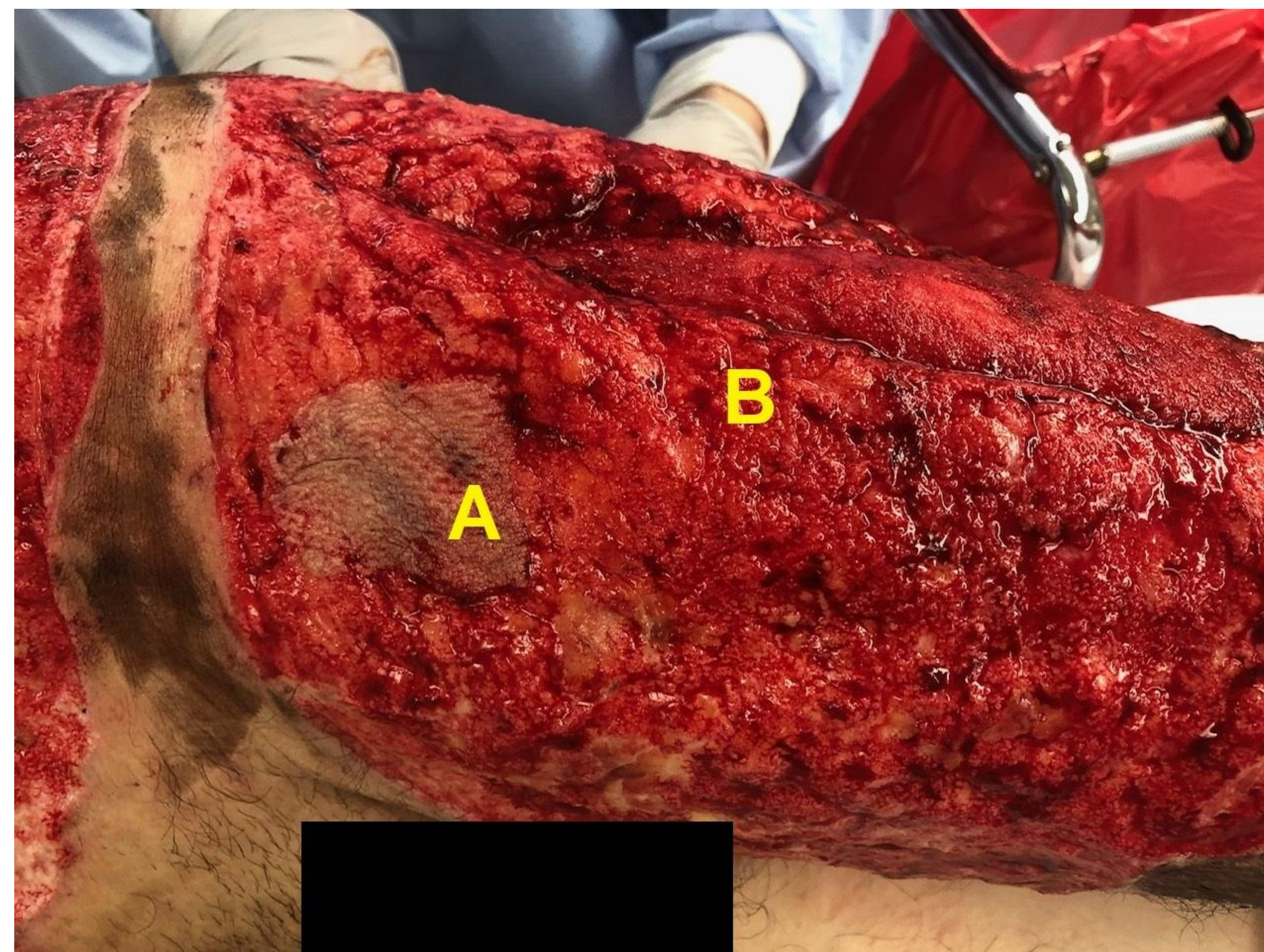


Figure 1. Wound bed after 3 days of NPWT. Note allograft (A) vs control wound bed (B).



Figure 2. Wound bed immediately after removal of allograft. Note the difference in vascularity and presence of dusky adipose (A).