

# Vascularized Composite Allotransplantation in Burn Reconstruction: Systematic Review and Meta-analysis

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## Disclosure Information

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## Abstract

**Background:** Vascularized composite allotransplantation (VCA) has been successfully employed for burn reconstruction since 2003. However, its safety in this population has been questioned due to high levels of alloimmunization from burn care related tissue exposures.

**Methods:** A systematic review of VCA in burn reconstruction was conducted to evaluate literature from Jan. 2000 to Sept. 2019. Articles containing VCA, composite tissue allotransplantation, and burn reconstructive surgery were included; articles without published outcomes were excluded. Observational meta-analysis of pooled mortality and acute rejection episodes relative to allograft type (face vs. extremity) and reconstruction type (burn vs. non-burn) was performed.

**Results:** Twenty-four of the 63 identified articles met criteria for inclusion, with 5 more articles added after secondary review. To date, 152 allografts have been performed in 117 patients: 45 faces and 107 upper extremities. Of these, 34 VCA allografts (22%) were performed for burn reconstruction in 25 patients (21%) with an overall higher 1-year mortality rate (12.0% vs 1.1%,  $p = 0.030$ ). Of these deaths, 75% received 3 or more simultaneous allografts (here defined as vascularized composite multiple allotransplantation: VCMA). Additionally, more episodes of acute rejection occurred compared to non-burn patients (4.4 vs. 2.4,  $p = 0.035$ ).

**Conclusions:** VCA performed for burn reconstruction conveys a greater risk of 1-year mortality as well as almost twice the number of episodes of acute rejection. Also, VCMA is associated with high rates of perioperative mortality when performed for burn reconstruction.

## Learning Objectives

- Identify how allotransplantation in burn patients differs from non-burn patients in the context of immunology
- Recognize a possible confounder for increased mortality in burn patients post-allotransplantation that is not immunologically linked

## References

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