

Urinary Bladder Matrix Grafting Versus Flap Coverage for Wound Defects in Orthopaedic Trauma Patients

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Purpose: Urinary bladder matrix (UBM) grafting of wound defects has been reported to be successful in small case series. The purpose of this study was to compare the outcomes of UBM grafting with flap coverage for wound defects.

Methods: A retrospective study was performed at a single urban Level I trauma center between 1 May 2016 and 1 August 2021. Orthopaedic trauma service patients with wound defects that had exposed implants, bones, and/or tendons requiring soft-tissue coverage were identified from a prospective registry. Patients who underwent flap coverage by microvascular-trained plastic surgeons or UBM grafting by orthopaedic trauma surgeons were included in the study. Patients who were lost to follow-up prior to wound healing with no known complications were excluded from analysis.

Results: The UBM group (n = 26), compared to the flap group (n = 26), was more likely to have an ASA (American Society of Anesthesiologists) classification of 3 or more, a foot/ankle wound, an infected wound defect, and a smaller wound defect surface area. Groups did not differ in age, sex, tobacco use, diabetes, or need for coverage over retained implant. The UBM group had a longer time to wound healing (median difference [MD]: 3 months, 95% confidence interval [CI]: 1-5) and a shorter hospital length of stay after wound coverage (MD: 9 days, CI: 5-14). There was no difference between groups in the number of failed wound coverage procedures, complications, or returns to the operating room (Table 1).

Conclusion: UBM grafting appears to be an effective alternative to flap coverage in appropriately selected patients. Future prospective studies are necessary to compare flap coverage versus UBM grafting while controlling for potential confounding factors.

Table 1: Complications and returns to operating room

	Flap Group N=33	UBM group N=21
Complications		
Deep infection	11	11
Wound coverage failure	15 8 – primary wound coverage 7 – secondary wound coverage	9 8 – primary wound coverage 1 – secondary primary wound coverage
Superficial infection	4	0
Knee arthrofibrosis	2	0
Nonunion	0	1
DVT	1	0
Returns to operating room	N=58	N=29
Infection debridement	12	17
Revision coverage procedure	26 15 – ECM application 3 – Free muscle flap 3 – Local fasciocutaneous flap 3 – Flap debridement 1 – Flap detorsion 1 – Staged flap inset due to concerns of viability	9 9 – ECM application
Dressing/NPWT change under anesthesia	10	0
Staged split thickness skin grafting	8	1
Below knee amputation	1	2
Above knee amputation	1	0

(UBM – urinary bladder matrix; DVT – deep venous thromboembolism; ECM – extracellular matrix; NPWT – negative pressure wound therapy)

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device they wish to use in clinical practice.

POSTER ABSTRACTS