

Impact of Flowable Micronized Porcine Urinary Bladder Matrix in Ostomy Reversal Wounds

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INTRODUCTION

Ostomy reversal procedures create high-risk wounds due to potential bacterial contamination, tissue undermining, and the inherent challenges of postoperative wound management. These stoma closure sites are considered clean-contaminated wounds, which contributes to the high incidence of surgical site infections (SSI), reported in up to 40% of patients undergoing stoma reversal [1]. Standard purse-string closure techniques are often used to promote wound drainage, but they typically require prolonged healing by secondary intention, frequent dressing changes, and extended home health nursing support. Although the purse-string method is associated with lower SSI rates than linear closure, healing remains slow and resource-intensive [2]. Biologic extracellular matrix (ECM) scaffolds, such as porcine urinary bladder matrix (UBM), offer a potential solution for optimizing complex wound healing. UBM has demonstrated clinical utility across a wide range of wound types—including chronic diabetic ulcers, trauma-related wounds, and soft-tissue defects—by supporting a shift from a pro-inflammatory environment toward tissue remodeling and revascularization [3-5]. These properties make UBM an appealing adjunct in contaminated or complex postoperative wounds such as those encountered after ostomy reversal.

OBJECTIVE

Investigate the efficacy of micronized urinary bladder matrix to support management of ostomy reversal site closures using a retrospective chart review case series.



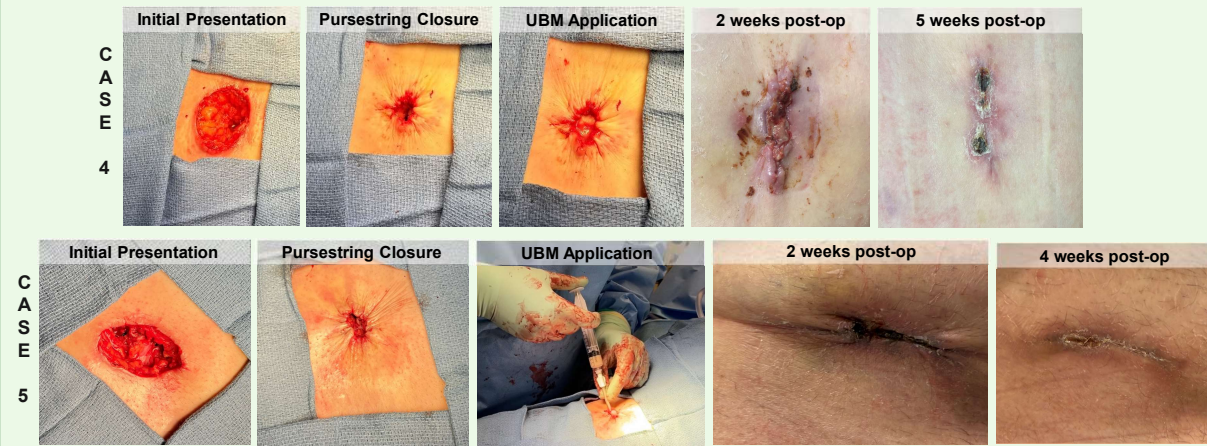
Figure 1. Flowable micronized urinary bladder matrix (UBM) (MicroMatrix Flex (MM Flex)) and Cytal Wound Matrix, Integra LifeSciences Corporation, Princeton, NJ

METHODS

This retrospective case series evaluates five patients undergoing ostomy reversal, where flowable micronized porcine urinary bladder matrix was used as an adjunct to a purse-string closure technique. Following stoma takedown, UBM was delivered using a flexible-tip applicator to fill undermined wound cavities, in some cases, along with UBM sheets (as specified), rather than traditional gauze packing. Wounds were postoperatively managed with a silver dressing and followed standard dressing change protocol. The primary clinical outcome assessed was time to wound closure and overall patient satisfaction.

RESULTS

Case	Age	Sex	Race	BMI	Comorbidities	Type of reversal	Product applications	Time to Closure (weeks)
1	65	M	White	26.61	Colon perforation during colonoscopy, prostate Ca, hemorrhoids, HTN, hypothyroid, Iron deficiency anemia, thrombocytopenia	Colostomy	5cc flowable UBM 5x5 3-Layer UBM sheet	4
2	50	F	Asian Indian	41.95	Anemia, Diverticulitis with abscess, Arthritis, Borderline DM, GERD, COVID, Glomus tumor, HTN, back pain, metabolic syndrome, obesity, OA, PONV, Vit D deficiency, dorsalgia	Ileostomy	10cc flowable UBM 7x10 2-Layer UBM sheet	3
3	31	M	White	27.9	IBS/chronic LLQ pain, diverticulitis with abscess, fatty liver, elevated LFT, GERD, colon polyps, anxiety, portal vein thrombosis, hemorrhoids, hernia, PONV, Positive PPD, disorder of stoma (bleeding stoma)	Ileostomy	5cc flowable UBM 7x10 2-Layer UBM sheet	3
4	69	F	White	36.8	Hypertension, anemia, DVT, diverticulosis, rectal cancer, neuropathy	Ileostomy	5cc MM Flex	5
5	66	M	White	24.54	rectal cancer, bilateral inguinal hernia repair	Ileostomy	5cc MM Flex	2



DISCUSSION

Across the reviewed cases, adjunctive use of flowable UBM was associated an average time to closure rate of 3.4 ± 1.1 weeks, which differs from the traditional 6-8 week closure time via secondary intention expected [6]. No wound-related infections or adverse events were observed. Notably, patients required minimal to no postoperative home health nursing support compared with patients who receive standard wound packing during their ostomy reversal.

CONCLUSION

Use of flowable micronized porcine urinary bladder matrix at the time of ostomy reversal supports wound closure and decreases reliance on postoperative home health services. These findings suggest UBM may offer a valuable adjunct in managing high-risk, contaminated surgical wounds and warrant further prospective evaluation and comparison to standard of care.

References

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Disclosure:
WS is a consultant for Integra LifeSciences

