Improving Healing Outcomes in Peristomal and Other Wounds Using Chitosan-Based Therapy: A Case Series

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Introduction

Peristomal complications can significantly impair quality of life, leading to skin breakdown, leakage, infection, odor, pain, and discomfort. Timely and effective wound management is essential to reduce morbidity and improve patient outcomes.[1]

The objective of this case series was to evaluate the effectiveness of a chitosan fiber* dressing in managing peristomal wound complications of various origins and wounds at other sites.

Chitosan is a bioactive polymer that supports the natural wound healing process through a unique combination of exudate management, bioburden control, hemostasis, non-cytotoxicity, and the maintenance of normal fibroblast function.[2,3,4]

Methods

Four patients presenting with stoma-related wounds of various etiologies were assessed and treated by a specialist nurse over 6-week period. Cases included mucocutaneous separation, tracheostomy site wound, and wound at pleural drainage insertion site. All patients had undergone emergency surgery, resulting in tension at the stoma-skin suture line. Additional risk factors included malnutrition and poor tissue perfusion.

Standard wound care protocols were followed, including cleansing prior to the application of a chitosan fiber dressing as the primary contact layer. The dressings were changed daily in the tracheostomy case, once in 48-72 hours in other cases. Wound assessments were conducted at each dressing change, evaluating wound appearance, exudate level, periwound skin condition, and patient comfort.

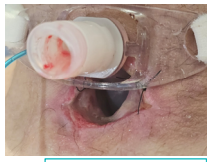
Case 1

- 46 years old
- Tracheostomy s/p anoxic brain injury

Tracheostomy site infection was followed by dehiscence of the insertion wound that progressively deteriorated.

The patient presented with a substantial amount of purulent, foul smelling drainage.

Chitosan dressing therapy was initiated, leading to prompt clinical improvement and wound closure.


October 23, 2025

October 26, 2025

November 9, 2025

Case 2

- 12 years old
- Tracheostomy s/p respiratory deterioration

The tracheostomy opening gradually widened with a large amount of secretion until the tracheostomy was removed and reinserted.

After wound cleansing, chitosan dressing was applied into the wound cavity.

A reduction in wound size and secretion volume was observed.

December 12, 2025

January 6, 2026

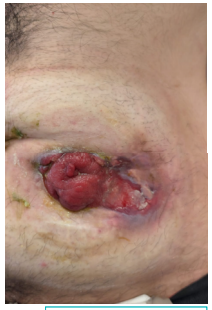
Case 3

- 29 years old
- Colostomy s/p Crohn's disease since 2014

Mucocutaneous separation started two months before the hospitalization due to anorectal fistula.

Chitosan dressing therapy was initiated, leading to prompt clinical improvement. The dressing was inserted to fill the gap under the stoma base and changed every 3 days. Mucocutaneous separation resolved completely within three weeks of treatment.

November 24, 2025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Case 4

- 71 years old
- Pleural drain s/p cancer

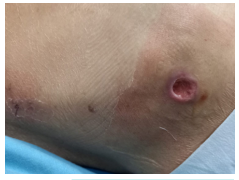
The drain exit site developed erythema and discharge, raising concern for dislodgement.

After cleansing, chitosan fiber dressing was applied around the drain to protect peri-wound skin and manage exudate.

Marked improvement was observed within 4 days, with resolution of erythema and a stable wound site.

October 26, 2025

October 28, 2025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Results

All patients demonstrated marked improvement in wound healing parameters, including cleaner wound beds, reduced leakage, decreased pain and discomfort, and formation of granulation tissue leading to complete closure of all four wounds within 6-week period.

Discussion

These cases support the use of chitosan dressings as an effective primary contact layer for managing a range of peristomal and other wound complications.

Positive outcomes were observed across diverse wound types and patient profiles, including those with significant comorbidities. The findings suggest that chitosan-based therapy may offer a beneficial treatment approach for complex peristomal wounds in clinical practice.

References

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2. Dai T, Tanaka, M Huang, YY, Hamblin MR (2011) Chitosan preparations for wounds and burns: antimicrobial and wound-healing effects. *Expert Rev Anti Infect Ther 9(7):857–79.*
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4. A HN, Kumar A, Agrawal A, Mavely L, Bhatia D. Characterization of a Bioactive Chitosan Dressing: A Comprehensive Solution for Different Wound Healing Phases. *ACS Appl Bio Mater. 2025 Mar 17;8(3):1921-1933.* doi: 10.1021/acsabm.4c01161. Epub 2025 Feb 27. PMID: 40014862.

Chitosan fiber dressing: MaxioCel®, Advamedica Inc.*

Disclosure: Chausha Weitman Cernica, M.A., R.N. has no financial relationship with Advamedica Inc.

Product was used as part of standard clinical practice.