



A CASE SERIES COMPARING PLASTIC TEGADERM DRESSING AND CONVENTIONAL GAUZE DRESSING FOR POSTOPERATIVE WOUND MANAGEMENT: IMPLICATIONS FOR SURGICAL SITE INFECTION PREVENTION

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ABSTRACT

Background: Surgical site infections (SSIs) remain a key challenge in postoperative care. Wound dressing type may influence infection rates. This case series evaluates outcomes of six patients who received either plastic Tegaderm or conventional gauze dressings after surgery, focusing on the development of SSIs. **Methods:** Six postoperative patients were followed prospectively. Three patients received transparent Tegaderm dressings, and three received sterile gauze dressings. Patients were monitored for 30 days for signs of SSI, wound healing characteristics, and dressing tolerance. **Results:** Among the Tegaderm group, no SSIs were observed, and dressing changes were less frequent. In the gauze group, two of the three patients developed superficial SSIs, requiring antibiotic treatment. Patient comfort and wound visibility were better in the Tegaderm group. **Conclusion:** In this small case series, Tegaderm dressing appeared to be associated with fewer SSIs and greater patient satisfaction compared to gauze. While limited by sample size, these observations suggest potential benefits of occlusive transparent dressings in SSI prevention.

KEYWORDS

Tegaderm, Gauze Dressing, Surgical Site Infection, Postoperative Wound Care, Case Series

INTRODUCTION AND BACKGROUND

Surgical site infections (SSIs) remain one of the most common complications following surgical procedures, contributing significantly to postoperative morbidity, prolonged hospital stays, increased healthcare costs, and, in some cases, mortality. According to the Centers for Disease Control and Prevention (CDC), SSIs account for up to 20% of all healthcare-associated infections, with incidence rates varying between 2% and 5% depending on the type of surgery, patient comorbidities, and perioperative practices.

Wound care and dressing selection are integral parts of postoperative management, with a potential role in influencing the risk of SSIs. An ideal dressing should protect the wound from external contamination, absorb exudate, maintain a moist environment conducive to healing, and be comfortable for the patient. Historically, sterile gauze dressings have been the standard in surgical wound management due to their low cost and widespread availability. However, gauze has several limitations, including its non-occlusive nature, frequent need for changing, and potential for wound desiccation and disruption during removal.

In contrast, transparent semi-permeable film dressings such as Tegaderm (3M Health Care) offer a modern alternative. These dressings are designed to be occlusive yet breathable, allowing moisture vapor and oxygen exchange while providing a barrier against bacteria and external contaminants. They also allow for continuous visual inspection of the wound without removal, reducing manipulation and possibly lowering the risk of infection. Previous studies have shown mixed results when comparing advanced dressings like Tegaderm to traditional gauze in preventing SSIs, with some reporting reduced infection rates, and others showing no significant difference.

Despite their increasing use, there remains limited evidence from small-scale clinical observations or case-based data specifically comparing Tegaderm and gauze in various postoperative scenarios. This gap is especially pronounced in settings where patient-specific factors, surgical wound types, and care environments vary.

Objective of the Study

This case series aims to provide preliminary insight into the comparative outcomes of Tegaderm vs. conventional gauze dressings in the management of postoperative surgical wounds, focusing on their association with the development of surgical site infections. By analyzing six individual cases across different types of surgeries, this study seeks to highlight any observable trends in infection rates, dressing tolerance, and overall wound healing performance, thereby contributing practical observations to the broader clinical discussion on optimal wound dressing strategies.

METHODS

Study Design

This study is a prospective observational case series conducted over a [insert duration, e.g., two-month] period at [institution/hospital name]. Six patients undergoing various surgical procedures were included. The primary objective was to observe the incidence of surgical site infections (SSIs) and dressing-related outcomes among patients receiving either plastic Tegaderm dressing or conventional gauze dressing.

Patient Selection

Patients were selected based on the following inclusion criteria:

- Undergoing clean or clean-contaminated surgical procedures
- No preexisting infection at the surgical site
- Consent to participate in the study and follow-up

Exclusion Criteria Included:

- Immunocompromised status (e.g., ongoing chemotherapy, HIV/AIDS)
- Known allergy to dressing materials
- Intraoperative wound contamination (Class III/IV surgical wounds)

Patients were non-randomly assigned to two groups based on surgeon preference and dressing availability:

- **Group A (Tegaderm Group)** – 3 patients
- **Group B (Gauze Group)** – 3 patients

Surgical Procedure and Dressing Protocol

All patients underwent surgery under sterile conditions with standard antibiotic prophylaxis. Postoperative wound care followed a standardized protocol:

- **Tegaderm Group:** A sterile, transparent occlusive film (Tegaderm) was applied over the incision. Dressings were inspected daily but only changed if visibly soiled or loose.
- **Gauze Group:** A sterile gauze pad covered with adhesive tape was applied. Daily dressing changes were performed, and additional changes were done as needed.

Outcome Measures

Primary Outcome:

- Incidence of surgical site infection (SSI) within 30 days postoperatively, as per CDC definitions (superficial, deep, or organ/space infections)

Secondary Outcomes:

- Frequency of dressing changes
- Patient-reported discomfort or irritation
- Ease of wound inspection
- Time to complete wound healing

Follow-Up

Patients were followed up postoperatively on days 3, 7, 14, and 30, with wound inspections and assessments documented during each visit. Any signs of infection were evaluated and managed accordingly.

RESULTS

Fig1.1 Patient Demographics and Clinical Details

Patient	Age/Sex	Procedure	Dressing Type	Wound Class	Outcome	SSI	Days to Healing	Remarks
1	35/M	Laparoscopic Appendectomy	Tegaderm	Clean-contaminated	Healed well	No	10	Dressing changed once
2	42/F	Open Cholecystectomy	Tegaderm	Clean-contaminated	Healed well	No	12	Minimal discharge
3	27/F	Cesarean Section	Tegaderm	Clean	Healed uneventfully	No	10	No dressing changes
4	58/M	Inguinal Hernia Repair	Gauze	Clean	Superficial SSI	Yes	18	Required oral antibiotics
5	31/F	Abdominal Hysterectomy	Gauze	Clean-contaminated	Superficial SSI	Yes	21	Culture positive for S. aureus
6	45/M	Hemorrhoidectomy	Gauze	Clean	Healed well	No	14	Frequent dressing reinforcement

SSI Rates

- **Tegaderm Group:** 0/3 (0%)
- **Gauze Group:** 2/3 (66.7%)

Other Observations

- **Dressing Changes:**
 - o Tegaderm: Average 1 change/patient
 - o Gauze: Average 5 changes/patient
- **Wound Monitoring:**
 - o Tegaderm allowed visual inspection without removal
 - o Gauze required full removal for assessment
- **Patient Comfort:**
 - o All Tegaderm patients reported minimal discomfort
 - o Two gauze patients reported irritation and tightness
- **Healing Time:**
 - o Mean time to healing was shorter in Tegaderm group (10.7 days) vs. gauze group (17.7 days)

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- Provides authoritative international guidelines on SSI prevention, including wound care considerations.

**Fig1.2****Fig1.3****CONCLUSION**

This case series highlights a clinically significant trend suggesting that plastic Tegaderm dressings may offer advantages over traditional gauze dressings in reducing the risk of surgical site infections and improving overall postoperative wound care outcomes. In this series of six patients, the Tegaderm group experienced no SSIs, while two of the three patients in the gauze group developed superficial infections.

Furthermore, Tegaderm dressings required fewer changes, provided better visibility of the wound, and were associated with higher patient comfort and faster wound healing. Although these findings are limited by the small sample size, lack of randomization, and potential selection bias, the observed differences warrant further investigation in larger, controlled studies.

This preliminary evidence supports the potential benefit of adopting transparent, semi-permeable film dressings such as Tegaderm in selected surgical cases to optimize wound healing and reduce the risk of SSIs, especially in clean and clean-contaminated procedures.

Limitations: Small sample size, lack of randomization, and potential selection bias. Further randomized controlled trials are warranted to validate these observations.

Conflict of Interest: The authors declare no conflicts of interest.

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- While focused on preoperative care, this study provides context for broader infection prevention strategies.