



A COMPREHENSIVE SOLUTION FOR WOUND MANAGEMENT IN SKIN GRAFTING PROCEDURES: TRANSFORMING POWDER DRESSING

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INTRODUCTION

Skin grafting is critical for treating severe skin defects and chronic wounds¹, particularly those resulting from burns, trauma, and infections. Effective strategies in preparation for grafting, graft fixation, and donor site coverage are essential for the success of grafting procedures. Traditional methods like negative pressure wound therapy (NPWT), graft bolstering or other conventional dressings² involve significant discomfort,³ frequent and skilled dressing changes, which can limit their effectiveness and drain medical resources.

METHODOLOGY

The efficacy of Transforming Powder Dressing (TPD)⁴ was evaluated by reviewing published case studies and a randomized clinical trial where TPD was utilized in skin graft procedures (pre-grafting, post-grafting and donor sites).^{4,5,6,7} TPD is an extended wear (up to 30 days) dressing comprised of biocompatible polymers that transform on hydration to provide a moist, oxygen permeable barrier that protects the wound/graft. As the graft takes or the wound heals, TPD dries and flakes off.

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RESULTS

GRAFTING PREPARATION: Case series (N=3) with large complex painful wounds failing to progress with NPWT and other standards of care (SOC)

Mean Time to Grafting: 35 days

Mean TPD Applications: every 8.3 days

- Marked acceleration of granulation
- Reduced patient-reported pain
- Reduced dressing changes compared to SOC

GRAFT FIXATION: Case series (N=8*) in which TPD was utilized to secure split-thickness skin grafts (STSG) without the bolstering, NPWT, sutures, staples or glues or with reduced peripheral sutures

Mean time for graft take was 14.7 applications

Mean TPD Applications = 1.3

- Stabilized graft sites by preventing fluid buildup
- Simplified post-operative care

DONOR SITE COVERAGE: Randomized prospective study (N=19) comparing TPD to a silver-containing carboxymethylcellulose dressing (CMC-Ag) at STSG donor sites

Results: Mean Time to Healing = 14.2 days

Mean TPD Applications = 1

Reduced Pain Scores at three different time points

- 2-5 days, 6-10 days, and 11-15 days; p < 0.001
- Enhanced patient comfort
- No complications were observed

ILLUSTRATIVE CASES

40-year-old male, blast trauma, consumer fireworks (M-80)



25 x 25 x 5 cm
DAY 1: TPD APPLICATION

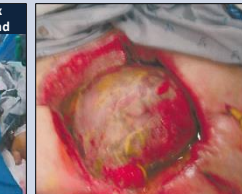


DAY 18:
DRESSING REMOVED

40 y/o female with complex abdominal car accident wound



DAY 1: PRE-TPD APPLICATION



DAY 18: DRESSING REMOVED

71-year-old male



DAY 1: PRE-TPD



DAY 12



6-WEEKS POST-OP

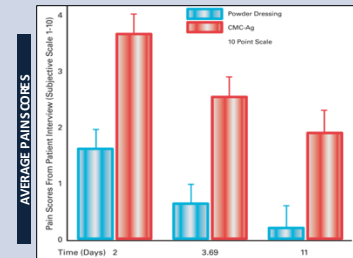


BURN PRIOR TO GRAFT

DAY 5: EPITHELIALIZED

AT APPLICATION

AT HEALING



* All grafts had 100% take rate. Mean calculations are based on six cases as graft treatment period was only available for 6 cases.

DISCUSSION

TPD presented a safe, effective and comprehensive solution in graft procedures by optimizing the wound environment and granulation tissue prior to grafting, simplifying graft fixation and enhancing donor site care. TPD facilitated healing while reducing resource utilization and enhancing patient comfort in these painful difficult to dress wounds. A reliable and less invasive alternative to traditional methods, TPD is a valuable tool in both surgical and clinical settings.