Negative Pressure Wound Therapy with Instillation for Peri-Prosthetic Infection Following Breast Reconstruction

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Introduction

- Peri-prosthetic infection following breast reconstruction is not uncommon and can result in loss of the implant pocket and negative patient outcomes.
- Management of these infections typically involves removal of the prosthesis, treatment with antibiotics, and delayed reconstruction upon infection resolution.
- In addition to increasing duration of treatment, delayed reconstruction can lead to loss or contracture of the implant pocket and aesthetic morbidity requiring the patient to undergo additional alloplastic or autologous breast reconstruction.
- Additional procedures and time without a reconstructed breast are often detrimental to patient health and quality of life.
- The use of negative pressure wound therapy with instillation and dwell time (NPWTi-d) may provide a means to thoroughly cleanse the existing breast pocket thus facilitating early reinsertion of a new implant.

Purpose

- This systematic review examined the impact of NPWTi-d* on breast pocket salvage rates, time to implant reinsertion, and related outcomes.

Methods

- A systematic literature search using PubMed, Cochrane, OVID, Scopus, and Embase was conducted using PRISMA guidelines to identify peer-reviewed articles written in English and published between January 2004 and April 2023 that examined NPWTi-d use in the breast pocket with a history of peri-prosthetic infection following breast reconstruction (**Figure 1**).

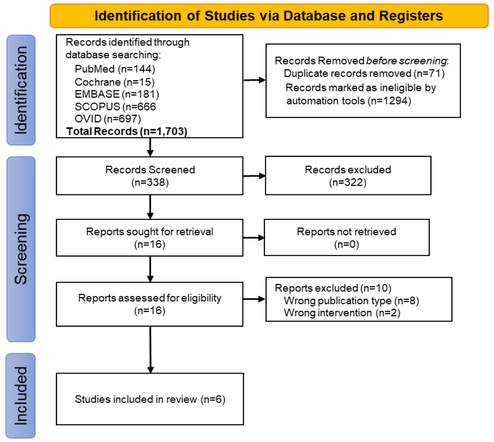
Results

- 6 studies met the inclusion criteria:
  - 3 retrospective cohort studies, 1 prospective cohort study, 2 case series
  - With a total of 115 patients and 122 breasts
- Overall breast pocket salvage rate with NPWTi-d across studies was approximately 92% (**Figure 2**).
- Mean time to implant reinsertion ranged from 2.3 to 10.3 days.

Figure 2. Breast Pocket Salvage Rates for Patients Receiving NPWTi-d

	Antognoli	Cheong	Gruener	Haque	Meybodi	Meybodi	**Total**
Overall Breast Pockets Salvaged, n/d (%)	16/17 (94)	6/6 (100)	13/13 (100)	20/20 (100)	5/6 (83)	25/30 (83)	**85/92 (92.4)**
Implants	6/7 (86)	4/4 (100)	13/13 (100)	20/20 (100)	2/2 (100)	NR	**45/46 (97.8)**
Tissue Expanders	10/10 (100)	2/2 (100)	0/0 (0)	0/0 (0)	3/4 (75)	NR	**15/16 (93.8)**
Irradiated	4/4 (100)	3/3 (100)	4/4 (100)	NR	0/1 (0)	1/2 (50)	**12/14 (85.7)**
Non-Irradiated	12/13 (92)	3/3 (100)	9/9 (100)	NR	5/5 (100)	24/28 (86)	**53/58 (91.7)**

Figure 1. Systematic Literature Review



Conclusions

- In this review, antibiotic therapy along with adjunctive use of NPWTi-d for peri-prosthetic infections following breast reconstructions was associated with high rates of breast pocket salvage and reduced time to implant reinsertion.
- Larger prospective and randomized trials are needed to better understand and optimize the effectiveness of NPWTi-d in this population.

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*3M™ Veraflo™ Therapy, (Solventum Corporation, Maplewood, MN, USA)

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