

Prophylactic Absorbable Antibiotic Beads and Peri-prosthetic Intracorporeal Chlorhexidine Washes in Implant-Based Breast Reconstruction

Aneeq S. Chaudhry, BA¹; Hana Shah, BS¹; Rita Loureiro, PA-C²; Katrina Fernandez, BS¹; David Mattos, MD²; Harry Salinas, MD²; Matthew Treiser, MD, PhD²; Miguel A. Medina III, MD²

¹Florida International University Herbert Wertheim College of Medicine; ²Plastic and Reconstructive Surgery, Miami Cancer Institute at Baptist Health



Baptist Health

Miami Cancer Institute

BACKGROUND & SIGNIFICANCE

- Surgical site infection remains a major complication of implant-based breast reconstruction and can lead to reoperation, expander loss, and reconstructive failure.
- Traditional prevention strategies have limited success. Absorbable antibiotic beads and intracorporeal chlorhexidine irrigation have each been proposed to reduce microbial burden and biofilm formation.
- Dual-port tissue expanders enable postoperative peri-prosthetic washes, but the combined value of antibiotic beads and chlorhexidine irrigation remains understudied.

PURPOSE



To evaluate whether combining prophylactic absorbable antibiotic beads with peri-prosthetic intracorporeal chlorhexidine washes reduces infection and reconstructive loss compared to historical controls without dual prophylaxis.

METHODS

Design: Single institution retrospective cohort study between 2021 – 2025.

Setting: 177 patients (294 breasts) who underwent implant-based breast reconstruction.

Procedure: Immediate two-stage reconstruction with tissue expanders and ADM. The experimental group received intraoperative absorbable antibiotic beads and scheduled weekly peri-prosthetic chlorhexidine washes for four weeks.

RESULTS

Demographics and Follow-Up

- 64 patients (105 breasts) in the dual prophylaxis group
- 113 patients (189 breasts) in the control group
- Mean age: 59 years
- Mean BMI: 29
- Mean Resection Weight: 783 g

Outcomes and Complications

- Infection rate decreased from **20.1%** → **8.6%**
- Reconstructive loss rate decreased from **14.9%** → **0.95%**
- Loss due to infection decreased from **11.6%** → **0%**

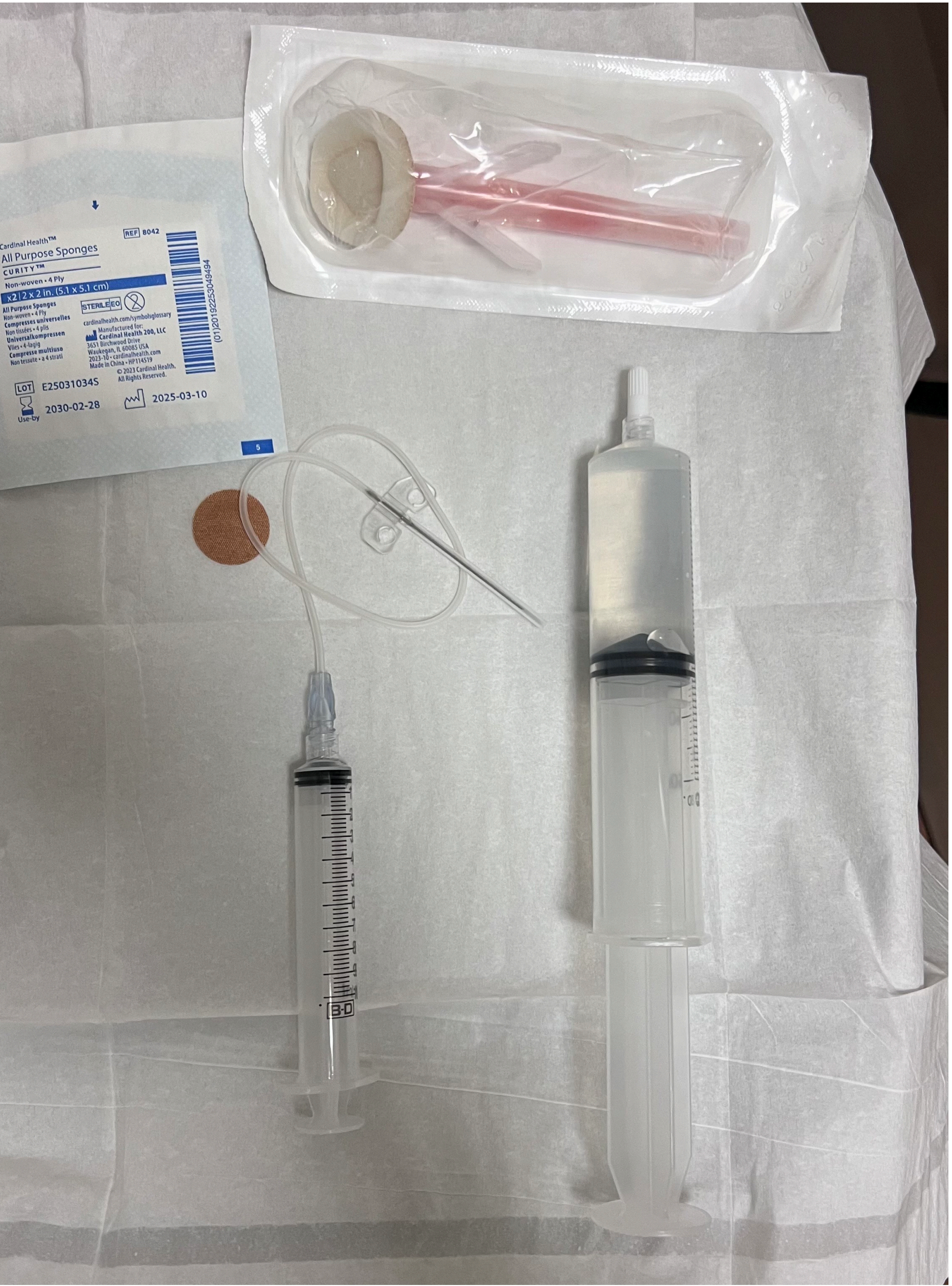


Figure 1: In-clinic setup for intracorporeal chlorhexidine irrigation via dual-port tissue expander.



Figure 2: Intraoperative placement of calcium sulfate beads in-situ, positioned behind the ADM adjacent to the device.

DISCUSSION

- Infection and reconstructive loss rates were lower in the dual prophylaxis group compared to controls.
- The addition of local antibiotic delivery with scheduled chlorhexidine washes may provide synergistic antimicrobial effects.
- Larger prospective studies are needed to evaluate durability and generalizability of these findings.

CONCLUSION

- Combined prophylactic use of absorbable antibiotic beads and intracorporeal chlorhexidine washes was associated with lower infection rates and reduced reconstructive loss compared to controls.
- These findings suggest dual local prophylaxis may be an effective adjunct for infection prevention in implant-based breast reconstruction.