

Shaping Breast Capsule Formation: Impact of Absorbable Antibiotic Beads on Capsule Thickness and Calcification in Device-Based Breast Reconstruction



Anna M. Vaeth, BS¹; Hao Huang, MD¹; Baris Boyraz, MD²; Lucy Wei, BS¹; Makayla Kochheiser BS¹; Nancy Qin, BA¹; David M. Otterburn, MD¹

¹Department of Plastic and Reconstructive Surgery, Weill Cornell Medicine, NY, NY

²Department of Pathology and Laboratory Medicine, Weill Cornell Medicine, NY, NY

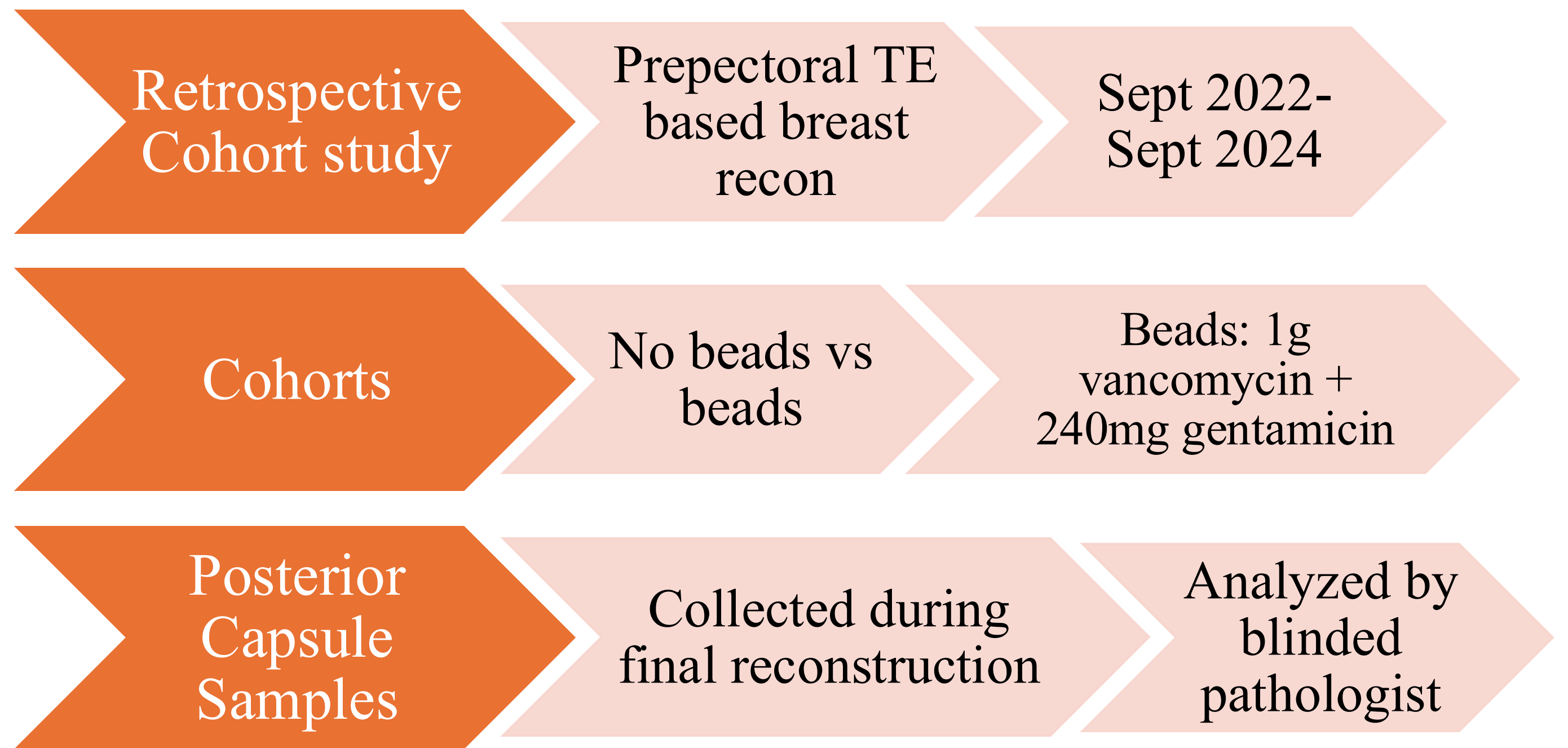
Introduction

- **Absorbable antibiotic beads** are emerging as a novel technique for preventing infections in breast reconstruction by providing local antibiotic therapy
- They can be made with **vancomycin, gentamicin, or tobramycin**
- They are made with **calcium sulfate** in the OR and absorbed by the **body in 30-60 days**



Aim: Analyze the gross and histological characteristics of breast capsules with and without absorbable antibiotic beads

Methods



Results

Total n=41	No Beads (n=16)	Beads (n=25)	p-value
Age (years)	41	46	0.968
BMI (kg/m ²)	23	21	0.669
Breast weight (g)	345	250	0.057
Total Drainage (cc)	290	310	0.708

Table 1: Demographic data between capsules with beads and without beads. Any breasts with radiation therapy were excluded.

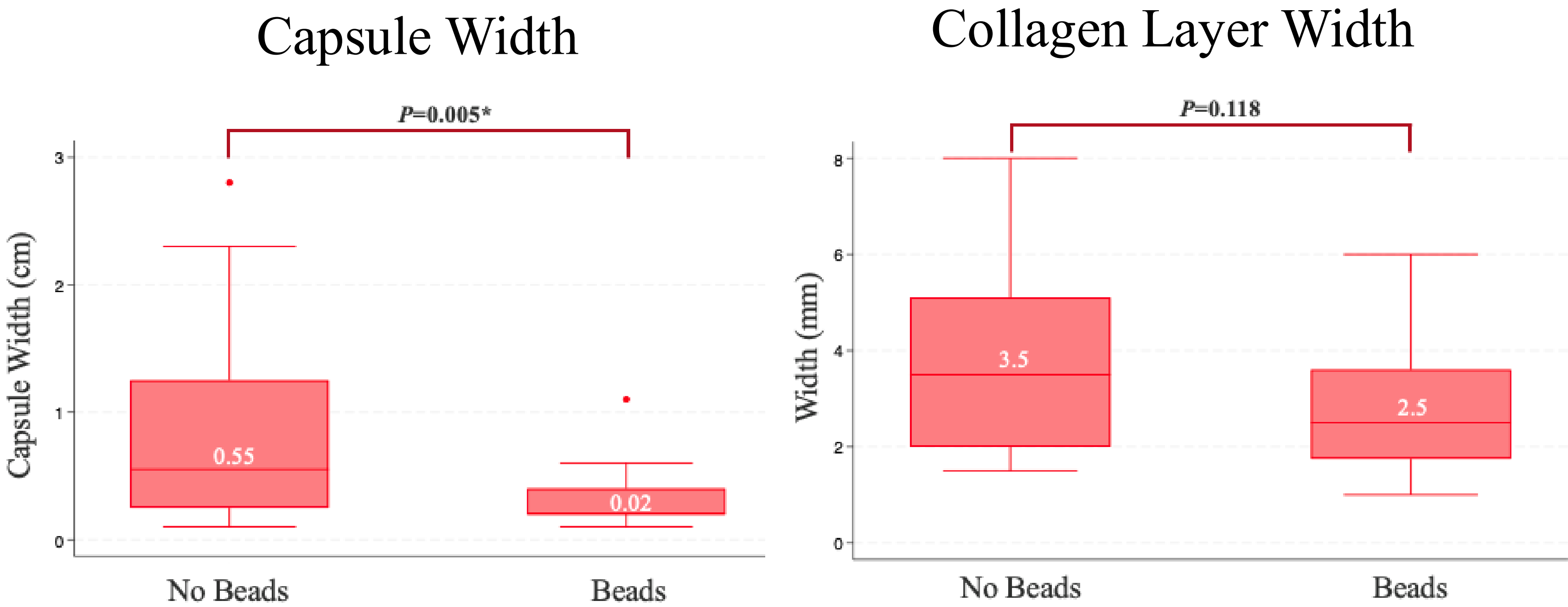


Figure 1: Breast capsule width on gross analysis and collagen layer width on histological analysis between capsules without beads and with beads.

Capsule Calcification

	No Beads (n=11)	Beads (n=20)	p-value
Calcification	0 (0%)	12 (60%)	p=0.001

Table 2: Capsules with beads were associated with significantly more calcification.

Results

Fiber Organization

	No Beads	Beads	p=0.427
Low	1 (9%)	1 (5%)	
Moderate	8 (73%)	13 (65%)	
High	2 (18%)	6 (30%)	

Lymphocytic Infiltration

	No Beads	Beads	p=0.272
Low	3 (27%)	11 (55%)	
Moderate	7 (64%)	7 (35%)	
High	1 (9%)	2 (10%)	

Table 3: There were no differences between fiber organization and lymphocytic infiltration between capsules with and without beads.

Conclusions

- The use of absorbable antibiotic beads in device-based breast reconstruction significantly decreased capsule thickness on gross examination
- Increased calcification in capsules with beads may be secondary to calcium sulfate residue

References

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3. Ahmed S et al. *J Plast Reconstr Aesthet Surg*. 2024.
4. Larsen A et al. *Aesthetic Plast Surg*. 2025;49(2):497-508.