

No Drains, No Problem: A Propensity Score Matched Outcomes Analysis of Dual-port vs. Single-port Tissue Expanders

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Introduction

- Closed suction drains are routinely placed at the time of immediate tissue expander-based breast reconstruction to prevent seroma and infection of the breast pocket dead space after mastectomy
- However, drains are a common postoperative complaint of patients, contributing to discomfort, pain, and decreased quality of life
- Traditional tissue expanders have one port for expansion/deflation
- Dual port tissue expanders have a second port which communicates with the peri-prosthetic space, allowing for drainage without an external drain
- Objective: To evaluate our institutional experience in immediate tissue expander reconstruction without the use of suction drains

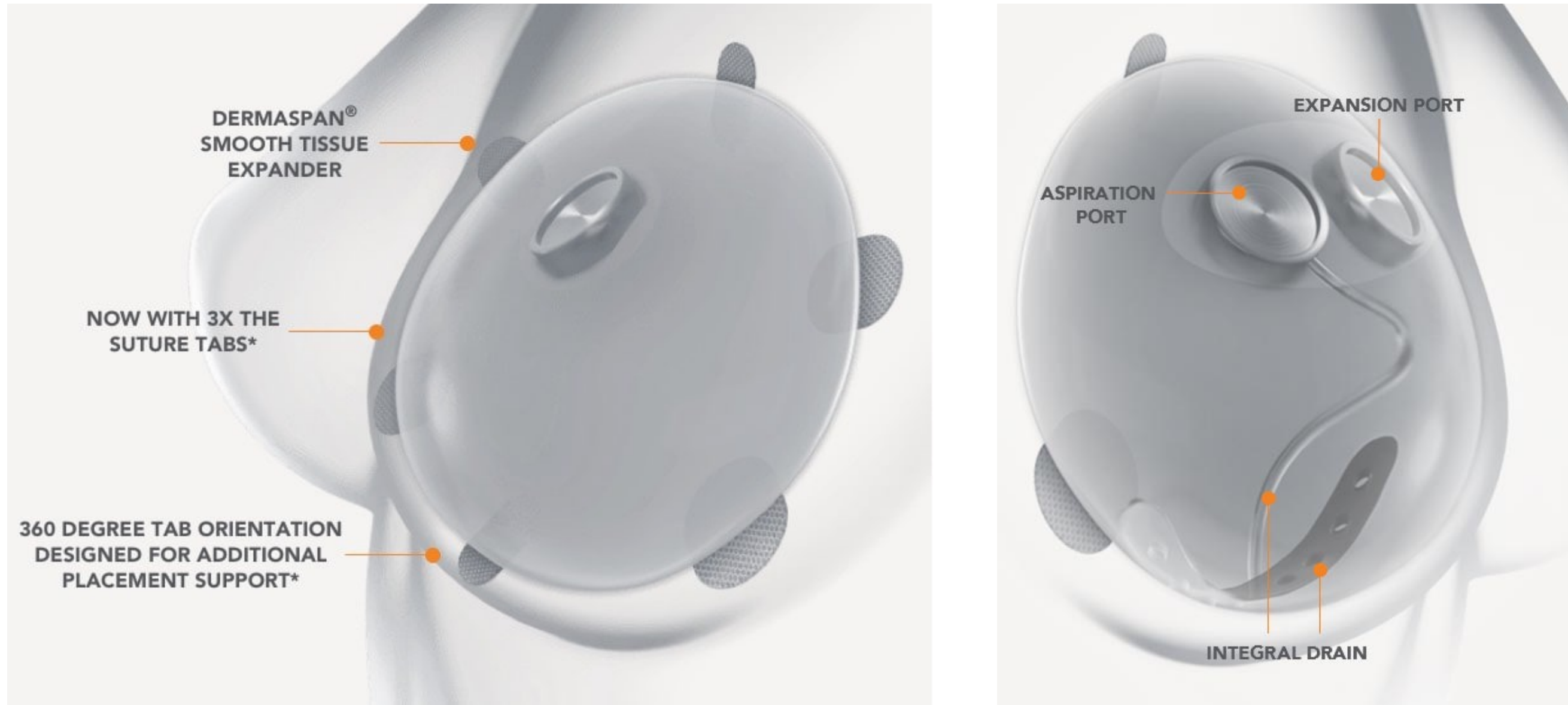


Fig 1: Single-port tissue expander, Fig 2: dual-port tissue expander

Methods

- Retrospective analysis of patients receiving immediate tissue expander placement at the time of mastectomy
- Propensity score matching on pairs of breasts reconstructed with single-port and dual-port tissue expanders
 - Matched based on patient demographics and medical history
- Primary outcomes: infection and mastectomy flap necrosis
- Multivariate regression analysis to identify risk factors for postoperative infection

Results

Table 1. Propensity Score Matched Patient Demographics		
Characteristics	Single-port (%)	Dual-port (%)
Number (breasts/patients)	218/124	218/136
Age	48.7	48
Mean body mass index	24.1	25.1
Smoking	60 (27.5)	73 (33.5)
Diabetes	6 (2.8)	11 (5.0)
Hypertension	29 (13.3)	29 (13.3)
Radiation	36 (16.5)	47 (21.6)
Retro-pectoral plane	212 (97.2)	0 (0.0)
Pre-pectoral plane	6 (2.8)	218 (100)

Table 2. Outcomes of Propensity Score Matched Cohort		
Outcomes	Single-port (%)	Dual-port (%)
Infection	24 (11.2)	17 (8.0)
Mastectomy flap necrosis	23 (10.4)	17 (7.7)

Table 3. Multivariate Regression Analysis of Risk Factors for Infection			
Characteristics	Odds Ratio	Standard Error	p-value
Age	0.017	0.013	0.183
Mean body mass index	0.092	0.026	< 0.001*
Smoking	-0.513	0.298	0.085
Diabetes	0.885	0.607	0.145
Hypertension	-0.197	0.433	0.648
Neoadjuvant chemotherapy	0.345	0.349	0.323
Radiation	-0.442	1.172	0.706
Pre-pectoral plane	-2.395	0.936	0.011*

Conclusion

- Dual-port tissue expanders allow for drain-free immediate tissue expander-based breast reconstruction with a similar complication profile as single-port tissue expanders
 - Dual-port expanders are a safe option for patients who are unable to tolerate postoperative drains
 - However, dual-port tissue expanders require weekly postoperative clinic visits to drain any fluid collections which form
- On multivariate analysis, higher BMI was independently associated with a higher risk of postoperative infection of the breast. Inserting an expander above the pectoralis muscle was found to be protective against infection.

Future Steps

- Additional studies to elucidate the protective effect of prepectoral tissue expander placement on infection rates
- Evaluate patient-reported outcomes in tissue expander-based breast reconstruction with and without the use of external drains

Disclosure

- No disclosures to report

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