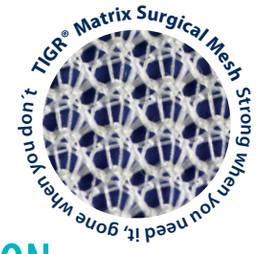
TIGR® matrix



Clinical Literature Synopsis

"PREPECTORAL DIRECT-TO-IMPLANT BREAST RECONSTRUCTION WITH COMPLETE ADM OR SYNTHETIC MESH COVERAGE - 36-MONTHS FOLLOW-UP IN 200 RECONSTRUCTED BREASTS"

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The Breast, August 2019

BACKGROUND & METHODS

Subpectoral vs Prepectoral implant placement as part of NSM in immediate breast reconstruction

Subpectoral placement

Subpectoral implant placement with complete muscle coverage using the pectoralis major muscle (PMM), parts of the serratus muscle and the fascia of the rectus muscle, was standard of care for many decades. Disadvantages include a complex surgical procedure involving the dissection and elevation of the PMM, reduction of muscle strength, postoperative pain, longer recovery period, and breast animation deformity during contraction of the PMM.

Prepectoral placement

The prepectoral implant placement addresses many of the concerns with subpectoral placement. It is a muscle-sparing technique without any detachment of the PMM that requires an implant coverage and an implant fixation with tissue support. This can be performed with ADMs, meshes or autologous dermofat flaps.

Single-stage direct-to-implant (DTI) prepectoral breast reconstruction is a perfect option for patients wanting to maintain their breast sizes without augmentation, but is also possible for patients with large and ptotic breast desiring breast reduction.

Methods

200 breasts were reconstructed with prepectoral implant placement after nipple-sparing mastectomy in a one-stage direct-to-implant procedure. The implants were completely covered and fixed with porcine ADMs (Strattice™ or Artia™), or with synthetic meshes (TIGR® Matrix). The PMM was not detached at all and kept intact entirely. Data were retrieved from a prospectively maintained data-base.

ADM was used in 113 (56.5%) breasts and TIGR Matrix was used in 87 (43.5%) breasts. The choice of mesh was left up to the discretion of the surgeon.

Surgical technique

NSM was performed and the skin flap was separated from the gland using blunt dissection.

The PMM was left entirely intact and the pocket was washed with saline only. The ADM or the synthetic mesh was prepared for the coverage of the implants

Preparation of ADM vs TIGR Matrix differ due to differences in handling characteristics. For full description of the technique, see original article.

When TIGR Matrix was used, it fixed with 3 sutures at the superior edge of the mesh only. Then the implant was put in place and the excessive mesh was wrapped around the implant completely, and no further sutures were performed.

Table 1 Age, Breast volume, Implant weight, Incision type, Radiotherapy.

Age mean, years	45
Age min, years	25
Age max, years	74
NSM bilateral, n patients	66
NSM unilateral, n patients	68
Breast volume excised mean, ml	342
Breast volume excised min, ml	59
Breast volume excised max, ml	1092
Implant weight mean, g	340
Implant weight min, g	110
Implant weight max, g	735
Incision type	
Inframammary fold incision, n breasts, (%)	159 (79.5%)
Lateral s-shaped incision, n breasts, (%)	14 (7.0%)
Vertical incision, n breasts, (%)	7 (3.5%)
Wise incision, n breasts, (%)	15 (7.5%)
Batwing incision, n breasts, (%)	5 (2.5%)
Radiotherapy (RTX)	
RTX after NSMþReconstruction, n breasts, (%)	32 (16.0%)
NSMþReconstruction after prior RTX, n breasts, (%)	26 (13.0%)

MAIN RESULTS & KEY TAKEAWAYS

Main Results

Minor complications included minimal nipple necrosis without further intervention and complete healing in 14 breasts (7.0%).

Major complications comprised implant loss due to skin necrosis and wound infection in 7 breasts (3.5%), and hematoma with revision surgery in 8 breasts (4.0%).

At a mean follow-up of 36 months cosmetic results were excellent and good in 180 breasts (90.0%).

Breast animation deformity and implant displacement could not be observed, while implant rotation was documented in 5 breasts (2.5%).

Capsular contractures grade III or IV could not be observed neither in patients with previous radiotherapy nor in patients with radiotherapy to the reconstructed breast.

There were no differences in complication rates nor in cosmetic results according to the utilization of ADMs or TIGR Matrix.

Key Takeaways

The handling characteristics of TIGR Matrix allowed for smooth preparation in this study, with no hydration of TIGR Matrix needed, and only three suture fixation points as a single sheet of TIGR Matrix could be wrapped around the implant.

Results from this large series on DTI prepectoral implant placement after NSM show reasonable complication rates that are comparable to subpectoral implant placement.

The cosmetic results are appealing, further advantages include intact thoracic musculature, less postoperative pain, no breast animation deformity, and in most cases one single surgical procedure.

Ideal candidates for this technique are patients with small to moderate non ptotic breasts and good soft tissue skin envelope. Short-term and mid-term follow-up is very promising, long-term follow-up has to be reported.

The single-stage direct-to-implant prepectoral implant placement after NSM with complete coverage of the implant with ADM or TIGR Matrix represents a novel and feasible technique for breast reconstruction. This technique provides an alternative to the subpectoral implant placement with excellent cosmetic results avoiding the disadvantages of the subpectoral implant placement.

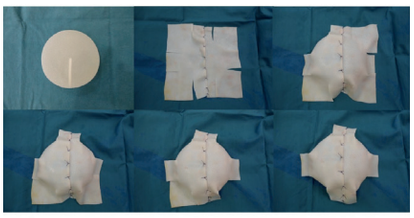
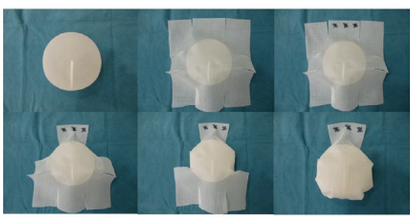


Fig. 1. a: Implant wrapping with ADM.



b: Implant wrapping with synthetic mesh.

Table 2 Complications.

	Prior Radiotherapy n=26	%	No prior Radiotherapy n=174	%	Total n=200	%
Minor complications: Minimal nipple necrosis	2	7.7	12	6.9	14	7.0
Major complications: Hematoma **Major complications:** Implant loss	3 1	11.5 3.8	5 6	2.9 3.4	8 7	4.0 3.5
Total	6	23.1	23	13.2	29	14.5