

# PREPECTORAL IMPLANT-BASED POSTMASTECTOMY BREAST RECONSTRUCTION

R.Reitsamer

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Paracelsus Medical University Salzburg

# PREPECTORAL DIRECT-TO-IMPLANT BREAST RECONSTRUCTION WITH COMPLETE ADM OR SYNTHETIC MESH COVERAGE

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# Direct-To-Implant (DTI) Breast Reconstruction

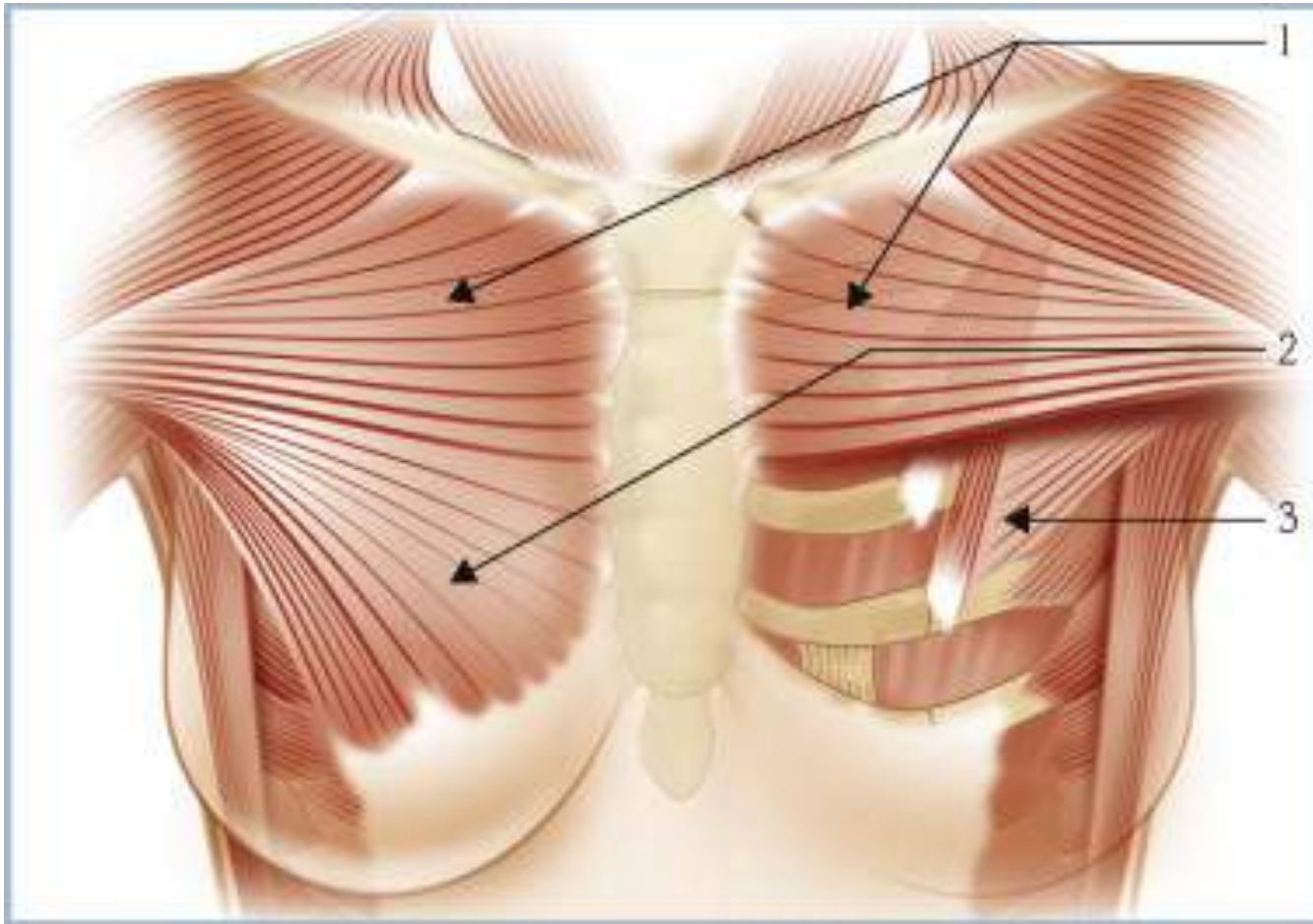
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- Single-stage DTI breast reconstruction offers an ideal reconstructive choice in selected patients by replacing loss of the breast at the time of mastectomy in a single operation

# Implant Placement

- Subpectoral
  - Standard of care for many years
  - partial coverage with pectoralis major muscle
  - partial coverage with ADM
- Prepectoral
  - physiological
  - complete coverage with ADM or mesh

# Variations of the Pectoralis Major Muscle



# Matrices for Implant Coverage and Implant Stabilisation

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- Various ADMs
- Various Meshes
- Corial flaps

# Matrices for Implant Coverage and Implant Stabilisation

## □ Various ADMs

### □ Human ADMs

- Alloderm®
- DermACELL®
- Repriza®
- Epiflex®
- FlexHD®

### □ Porcine ADMs

- Strattice®
- Artia®
- Permacol®
- Protexa®
- Braxon®

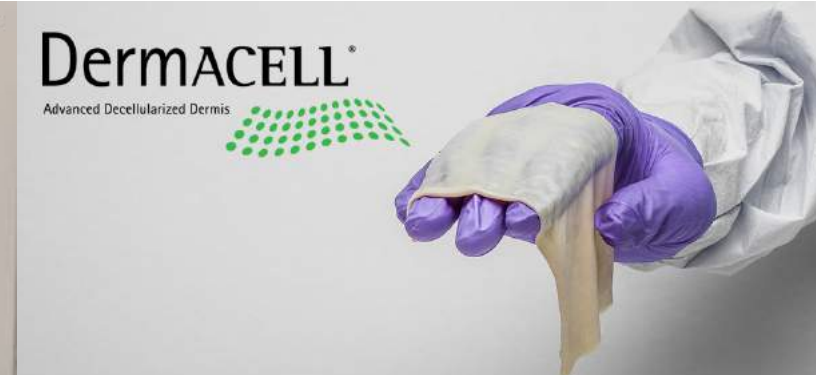
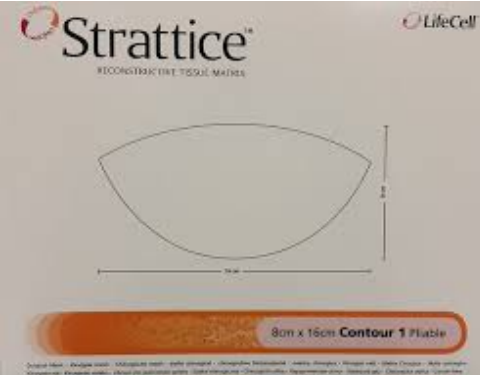
### □ Bovine ADMs

- Surgimend®
- Veritas®

# Matrices for Implant Coverage and Implant Stabilisation


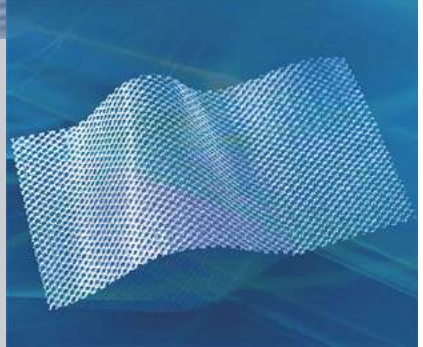
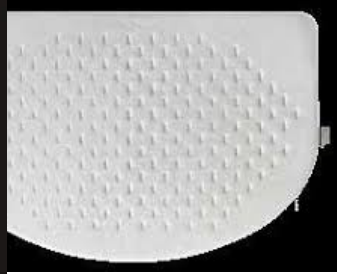
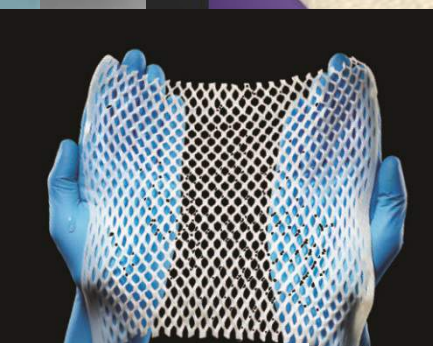
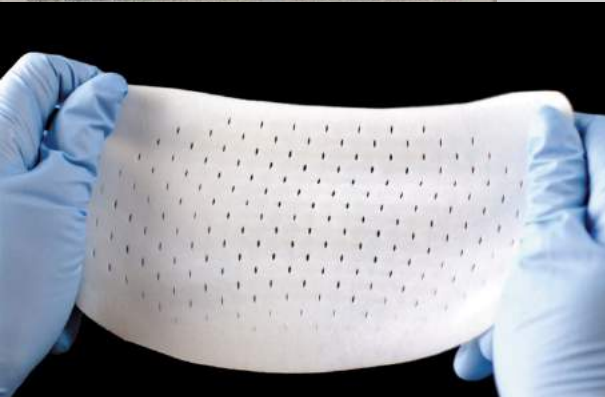
- Various ADMs
- Various Meshes
  - Tiloop®
    - titanised polypropylene
    - non resorbable
  - Tigr®
    - synthetic resorbable polymers
    - resorbable matrix





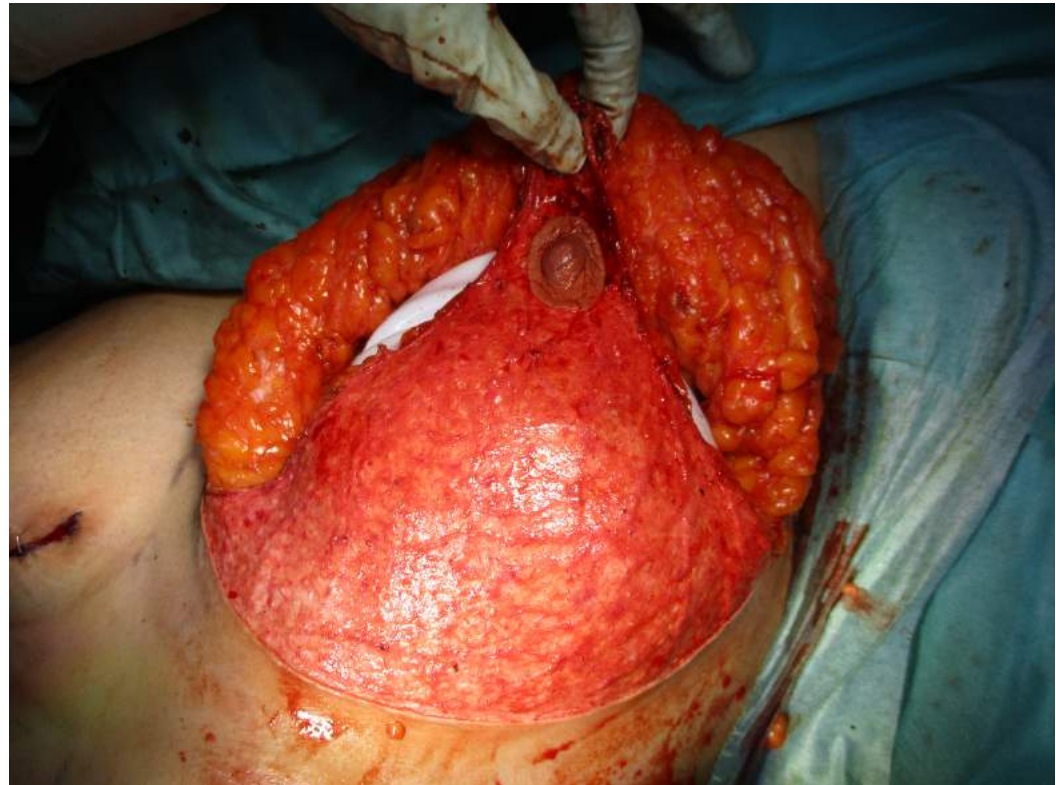
## Alloderm

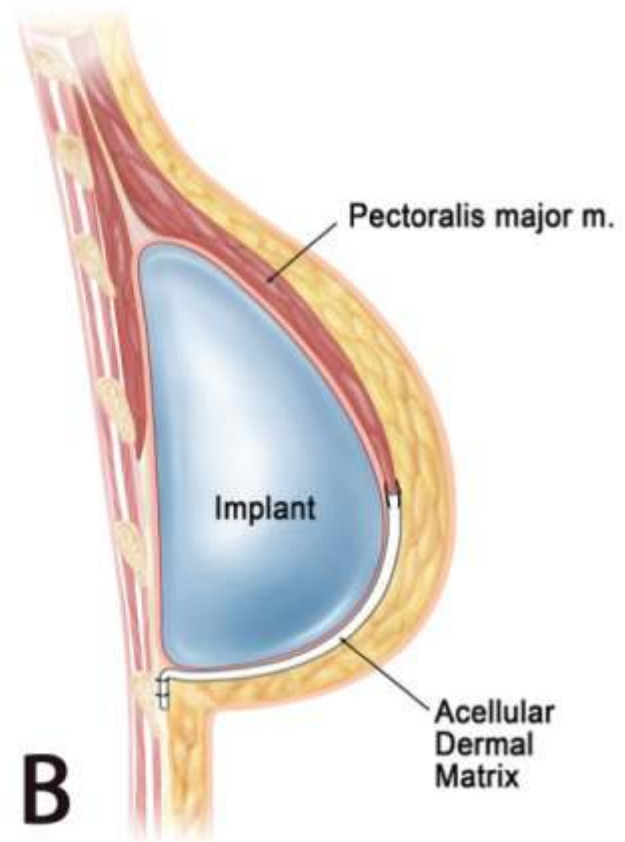
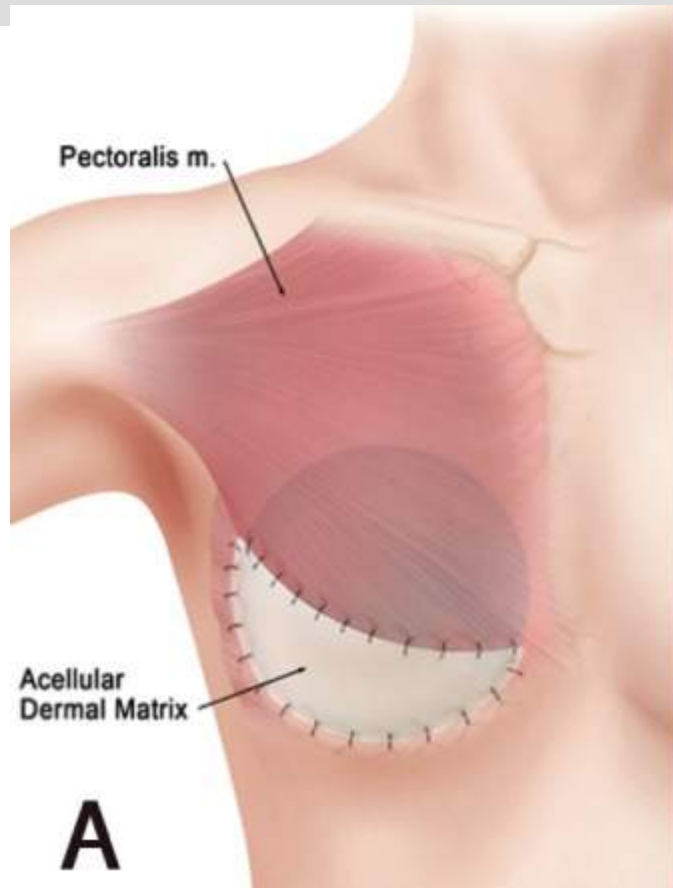
- ⊗ Acellular dermal matrix derived from donated human skin
- ⊗ Epidermis and all dermal cellular components are removed

# Matrices for Implant Coverage and Implant Stabilisation

- Various ADMs
- Various Meshes
- Corial flaps









# Hypothesis

- Disadvantages of subpectoral implant placement
  - partial injury of the pectoralis major muscle
  - muscular deficit
  - breast animation
  - postoperative pain
- can be eliminated by prepectoral implant placement and complete implant coverage with ADM

ORIGINAL ARTICLE



ANZJSurg.com

## **Evaluation of a novel breast reconstruction technique using the Braxon<sup>®</sup> acellular dermal matrix: a new muscle-sparing breast reconstruction**

Giorgio Berna,\* Simon J. Cawthorn,† Guido Papaccio‡ and Nicola Balestrieri§

\*Department of Plastic and Reconstructive Surgery, Ulss 9 General Hospital, Treviso, Italy

†Breast Care Center, North Bristol NHS Trust, Bristol, UK

‡Breast Care Center, Ulss 12 General Hospital, Mestre, Italy and

§Breast Care Center, Ulss 9 General Hospital, Treviso, Italy

# **First Publications 2014**



ELSEVIER



# Prepectoral implant placement and complete coverage with porcine acellular dermal matrix: A new technique for direct-to-implant breast reconstruction after nipple-sparing mastectomy<sup>☆</sup>

Roland Reitsamer<sup>a,\*</sup>, Florentia Peintinger<sup>a,b</sup>

# First Publications 2014



Eur J Plast Surg (2014) 37:599–604

DOI 10.1007/s00238-014-1001-1

ORIGINAL PAPER

# **TiLoop® Bra mesh used for immediate breast reconstruction: comparison of retropectoral and subcutaneous implant placement in a prospective single-institution series**

**Donato Casella • Marco Bernini • Lapo Bencini • Jenny Roselli •  
Maria Teresa Lacaria • Jacopo Martellucci • Roberto Banfi •  
Claudio Calabrese • Lorenzo Orzalesi**


# **First Publications 2014**



# Operative Approaches to Nipple-Sparing Mastectomy

Indications, Techniques,  
& Outcomes

Jay K. Harness  
Shawna C. Willey  
*Editors*

 Springer

Surgery

ISBN 978-3-319-43257-1



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► [springer.com](http://springer.com)

## BREAST

# Staged Suprapectoral Expander/Implant Reconstruction without Acellular Dermal Matrix following Nipple-Sparing Mastectomy

Arthur H. Salibian, M.D.  
Jay K. Harness, M.D.  
Donald S. Mowlds, M.D.,  
M.B.A.  
*Orange, Calif.*

**Background:** Since the introduction of nipple-sparing mastectomy as an oncologically safe procedure for the treatment of breast cancer, reconstructive efforts for immediate staged expander/implant reconstruction have focused on submuscular implantation with or without acellular dermal matrix. Suprapectoral reconstruction without acellular dermal matrix has received little attention in the reconstructive literature of nipple-sparing mastectomy.

**Methods:** Between 2005 and 2015, 155 patients (250 breasts) underwent nipple-sparing mastectomy with prepectoral staged expander/implant reconstruction using thick mastectomy skin flaps without acellular dermal matrix. Patients with different breast sizes, including those patients with very large breasts who required a primary mastopexy, were considered candidates for the suprapectoral reconstruction. Tumor-related data, comorbidities, and preoperative or postoperative radiation therapy were evaluated for correlation with the final outcome.

# WITHOUT ADM



# An Alternative Technique for Immediate Direct-to-Implant Breast Reconstruction—A Case Series

Ronald K. Downs, MD, FACS,\*†  
Kellee Hedges, FNP-BC‡

**Background:** The practice of breast reconstruction continues to evolve with the introduction of new technologies. The authors describe a unique approach allowing immediate direct-to-implant reconstruction that can be performed on an out-patient basis.

**Methods:** After a nipple-sparing mastectomy, acellular dermal matrix (ADM)-covered implants are placed in a prepectoral position in an immediate reconstruction. Assessment of results was performed via a retrospective review of demographic and procedural data.

**Results:** Forty-five patients (79 breasts) mean age 46.8 years, were treated with direct-to-implant reconstruction using ADM-wrapped implants placed above the muscle with mean follow-up of 23.1 months (median 22 mo). Mean body mass index was 24.3, and 15 patients (33.3%) were current or former smokers. Twenty-seven patients (60%) had prior breast surgery with 22 (49%) exposed to chemotherapy and 34 (76%) radiation. Procedure time averaged 155 minutes and hospital length of stay averaged 0.6 days. Complications included flap necrosis in 22 cases (28%), seroma in 12 (15%), infection in 8 (10%), rippling in 28 (35%), and contracture in 8 (10%). In 14 breasts (18%), postoperative wound complications (flap necrosis or infection) led to implant loss.

WITH ADM

# Subcutaneous Direct-to-Implant Breast Reconstruction: Surgical, Functional, and Aesthetic Results after Long-Term Follow-Up

Marco Bernini, PhD, MD\*  
 Claudio Calabrese, MD\*  
 Lorenzo Cecconi, PhD†  
 Caterina Santi, MD‡  
 Ulpjana Gjondedaj, MD‡  
 Jenny Roselli, MD‡  
 Jacopo Nori, MD§  
 Alfonso Fausto, MD¶  
 Lorenzo Orzalesi, MD‡  
 Donato Casella, MD\*

**Background:** Direct-to-implant breast reconstruction can be achieved more easily by means of soft-tissue replacement devices such as dermal matrices and synthetic meshes. The feasibility of a subcutaneous approach has been recently investigated by some studies with different devices functioning as implant support. Aim of this study is to analyze the long-term results, both objective and subjective, of a previous nonrandomized trial comparing prepectoral (subcutaneous) and retropectoral breast reconstructions.

**Methods:** Patients enrolled in a nonrandomized prospective trial, comparing the standard retropectoral reconstruction and the prepectoral subcutaneous approach, using a titanium-coated mesh in both techniques, were followed up and evaluated for long-term results. Cases were compared in terms of the causes and rate of reinterventions, of the postoperative BREAST-Q questionnaire results, and of an objective surgical evaluation.

**Results:** The subcutaneous group had a rate of implant failure and removal of 5.1% when compared with 0% in the retropectoral group. Aesthetic outcome was significantly better for the subcutaneous group both at a subjective and at an objective evaluation. Capsular contracture rate was 0% in the subcutaneous group.

**Conclusions:** A higher rate of implant failure and removal, although not significant, always because of skin flaps and wound problems, should be taken into account for a careful patients selection. The subcutaneous breast reconstruction shows good long-term results. A coherent subjective and objective

evaluation of aesthetic outcome was achieved in both groups. Moreover, no significant difference was observed in the results. A limited number of cases. *Breast Reconst Surg Glob Open* 2015;3:e574, doi: 10.1097/GOX.0000000000000553; Published online 8 December 2015.)

**WITH TITANIUM-COATED MESH**



OPEN



ORIGINAL ARTICLE

Breast

# Immediate Implant-based Prepectoral Breast Reconstruction Using a Vertical Incision

Hilton Becker, MD, FACS\*†‡  
Jeffrey G. Lind II, MD†  
Elizabeth G. Hopkins, BA,  
BSS

**Background:** Ideally, breast reconstruction is performed at the time of mastectomy in a single stage with minimal scarring. However, postoperative complications with direct-to-implant subpectoral reconstruction remain significant. These include asymmetry, flap necrosis, animation deformity, and discomfort. We report on a series of patients who have undergone immediate single-stage prepectoral, implant-based breast reconstruction with a smooth, adjustable saline implant covered with mesh/acellular dermal matrix for support using a vertical mastectomy incision. This technique, when combined with an adjustable implant, addresses the complications related to subpectoral implant placement of traditional expanders. Our follow-up time, 4.6 years (55 months), shows a low risk of implant loss and elimination of animation deformity while also providing patients with a safe and aesthetically pleasing result.

## WITH MESH or ADM

# Prepectoral Implant-Based Breast Reconstruction: Rationale, Indications, and Preliminary Results

Steven Sigalove, M.D.  
 G. Patrick Maxwell, M.D.  
 Noemi M. Sigalove, M.D.  
 Toni L. Storm-Dickerson, M.D.  
 Nicole Pope, M.S.N.,  
 F.N.P.-C., C.P.S.N.  
 Jami Rice, M.S.P.A.S., P.A.-C.  
 Allen Gabriel, M.D.

*Winfield, Ill.; Loma Linda, Calif.;  
 Portland, Ore.; and Vancouver, Wash.*



**Summary:** Implant-based breast reconstruction is currently performed with placement of the implant in a subpectoral pocket beneath the pectoralis major muscle, by means of the dual-plane approach. Although the safety and breast aesthetics of this approach are well recognized, it is not without concerns. Animation deformities and accompanying patient discomfort, which are direct consequences of muscle elevation, can be severe in some patients. Moving the implant prepectorally may eliminate these concerns. For a successful prepectoral approach, the authors advocate use of their bioengineered breast concept, which was detailed in a previous publication. In this report, the authors discuss the rationale for prepectoral implant reconstruction, its indications/contraindications, and preliminary results from over 350 reconstructions. (*Plast. Reconstr. Surg.* 139: 287, 2017.)

**CLINICAL QUESTION/LEVEL OF EVIDENCE:** Therapeutic, IV.



## Treatment of Breast Animation Deformity in Implant-Based Reconstruction with Pocket Change to the Subcutaneous Position

Dennis C. Hammond, M.D.  
William P. Schmitt, M.D.  
Elizabeth A. O'Connor,  
M.D.

*Grand Rapids, Mich.*



**Summary:** Breast animation may be an unfortunate result of subpectoral implant-based reconstruction following mastectomy. This article reviews a novel approach to the treatment of animation deformity in cases of reconstruction, whereby the pectoralis major muscle is sutured down to the chest wall and the implant is transferred to the subcutaneous plane. A retrospective review was performed on 19 breasts undergoing pocket change. In selected cases, fat grafting was added to augment the soft-tissue framework around the implant. Demographics, operative details, outcomes, and complications were recorded. All 19 breasts had complete resolution of their animation deformity. Complications were seen in five breasts (26.3 percent). Four breasts (21.1 percent) developed Baker grade III or IV capsular contracture requiring capsulectomy that was curative. One seroma (5.3 percent) required in-office drainage. There were no visible implant deformities, infections, or implant removals. In appropriately selected patients, pocket change to a subcutaneous plane is a safe and effective technique for correction of severe animation deformity following implant-based breast reconstruction. (*Plast. Reconstr. Surg.* 135: 1540, 2015.)

**CLINICAL QUESTION/LEVEL OF EVIDENCE:** Therapeutic, IV.

# IDEAS AND INNOVATIONS

## Skin-Reduction Breast Reconstructions with Prepectoral Implant

Glenda Giorgia Caputo,  
M.D., Ph.D.

Alberto Marchetti, M.D.

Edoardo Dalla Pozza, M.D.

Enrico Vigato, M.D.

Lavinia Domenici, M.D.

Emanuele Cigna, M.D., Ph.D.

Maurizio Governa, M.D.

*Verona and Rome, Italy*



# Corial flap

**Summary:** Skin-reduction mastectomy with prepectoral implant reconstruction is a novel technique for immediate breast reconstruction, with subcutaneous implant placement in patients eligible for skin-reducing mastectomy. Implants were placed above the pectoralis muscles in a compound pocket made by a dermal flap and acellular dermal matrix. The procedure was performed on 33 breasts in 27 selected patients. In three cases, there was skin ischemia; in one case, it healed spontaneously; and in two patients, a surgical necrosectomy and primary closure were needed. No implant loss occurred. This new technique proved to be a useful alternative, with good cosmetic results, in selected patients requiring mastectomy. These preliminary results need to be confirmed by long-term and comparative studies. (*Plast. Reconstr. Surg.* 137: 1702, 2016.)

**CLINICAL QUESTION/LEVEL OF EVIDENCE:** Therapeutic, IV.





# Immediate breast reconstruction with a wise pattern mastectomy and NAC-sparing McKissock vertical bipedicle dermal flap<sup>☆,§</sup>



Richard Lewin<sup>a,b</sup>, Christian Jepsen<sup>b</sup>, Håkan Hallberg<sup>a,b</sup>,  
Emma Hansson<sup>a,b,c,\*</sup>

<sup>a</sup> University of Gothenburg, The Sahlgrenska Academy, Department of Clinical Sciences, Gothenburg, Sweden

<sup>b</sup> Department of Reconstructive and Plastic Surgery, Sahlgrenska University Hospital, Gothenburg, Sweden

<sup>c</sup> Department of Clinical Sciences Malmö, Lund University, Malmö, Sweden

Received 1 December 2017; accepted 27 May 2018

# Corial flap

# Prepectoral Breast Reconstruction

Ryan P. Ter Louw, MD  
Maurice Y. Nahabedian, MD  
*Falls Church, Va.; and Washington, D.C.*

**Summary:** Oncologic and reconstructive advancements in the management of patients with breast cancer and at high risk for breast cancer have led to improved outcomes and decreased patient morbidity. Traditional methods for prosthetic breast reconstructions have utilized total or partial muscle coverage of prosthetic devices. Although effective, placement of devices under the pectoralis major muscle can be associated with increased pain due to muscle spasm and animation deformities. Prepectoral prosthetic breast reconstruction has gained popularity in the plastic surgery community, and long-term outcomes have become available. This article will review the indications, technique, and current literature surrounding prepectoral prosthetic breast reconstruction. (*Plast. Reconstr. Surg.* 140: 51S, 2017.)

# Fenestrated ADM

Original Article

## Early multicentre experience of pre-pectoral implant based immediate breast reconstruction using Braxon<sup>®</sup>

Sadaf Jafferbhoy<sup>1\*</sup>, Mihir Chandarana<sup>1\*</sup>, Maria Houlihan<sup>1</sup>, Rishikesh Parmeshwar<sup>2</sup>, Sankaran Narayanan<sup>1</sup>, Soni Soumian<sup>1</sup>, Simon Harries<sup>3</sup>, Lucie Jones<sup>3</sup>, Dayalan Clarke<sup>3</sup>

<sup>1</sup>Department of Breast Surgery, University Hospital of North Midlands, Stoke-on-Trent, UK; <sup>2</sup>Department of Breast Surgery, Royal Lancaster Infirmary, Lancashire, UK; <sup>3</sup>Department of Breast Surgery, South Warwickshire NHS Foundation Trust, Warwick, UK

*Contributions:* (I) Conception and design: All authors; (II) Administrative support: All authors; (III) Provision of study materials or patients: All authors; (IV) Collection and assembly of data: All authors; (V) Data analysis and interpretation: All authors; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

\*These authors contributed equally to this work.

*Correspondence to:* Mr. Soni Soumian, Department of Breast Surgery, University Hospital of North Midlands, Trust Headquarters Building, the Royal Stoke University Hospital, Stoke-on-Trent, ST4 6QG, UK. Email: [Soni.Soumian@uhnm.nhs.uk](mailto:Soni.Soumian@uhnm.nhs.uk)

**Braxon<sup>®</sup>**

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# Muscle-Sparing ADM-Assisted Breast Reconstruction Technique Using Complete Breast Implant Coverage: A Dual-Institute UK-Based Experience

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<sup>a</sup>Breast Care Centre, Royal Wolverhampton Hospital NHS Trust, Wolverhampton, United Kingdom;

<sup>b</sup>Breast Care Centre, North Bristol NHS Trust, Southmead Hospital, Bristol, United Kingdom



OPEN



ORIGINAL ARTICLE

Breast

## Prepectoral Implant-Based Breast Reconstruction

Lyndsey Highton, BMBCh, MA,  
FRCS(Plast)  
Richard Johnson, MBChB, BSc,  
FRCS  
Cliona Kirwan, MBChB, PhD,  
FRCS  
John Murphy, MBChB, PhD,  
FRCS

**Background:** The development of acellular dermal matrices (ADMs) has facilitated single-stage implant breast reconstruction (IBR) following skin-sparing mastectomy. The conventional approach of postpectoral implant placement with lower pole ADM confers a good cosmetic result by improving lower pole projection and control, while minimizing issues of implant visibility, palpability, and rippling. This is balanced with potential disadvantages including pain, disruption of pectoral muscle function, and animation. We report the results of a prospective study of prepectoral IBR with total ADM coverage.

**Methods:** Prepectoral IBR with total ADM coverage was performed in 106 patients (166 breasts) in our institution from 2013 to 2017. The cohort included patients undergoing immediate IBR (113 breasts) and revision of existing submuscular IBR (53 breasts). Patient demographics, surgical complications, and outcomes from a prospective database were analyzed.

**Results:** At a mean follow-up of 485 days, patient satisfaction and cosmetic outcomes have been good, with no significant capsular contractures or animation deformity. Minor complications including delayed healing, red breast, or seroma occurred in 14 breasts (8.4%). Major complications including necrosis and implant loss occurred in 5 breasts (3 patients), with a total explantation rate of 3%. No patients required more than an overnight stay in hospital, and there were no delays to adjuvant treatment in therapeutic cases.

**Conclusion:** Prepectoral implant placement with ADM cover is emerging as an alternative approach for IBR. This method facilitates breast reconstruction with a good cosmetic outcome for patients who want a quick recovery without potential compromise of pectoral muscle function and associated problems. (*Plast Reconstr Surg Glob Open* 2017;5:e1488; doi: 10.1097/GOX.0000000000001488; Published online September 2017.)

Strattice®

# Prepectoral Immediate Direct-to-Implant Breast Reconstruction with Anterior AlloDerm Coverage

Glyn Jones, MD

Aran Yoo, BS

Victor King, BS

Brian Jao, MD

Huaping Wang, PhD

Charalambos Rammos, MD

Eric Elwood, MD

Peoria, Ill.; and Boston, Mass.

**Background:** Staged subpectoral expander-implant breast reconstruction is widely performed. Disruption of the pectoralis major origin and the frequent occurrence of animation deformity and functional discomfort associated with subpectoral reconstruction remain ongoing concerns. Prepectoral single-stage direct-to-implant reconstruction resolves many of these issues. In this study, the authors explored the rationale for prepectoral single-stage implant-based breast reconstruction with anterior AlloDerm coverage as an alternative to the staged approach.

**Methods:** Seventy-three breasts in 50 patients were reconstructed using a single-stage direct-to-implant prepectoral approach with total anterior AlloDerm coverage during a 24-month period. The decision to proceed with single-stage reconstruction was predicated upon the adequacy of mastectomy skin flap blood flow based on indocyanine green fluorescence perfusion assessment. The patients were followed up for a maximum of 32 months.

**Results:** Ninety-seven percent of patients achieved complete healing within 8 weeks. There were 2 implant losses (2.7%) due to infection. Major seroma rate requiring repeated aspiration and drain insertion was 1.2%. There were no full-thickness skin losses. Capsular contracture was 0% in nonradiated patients. There were no cases of animation deformity. The authors were unable to establish significant correlation between complications and any of the usually stated risk factors, such as smoking, obesity, and large mastectomy weights, presumably due to the rigorous application of intraoperative skin perfusion assessment.

**Conclusion:** Single-stage direct-to-implant reconstruction using a prepectoral approach appears to be a safe and effective means of breast reconstruction in many patients, assuming adequate skin perfusion is present. (*Plast. Reconstr. Surg.* 140: 31S, 2017.)

# AlloDerm®

# Prepectoral Implant Placement Literature

Author	Year	Journal	DTI	2-stage	Revision	ADM	Mesh	Seroma	Explant rate/Implant loss
Gabriel A	2018	Aesthetic Surgery J			102			2.0%	3.9%
Jafferbhoy S	2017	Gland Surg	78			Braxon		23.0%	10.2%
Cattelani L	2017	Clinical Breast Cancer	39			Braxon			
Vidya R	2017	Breast Care	59			Braxon		6.7%	1.7%
Highton L	2017	PRSGlobalOpen	113		53	Strattice/Artia		8.4%	3.0%
Jones G	2017	PRS	73			Alloderm		1.2%	2.7%
Nahabedian M	2017	PRS	6	56		Alloderm		4.8%	6.5%
Onesti MG	2017	JPRAS	64			Braxon			1.5%
Bettinger LN	2017	PRSGlobalOpen		165		Alloderm		3.03%	8.48%
Salibian A	2017	PRS		250		Alloderm		2.0%	2.5%
Sigalove S	2017	PRS	46	307		Alloderm		2.0%	2.5%
Vidya R	2016	Breast Journal	100			Braxon		5.0%	2.0%
Sbitany H	2016	PRS		84		Alloderm		3.6%	1.2%
Downs RK	2016	PRSGlobalOpen	79			Alloderm/FlexHD		15.0%	18.0%
Caputo GG	2016	PRS	33			dermofat/ADM			0%
Casella D	2016	PRSGlobalOpen		25			Tilloop	0%	0%
Bernini M	2015	PRSGlobalOpen	39				Tilloop	0%	3.0%
Hammond D	2015	PRS			19			5.3%	0%
Becker H	2015	PRSGlobalOpen	62			FlexHD	Vicryl mesh	1.6%	3.2%
Reitsamer R	2015	JPRAS	22			Strattice		0%	0%
Casella D	2014	Eur J Plast Surg	39				Tilloop	0%	3.0%
Berna G	2014	ANZ J Surg	23		2	Braxon		8.0%	12.0%
			<b>875</b>	<b>887</b>	<b>176</b>				



ELSEVIER



EURAPS



Review

# A systematic review of complications in prepectoral breast reconstruction <sup>☆</sup>

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Sebastian Winocour<sup>a,\*</sup>

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Received 28 June 2018; accepted 6 April 2019

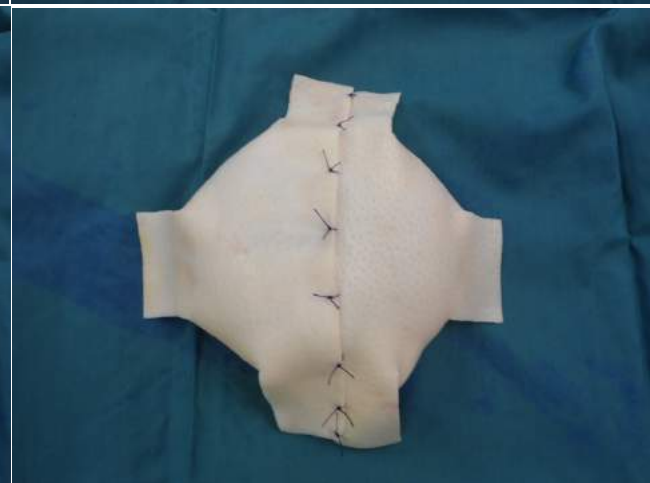
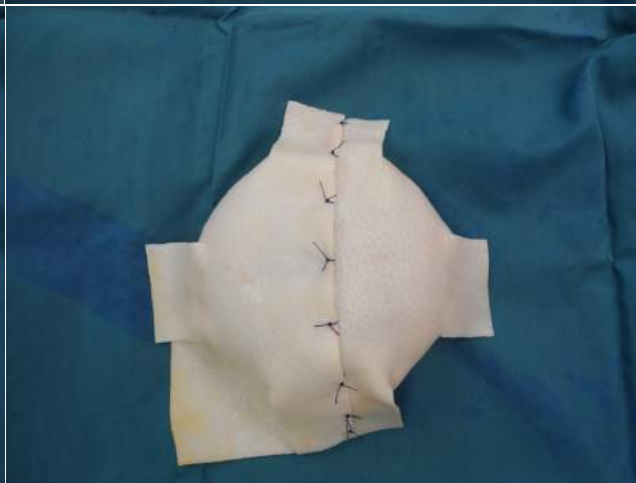
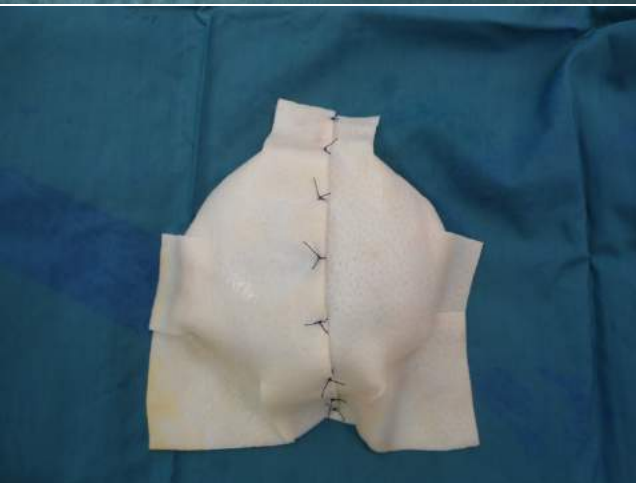
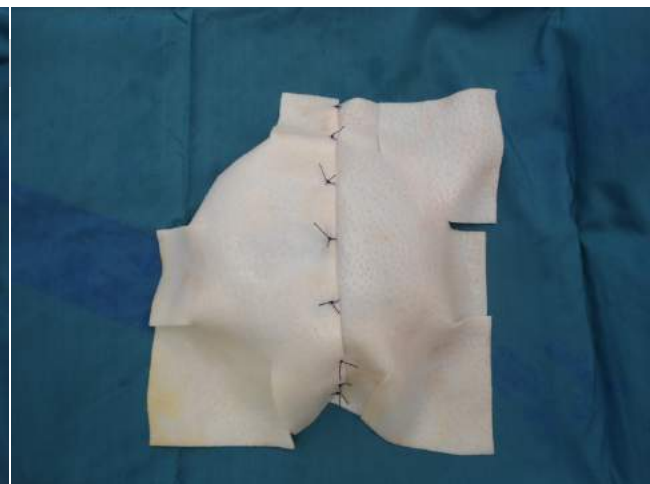
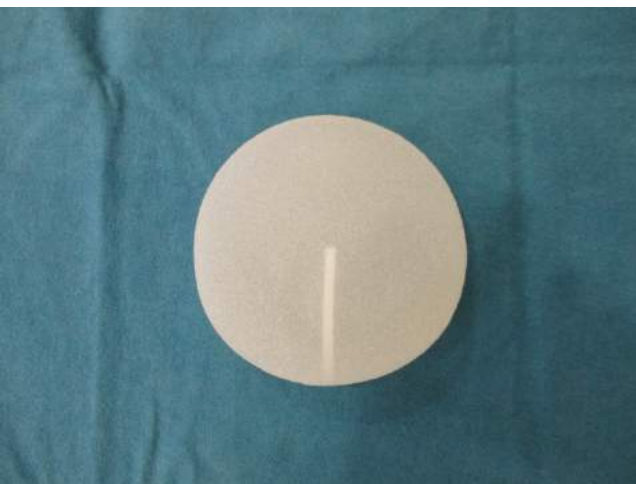
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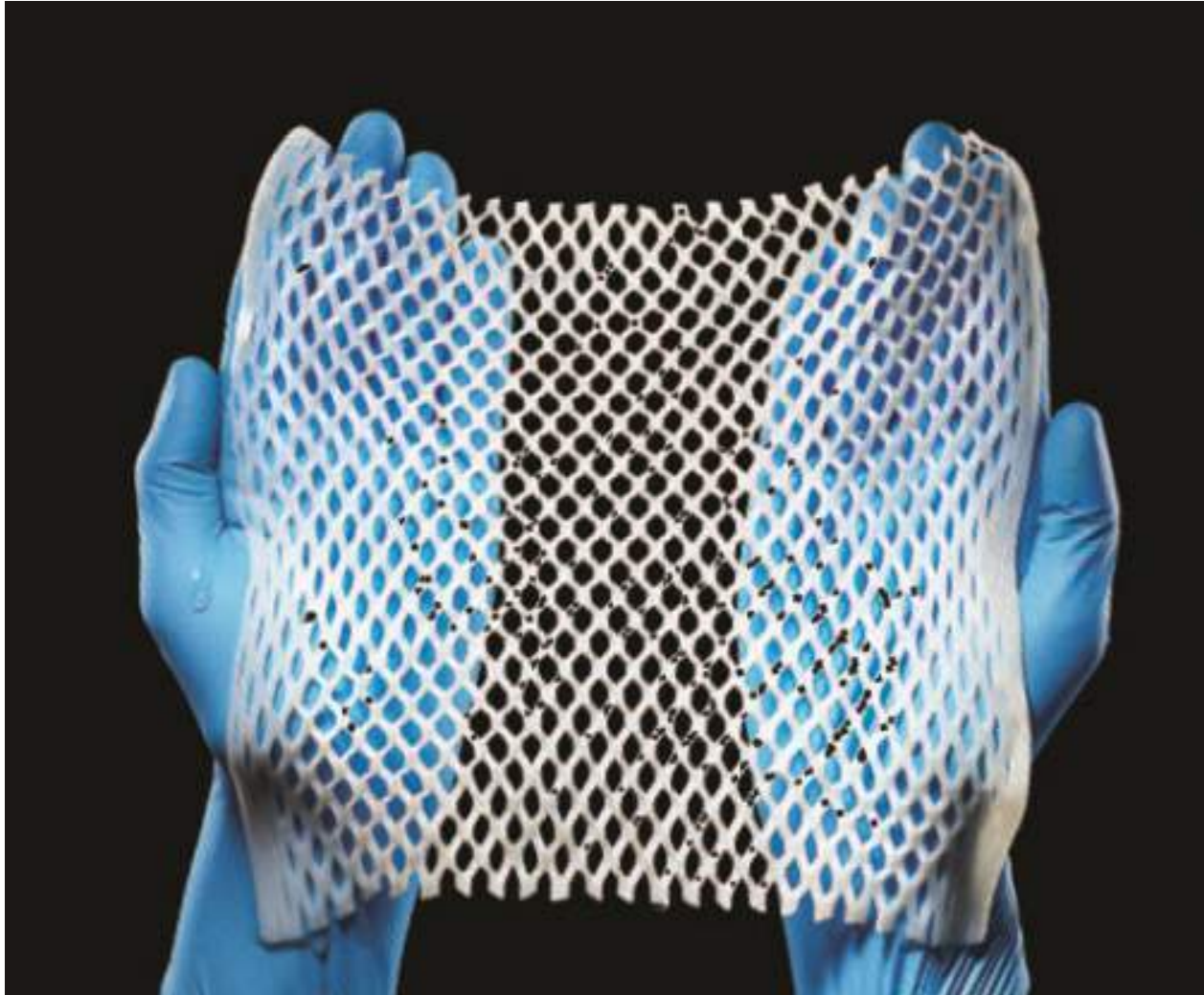


- 27/550 studies met inclusion criteria for review
- Total 1881 breasts
- Complication rates 23.4% with ADM vs 27.5% without ADM
- Capsular contracture rate 2.3% with ADM vs 12.4% without ADM
- Results were variable across studies, and quality of evidence reported was low
- Need for further investigation with comparative studies and standardized outcome reporting

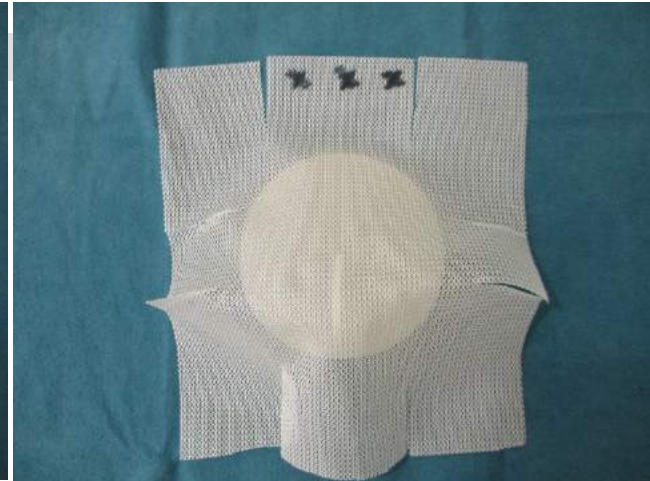
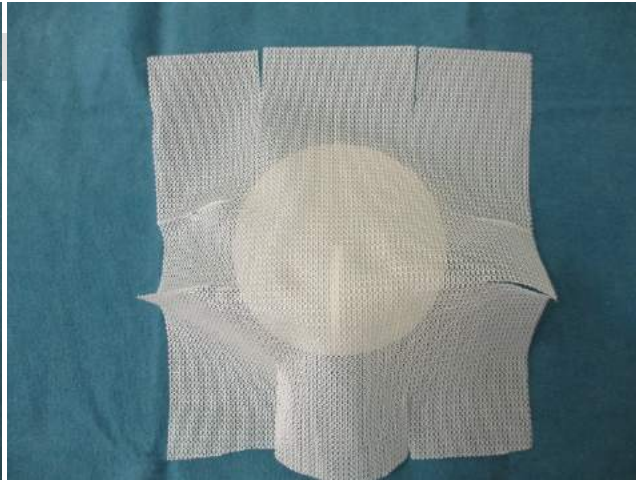
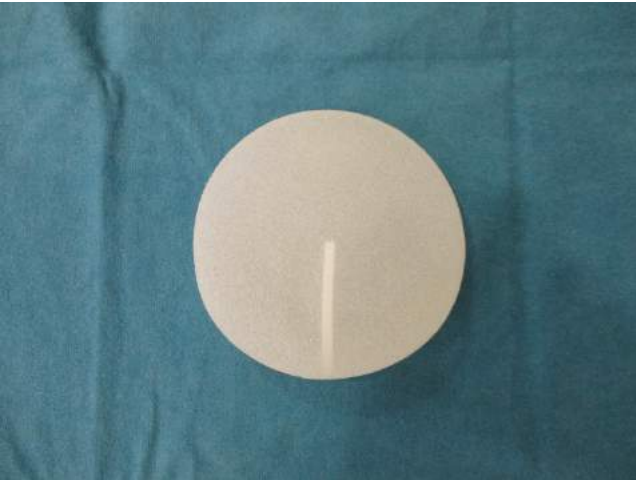
# Patients and Methods

- In a total of **200 breasts** in **134 patients** (66 bilateral, 68 unilateral) NSM and immediate direct-to-implant breast reconstruction was performed with prepectoral implant placement
- The PMM was not dissected or detached at all
- The implant was completely covered by porcine ADM, or mesh, which was sutured to connective tissue between the superficial thoracic fascia and the fascia of the PMM and to the inframmary fold to keep the implant in place

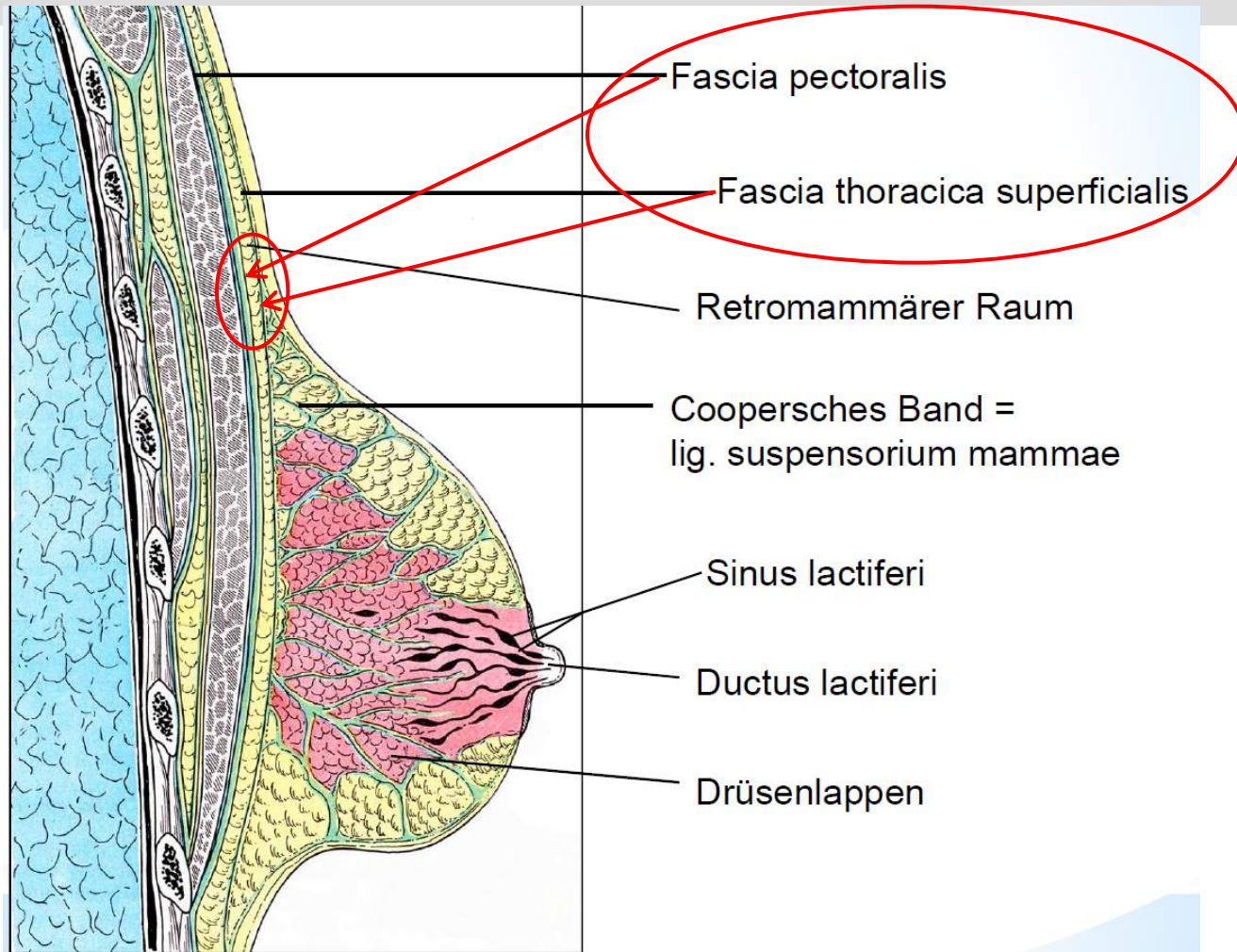








# Cranial Fixation of the ADM / Mesh



# Breast Volume, Implant Size

NSM bilateral, n patients	66	→ n=200 breasts
NSM unilateral, n patients	68	
Breast volume excised mean, ml	342	
Breast volume excised min, ml	59	
Breast volume excised max, ml	1092	
Implant size mean, g	340	
Implant size min, g	110	
Implant size max, g	735	

# Incision Type

	n	%
<b>Incision type</b>	<b>200</b>	<b>100</b>
Inframammary fold incision	159	79.5
Periareolar with extension	5	2.5
Vertical incision	7	3.5
Lateral s-shaped incision	14	7.0
Wise incision (reduction mastopexy pattern)	15	7.5



# Radiotherapy

	n	%
	<b>200</b>	<b>100</b>
<b>Radiotherapy</b>		
Radiotherapy after NSM + Reconstruction	32	16.0
NSM + Reconstruction after prior Radiotherapy	26	13.0

# Results 1

- Cosmetic results were excellent and good in 90.0% of the breasts at a mean follow-up of 36 months
- Breast animation deformity could not be observed
- Implant rims were visible or palpable in the upper poles of the breasts in 3 very skinny patients and rippling was observed in 5 very skinny patients

# Cosmesis

	n	%
	<b>200</b>	<b>100</b>
<b>Cosmesis</b>		
Excellent	117	58.5
Good	63	31.5
Fair	13	6.5
Poor	7	3.5

# Results 2

- Complications comprised:
  - Minor complications:
    - Minimal nipple necrosis without further intervention in **14 breasts**
  - Major complications:
    - Hematoma with evacuation in **8 breasts**
    - Implant removal had to be performed in **7 patients**



# Complications

	<b>Prior Radiotherapy n=26</b>	<b>No Prior Radiotherapy n=174</b>	<b>Total n=200</b>	<b>%</b>
<b>Minor complications</b>				
Minimal nipple necrosis	2	12	14	7.0%
<b>Major complications</b>				
Hematoma	3	5	8	4.0%
Implant loss	1	6	7	3.5%
<b>Total</b>	6	23	29	14.5%

# Prepectoral Implant Placement

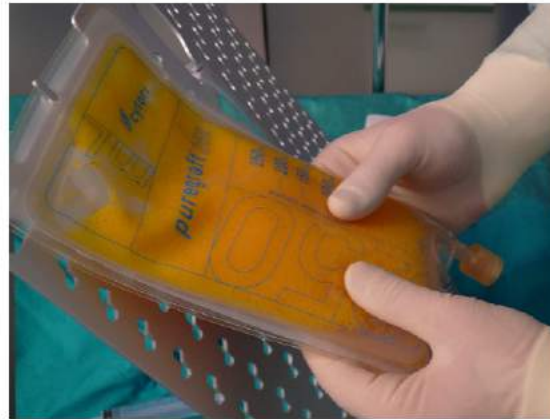
## □ Advantages

- No pec major muscle dissection
- Less pain
- No breast animation (jumping breast)
- No muscular deficit
- Shorter operation time

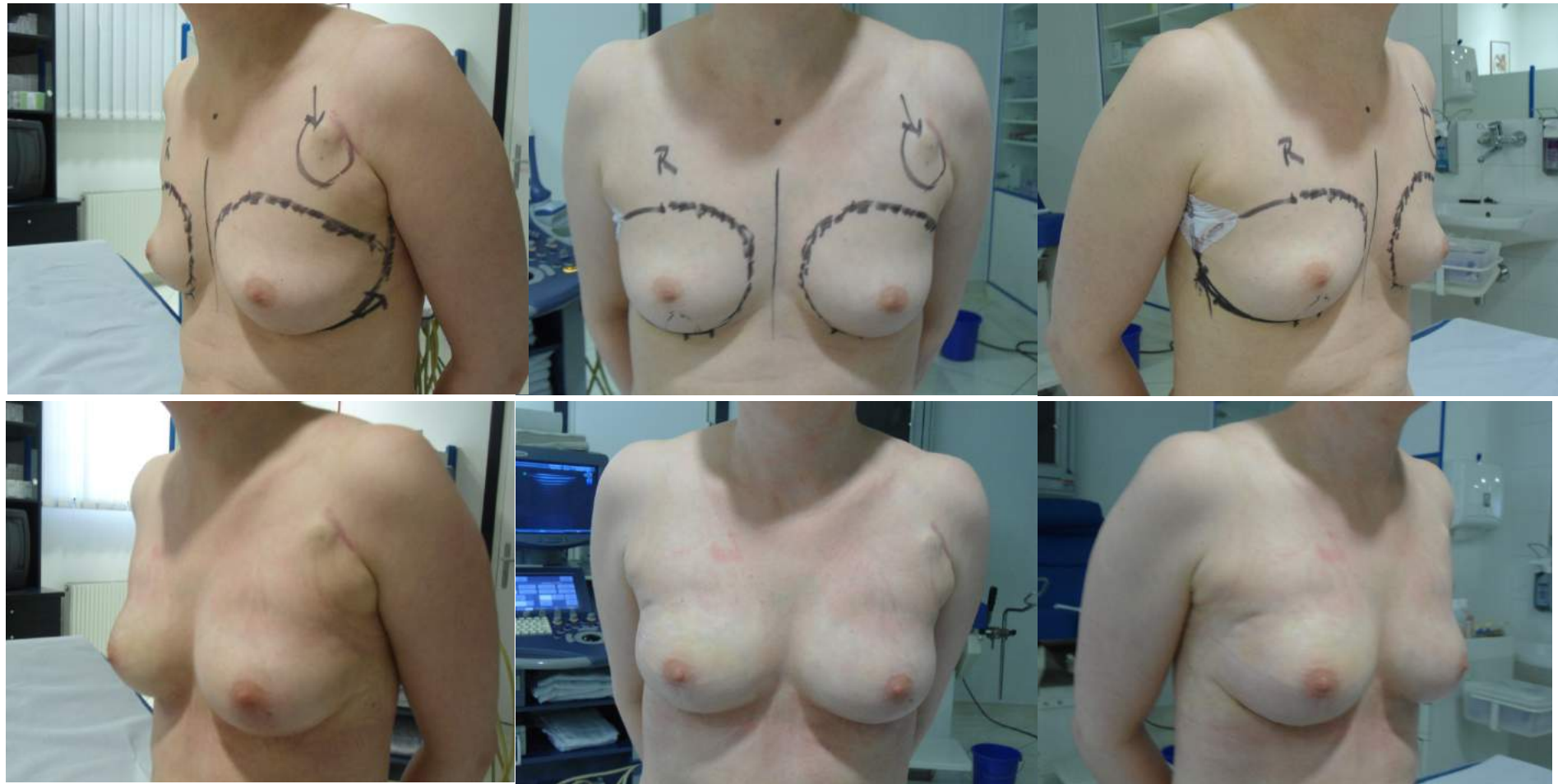
## □ Disadvantage

- Expensive (complete coverage with ADM)
- Rippling

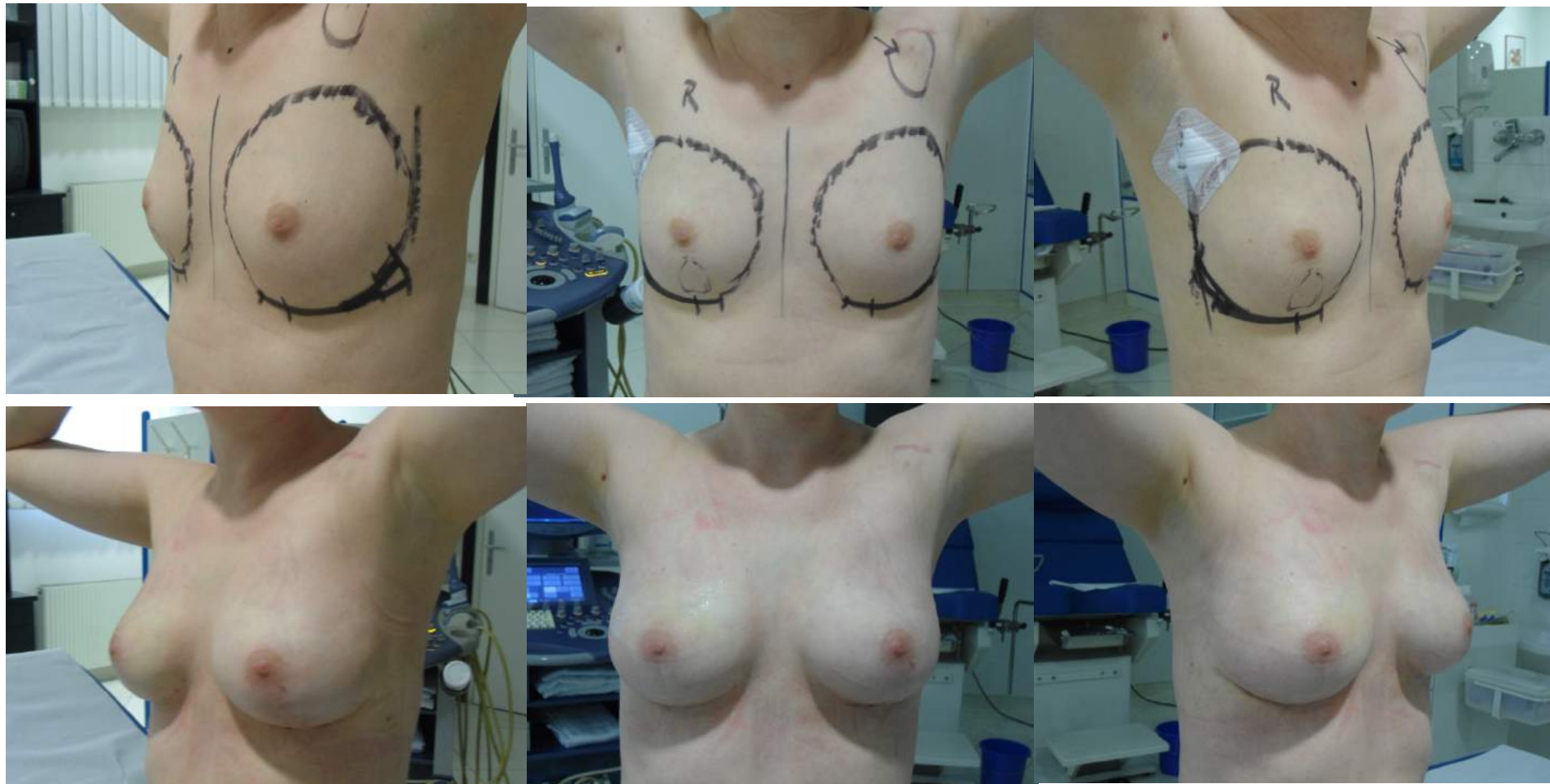
# Lipofilling with Puregraft™ System



# Bilateral NSM and prepec DTI

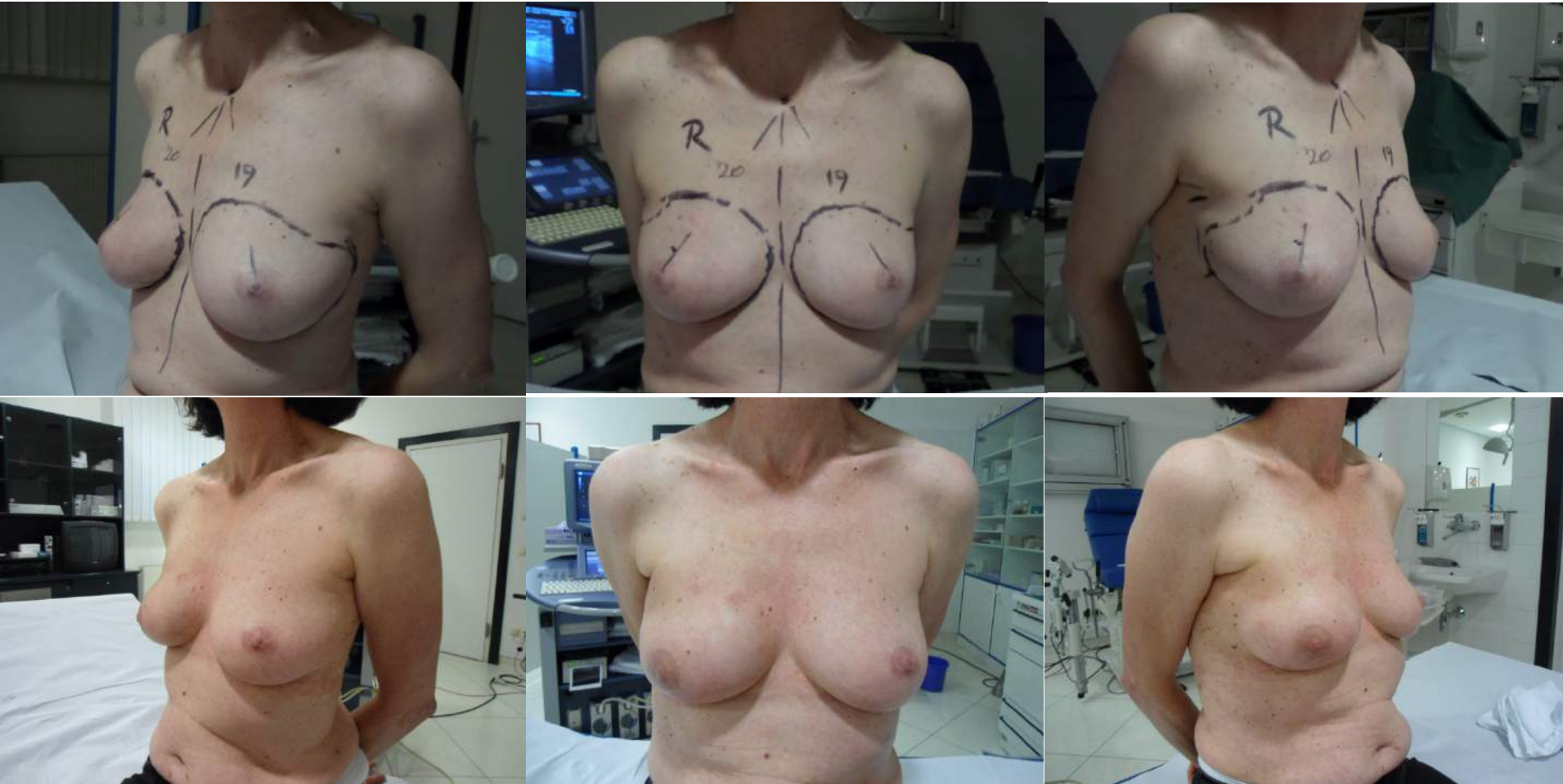


# Bilateral NSM and prepec DTI





# NSM + prepec DTI + RTX right side



# NSM + prepec DTI + RTX right side

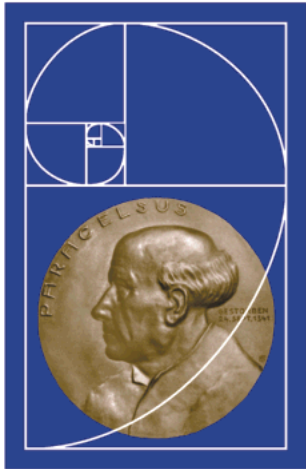


# Conclusion

- The direct-to-implant prepectoral implant placement after NSM with complete coverage of the implant with ADM or synthetic mesh 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.



# THANK YOU FOR YOUR ATTENTION



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