PLASTIC RECONSTRUCTIVE & REGENERATIVE SURGERY

2025:81-90
DOI: 10.57604/PRRS-1800



# SMILE MASTECTOMY, A NEW SKIN-REDUCING TECHNIQUE FOR PATIENTS TO SMILE, AGAIN

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**Summary**

**Objectives**. Skin-reducing mastectomy (SRM) is the best choice for patients with large and markedly ptotic breasts undergoing single-stage breast reconstruction with prosthesis. Wise-pattern skin-reducing mastectomy is the most common technique but it is burdened by a high incidence of wound healing problems. The objective of this work is to present an alternative direct-to-implant (DTI) approach to smile mastopexy with symmetrical SRM, and acellular dermal matrix (ADM)-assisted prepectoral breast reconstruction, capable of reducing recovery time and improving the overall therapeutic experience.

**Methods**. A prospective study of patients undergoing DTI breast reconstruction with our skin-reducing mastectomy technique, and prepectoral implant with a complete porcine ADM coating from January 2019, through October 2022 was undertaken. Enrolled patients had ptosis above grade 3 (Regnault classification) and breasts dimensions greater than D/E cups (European standard). Each patient signed the written informed consent document.

**Results**. We performed 20 procedures in 17 patients (3 bilateral, 14 unilateral). Seven patients had one-stage nipple-areola skin grafting (one bilaterally). Average hospital stay was 7,5 days.

Six patients developed minor complications successfully treated with wound care or a simple procedure in outpatient settings, not resulting in reconstructive failure. Only one patient developed a major complication: an infection requiring implant replacement.

**Conclusions**. Even if the horizontal scar initially lays in a more visible place than the horizontal scar in Wise-pattern procedures, this is our DTI procedure of choice for patients with large/ptotic breasts that have to undergo SRM. We think this is a favourable compromise for a fast recovery and a reduced complications risk.

**Key words**: smile mastopexy, skin-reducing mastectomy, prepectoral breast reconstruction, porcine acellular dermal matrix (ADM), free nipple graft, direct-to-implant

Received: November 7, 2025
Accepted: February 9, 2026

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**How to cite this article:** Baraziol R, Faccio D, Azzena GP, et al. Smile Mastectomy, a New Skin-Reducing Technique for Patients to Smile, again. PRRS 2025;4:81-90. https://doi.org/10.57604/PRRS-1800

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## INTRODUCTION

The skin-reducing mastectomy (SRM) is the best choice for patients with large and markedly ptotic breasts undergoing single-stage breast reconstruction with prosthesis. The Wise-pattern skin-reducing mastectomy is the most common technique, but it isn't without complications. One of the hallmarks of the inverted-T resulting scar is the high incidence of dehiscence and wound healing problems. On the breast undergoing the Wise keyhole or inverted-T pattern skin-reducing mastectomy, the skin flaps are thin, and wound healing problems, particularly skin necrosis at the three-way junction are often described. This led various authors to seek alternatives [1–4].

In recent years, skin-reducing mastectomy has been performed with direct-to-implant (DTI) prepectoral breast reconstruction (PPBR) using prosthesis partially or completely covered by an acellular dermal matrix (ADM) [5-9]. Indeed, different experiences point to the inverted-T closure as the main responsible for the onset of wound healing problems, considering that the very thin lower points of the vertical flaps carry a high risk of not being vascularly autonomous causing implant exposure. As a makeshift to this situation, placing a de-epithelised dermal flap underneath the three-way junction is a common expedient to avoid implant exposure in such risky cases. As well, some authors propose alternative types of skin closure, linear ones, that completely change the operatory planning and result in a biomechanically safer scar [10-12].

In the Nineteenth century, Langer explored the natural tension lines of the human skin drawing a map of how it stretches following puncture. Incisions performed following these directions proved to heal better due to the tension distribution on the cutaneous surface. Following Langer lines, incision on the breast should have medio-lateral directions following breast curvature, while rostrocaudal incision on the breast mound should be avoided[13,14].

In 2022 Movassaghi and Stewart described their variation on the theme in prepectoral, two-stage prosthetic breast reconstruction named "smile mastopexy". Their approach avoids the vertical scar and the T junction of the Wise-pattern reduction making the incisions according to Langer lines of the breast, improving scarring and reducing the risk of wound healing problems [2,14].

The physical and psychological burden of unexpected complications hits hard on patients and is a reason for frustration of the physician, so the objective of this work is to present a novel strategy for immediate breast reconstruction (IBR) in patients with large and ptotic breasts, which can reduce recovery time, complications, and improve the overall therapeutic experience for these breast cancer patients.

We present here the first report of an alternative DTI approach to smile mastopexy with symmetrical skin-reducing mastectomy and ADM-assisted prepectoral breast reconstruction.

Indicare il proprio grado di soddisfazione in merito ai risultati della procedura di mastectomia e ricostruzione ad almeno 3 mesi dall'intervento. (indicate your level of satisfaction for the results of the mastectomy and reconstruction surgery after at least 3 months from the procedure)

Data intervento (date of surgery) _____

| | Molto soddisfatta (very satisfied) | Soddisfatta (satisfied) | Incerta (uncertain) | insoddisfatta (unsatisfied) | Molto insoddisfatta (very unsatisfied) |
|---|---|---|---|---|---|
| Simmetria del seno (breast symmetry) | | | | | |
| Dimensioni della/e mammella/e ricostruita/e (size of the reconstructed breast(s)) | | | | | |
| Forma della/e mammella/e ricostruita/e (shape of the reconstructed breast(s)) | | | | | |
| Sensazione al tatto della/e mammella/e ricostruita/e (feel to the touch of the reconstructed breast(s)) | | | | | |
| Dolore alla/e mammella/e ricostruita/e (pain on the reconstructed breast(s)) | | | | | |
| Cicatrici della/e mammella/e ricostruita/e (scars on the reconstructed breast(s)) | | | | | |
| Soddisfazione generale (general satisfaction) | | | | | |

Data compilazione (date of completion) _____

**Figure 1.** Patient satisfaction questionnaire.

## MATERIALS AND METHODS

A prospective study of patients undergoing immediate, one-stage breast reconstruction with our technique of skin-reducing mastectomy and ADM-coated prepectoral implant from January 1st, 2019, through October 31st, 2022 was undertaken. We performed this technique in 17 patients. Inclusion criteria were patients who fulfilled the oncological criteria for skin-reducing mastectomy, with a grade of ptosis greater than 3 according to the Regnault classification, breast size greater than D or E cup (European standard), a pinch test at least 2 cm. All patients refused autologous breast reconstruction when indicated. Exclusion criteria included active smoking, poor patient performance status, and preoperative radiotherapy. A written informed consent document was signed by each patient. Operations were performed by the same team of a surgical oncologist and a plastic surgeon. All reconstructions were performed as a single-stage procedure. Clinical

data included age, BMI, comorbidities, Jugular-nipple (J-N) distance, site and histology of the tumour, BRCA mutation, hospitalization days, drainages maintenance days, size of prosthesis used, radio and chemotherapy after the surgery, and complications. A Likert-scale questionnaire (Fig. 1) was administered to patients 3 months after the reconstruction. We considered a score ≥ 21/28 as a satisfactory result.

## Surgical procedure

### *The preoperative project*

Our procedure begins with a careful preoperative assessment. With the patient standing in front of the surgeon, first the position of the new nipple is marked along the midclavicular line at the level of the anterior projection of the IMF at a distance between 19 and 23 cm from the jugular point. The upper incision is marked in a curvilinear fashion with the middle point maximum 1cm above the edge of the nipple-areola complex (NAC). The middle point of the lower incision is marked maximum 1cm below the edge of the NAC. The lower incision marking is completed in a curvilinear fashion connecting with the medial and lateral extent of the upper line paralleling the Langer lines of the breast. The NAC is marked with a 4.2 cm diameter cookie cutter. At the same time the marking for the contralateral reduction mammoplasty or mastopexy are made (Fig. 2).

### *Surgery*

First, the mark around the areola is incised and the NAC is removed as a graft. After that, the retroareolar tissue in all patients is biopsied and the NAC is preserved for the subsequent grafting if the fresh-frozen retroareolar biopsy results are negative. The breast surgeon performs the mastectomy and the lymph node surgery through the mastectomy incision if the sentinel lymph node biopsy is positive. The mastectomy incision is larger and allows for a faster and safer mastectomy. A sizer chosen based on the size of the breast is inserted. The patient is then placed in a semi upright position, the vascularity of the mastectomy flaps is verified with indocyanine green (ICG) fluorescent angiography, and the edges are trimmed off if hypoperfused. If the skin of the breast is too much compared to the dimensions of the prosthesis, the excess skin from the lower margin is de-epithelialized and a dermal flap which protects the prosthesis and ADM from a possible wound dehiscence is created (Fig. 3A-B). Starting from the lower margin, the breast can be lifted, reducing its ptosis. If there is still excess skin, the upper margin is also de-epithelialized (Fig. 4; Fig. 5). The aim is to recreate the best shape of the breast and, if it's good, the relative anatomical silicone gel prosthesis (Mentor®, Mentor Medical Systems BV, Leiden, NL; part

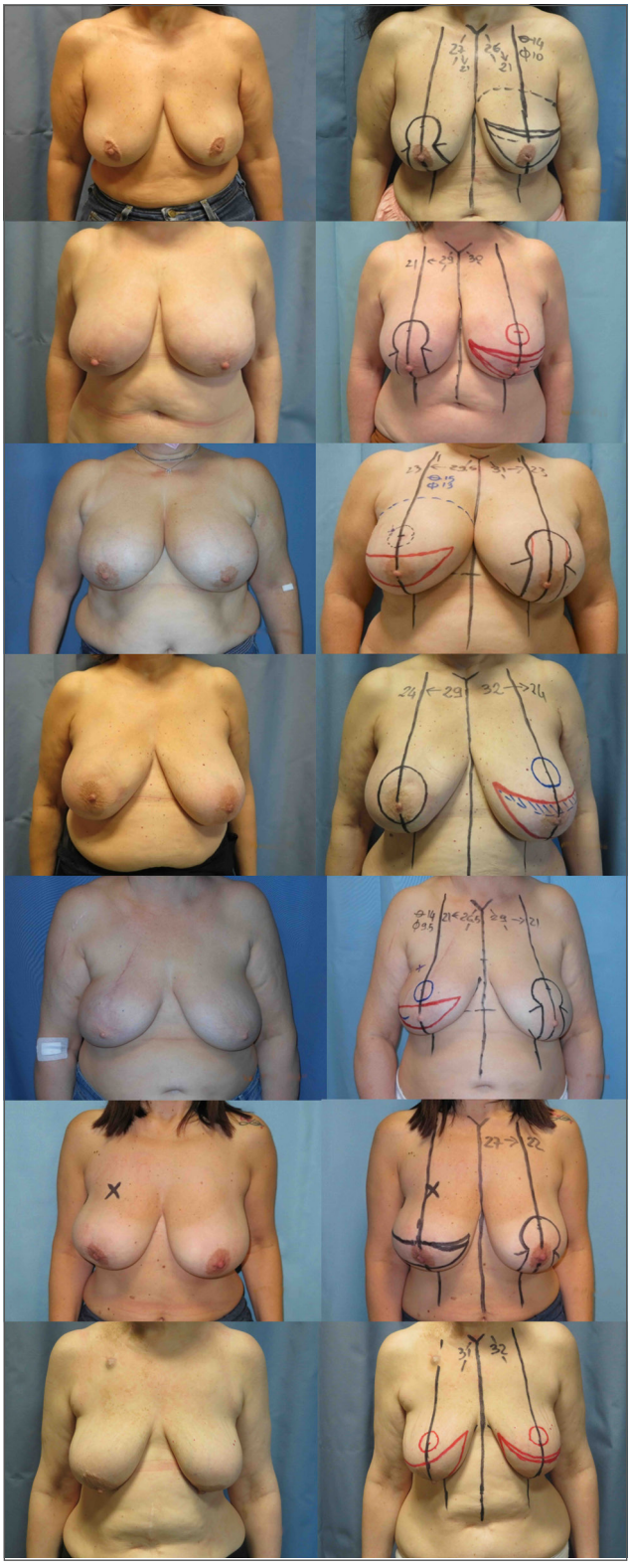


**Figure 2.** Preoperative markings.

of Johnson & Johnson Inc., New Brunswick, New Jersey, US) covered with the ADM (Braxon®, Audio Technologies

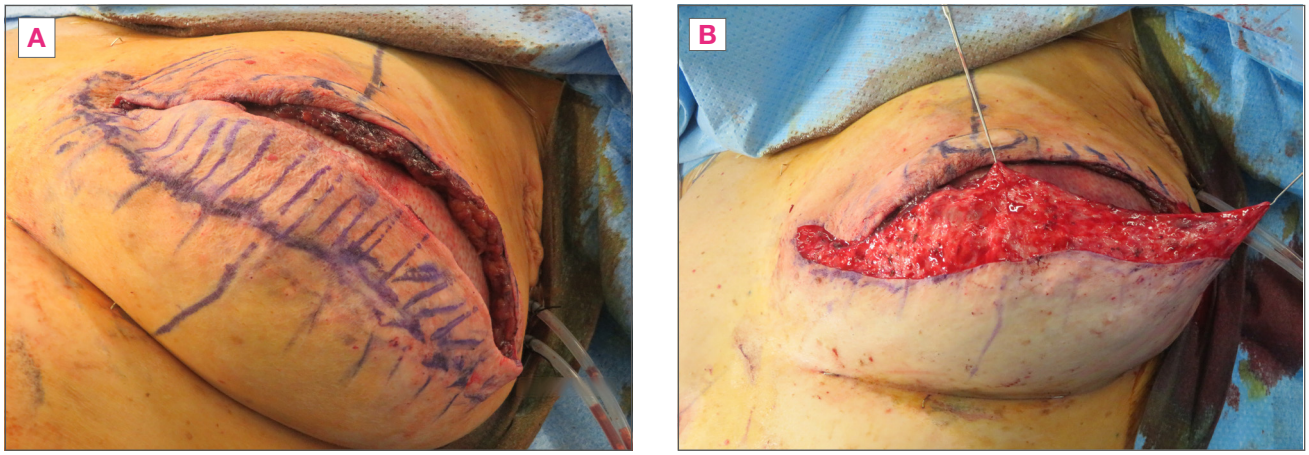



**Figure 3.** Marking for de-epithelization (**A**) and creation of the dermal flap (**B**).



**Figure 4.** De-epithelization and creation of a superior dermal flap.

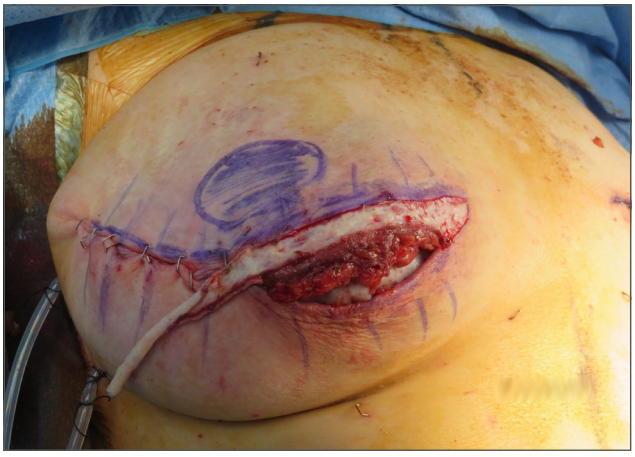


**Figure 5.** De-epithelization and creation of the inferior dermal flap.

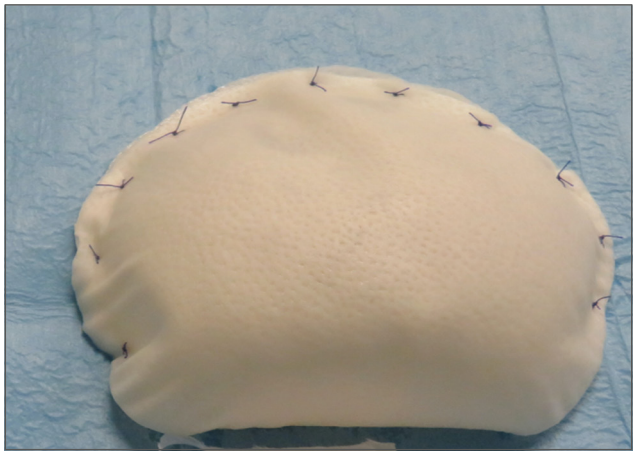


**Figure 6.** BRAXON®Fast ADM.

Srl, Piacenza, IT; licensed by DECO med Srl, Venezia, IT) is inserted in the prepectoral plane (Fig. 6). After implant positioning, fibrin sealant (Evicel®, Omrix Biopharmaceuticals Ltd, Tel Aviv, IL; part of Johnson & Johnson Inc., New Brunswick, New Jersey, US) is sprayed to assure perfect adhesion with surrounding subcutis to avoid dead spaces, and one or two drains are placed in the mastectomy pocket. Two or three medial stitches are placed between ADM and pectoralis major to avoid lateral dislocation of the implant, this is made easier by the wide mastectomy incision. At that time, the defect is either closed primarily, the new NAC location is marked with a 4.2 cm cookie cutter on the point of maximum projection along the breast meridian previously drawn, the circle is de-epithelialized, and the cold-preserved native NAC is grafted as a full-thickness skin graft (Fig. 7A-B). A tie over

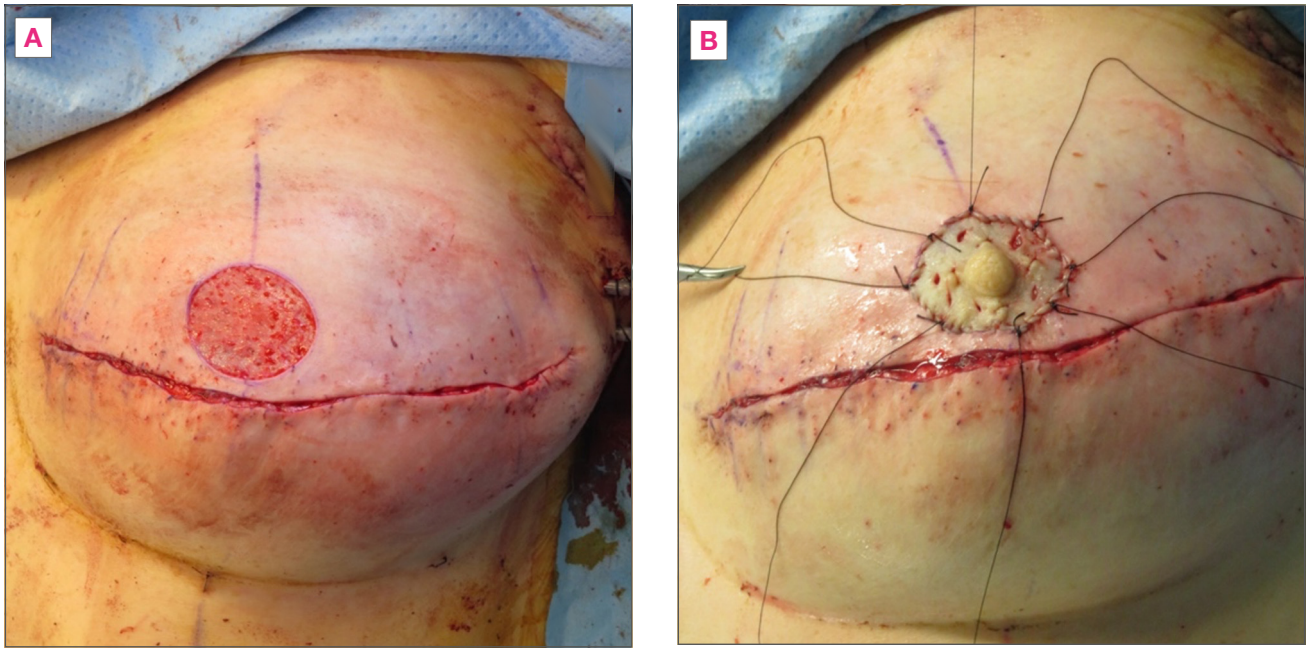



**Figure 7.** De-epithelialization (**A**) and full-thickness skin graft of the NAC (**B**).

dressing is placed to the graft to increase the chances of engraftment (Fig. 8). Symmetry with the other breast is checked and, if necessary, a contralateral reduction mammoplasty or mastopexy is performed.

## RESULTS

A total of 20 procedures were performed in 17 patients (3 bilateral and 14 unilateral). The average age of the patients at the time of surgery was 56.1 years (range, 37 to 68 years) and the mean BMI was 23.36 kg/m$^2$. There was a median follow-up of 30.5 months. The mean implant size used was 515 cc, the largest implant was 690 cc, and the smallest was 370 cc.

Three patients (17.6%) were at high risk because of BRCA genes mutations and, following diagnosis of breast cancer on one side, they decided to also undergo contralateral prophylactic mastectomy (Fig. 9A-F).

In two patients (11.8%) axillary dissection was performed through the mastectomy incision.

Thirteen (76.5%) contralateral symmetrisation procedures were performed in the same surgical setting: three breast reductions and ten mastopexies. The average of the jugular-nipple distance was 28,6 cm.

Six patients (35.3%) had one-stage nipple reconstruction in the operating room with nipple-areola skin grafts (one bilaterally).

The average hospital stay was 7,5 days (Tab. I).

Five patients developed minor complications successfully treated with wound care or a simple procedure in the office and did not result in reconstructive failure. Of these, seroma developed in 3 patients (the average drainage maintenance days were 21,4) (Fig. 10), red breast syndrome in 1 patient (Fig. 11), and a marginal necrosis of the superior mastectomy flap in 1 patient. Only 1 patient developed a major complication: an infection requiring implant replacement (Tab. II). During the follow up period we did not find any patients with capsular contracture or implant malposition.



**Figure 8.** Tie-over dressing for NAC skin autograft.

**Table I.** Cohort data.

| | |
|---|---|
| No. of patients | 17 |
| Unilateral breast reconstruction | 14 |
| Bilateral breast reconstruction | 3 |
| Average age, years | 56,1 |
| Average BMI (kg/m$^2$) | 23,36 |
| Diabetes | |
| Yes | 1 |
| No | 16 |
| Indication for surgery | |
| DCIS | 3 |
| IDC | 11 |
| ILC | 3 |
| Prophylactic | 3 |
| Lymph node management | |
| SLNB | 15 |
| ALND | 2 |
| Radiation | |
| After reconstruction | 4 |
| None | 13 |
| Chemotherapy | 2 |
| NAC grafting | 7 |
| Contralateral symmetrisation | |
| Reduction mammoplasty | 3 |
| Mastopexy | 10 |
| No. of drains | |
| one | 7 |
| two | 13 |
| Average drainage maintenance days | 21,4 |
| Evicel | 18 |
| Medial stitches | 14 |
| Average jugular-nipple distance, cm | 28,6 |
| Mean hospitals stay, days | 7,5 |
| Average follow-up, months | 30,5 |
| Type of ADM | |
| Classic | 13 |
| Fast M size | 2 |
| Fast L size | 5 |
| Average permanent implant volume, cc (min-max) | 515 (370-690) |

**Table II.** Postoperative complications.

| Complications | Rate (%) |
|---|---|
| Seroma | 3/20 (15) |
| Hematoma | 0/20 |
| Rippling | 0/20 |
| Mastectomy skin flap necrosis | 1/20 (5) |
| NAC necrosis | |
| Partial | 1/20 (5) |
| Complete | 0/20 |
| Wound dehiscence | 0/20 |
| Surgical site infection | 0/20 |
| Red breast syndrome | 1/20 (5) |
| Implant loss | 1/20 (5) |

We had a Likert-scale questionnaire response rate of 88.2%. A satisfactory result of breast reconstruction was reported by 86.7% of patients.

## DISCUSSION

Breast cancer affects approximately 1 in 8 women in Western countries, profoundly impacting physical, social, and psychological wellbeing [16,17].

Surgical intervention is a critical therapeutic step, though recovery may be complicated by postoperative issues. These are commonly higher in cases of SRM followed by implant-based breast reconstruction in large and ptotic breasts, with vascular-related complications up to 27% [4,18,19].

Nava et alii first published the skin-reducing mastectomy technique using Wise's incision pattern on large and ptotic breasts, allowing immediate direct-to-implant (DTI) breast reconstruction also for such patients. In Nava's technique a de-epithelized dermal flap covers the inferolateral part of the subpectorally-placed implant, completing the subpectoral implant pocket, but its inverted-T closure is associated with wound healing problems at the caudal junction [21,22].

The combination of a skin-reducing mastectomy (SRM) through a Wise-pattern incision and ADM-implant reconstruction has been recently proposed by few authors to offer pre-pectoral breast reconstruction also to patients with large ptotic breasts. Various incision patterns have been proposed to balance oncological safety, flap perfusion, and aesthetic outcomes [3,10,20,21,23,24].

Alternative approaches include J-pattern incisions, which have been shown to reduce the risk of skin necrosis, simplify surgical design, and minimize scar impact by avoiding the medial quadrants of the breast [20].

Additionally, hybrid DTI techniques combining prepectoral implants with retropectoral fat grafting represent a promising option to reduce tension and optimize contour without adding complications [25].

In our cohort, we have identified the critical key points that lead to tissue loss. In particular:

1 The extent of the damage on the inferior pole vascular plexus following SRM with Wise pattern technique;
2 Implant weight on the on hypoperfused inferior pole;
3 All additional compression forces on skin flaps (containment bras, compression bandages, sutures that keep pillars together).

As we assumed that there are some risk factors that are intrinsic of the patients, the procedure, and the therapeutic course on which we have no control, we searched every single factor that could be modified, in particular:

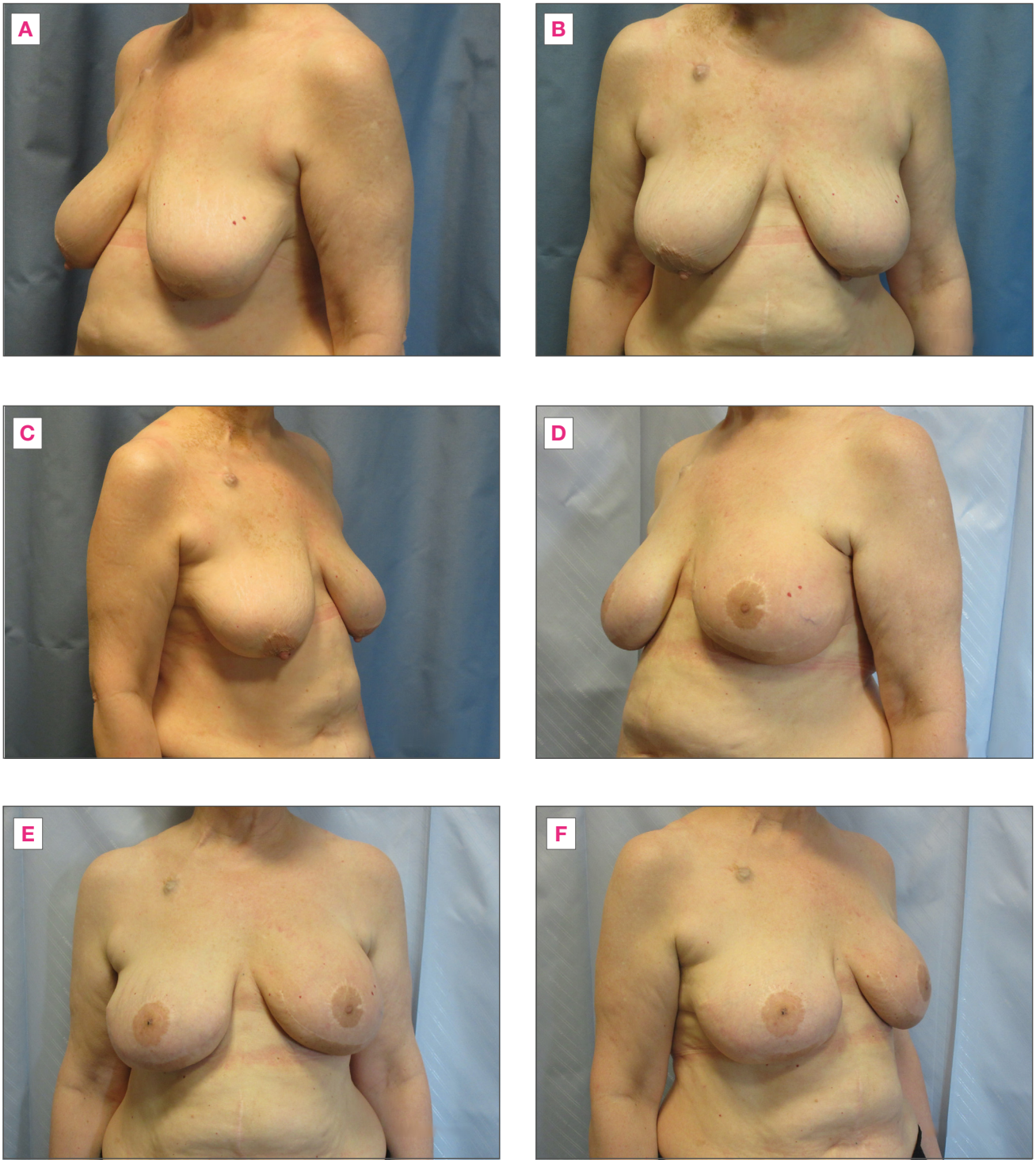



**Figure 9.** Preoperative (**A-C**) and postoperative pictures at 22 months (**D-F**) of one representative patients.

4 Inferior pole scars: we designed an incision that creates a horizontal scar at breast midheight;
5 As long as many studies claim that pressure forces on sutures stimulate fibroblasts to produce a hypertrophic/keloid scar, moving scar to an area with less pressure allows fibroblast to perform a perfect scarring.
6 Hypoperfused tissues in lower pole: we consider a



**Figure 10.** Seroma in a case of unilateral right-side reconstruction and contralateral Wise-pattern mastopexy.



**Figure 11.** Red breast syndrome in a unilateral case with contralateral Wise-pattern mastopexy.

greater risk of tissue loss in this area, so double-layer closure with a de-epithelialized flap provide redundancy in case of marginal tissue loss.

Pillars stretched by anchoring sutures in Wise-pattern incision can cause not only a functional problem of tissue perfusion, but also an aesthetic problem: lower pole appears flattened and stretched. Avoiding Wise-pattern access also allows us to respect the natural aspect of a rounded lower pole.

This approach yielded low complication rates in a high-risk population: one implant infection requiring removal (5%) and one partial NAC necrosis (5%). Patient satisfaction was high (86.7%). The mean hospital stay was 7.5 days, which is slightly longer than typical DTI reconstructions but reflects that patients were admitted to the general surgery ward and received careful post-operative monitoring in this higher-risk cohort treated with a novel technique.

Average follow-up was 30.5 months, sufficient to capture early and mid-term complications, but not long-term risks such as BIA-ALCL or BIA-SCC [26,27].

Compared with conventional Wise-pattern SRM and alternative incisions, the smile mastectomy provides a biomechanically safer closure, lowers the risk of dehiscence, and preserves the natural breast contour, while maintaining oncological safety and enabling immediate DTI reconstruction. Incorporating hybrid techniques in selected cases may further optimize outcomes, particularly in patients with compromised tissue perfusion or high flap tension.

A major limitation of this study is the lack of a direct comparison with standard Wise-pattern SRM or other SRM techniques. Consequently, while the “smile mastectomy” appears to offer low complication rates and favorable aesthetic outcomes in our cohort, definitive conclusions regarding its superiority over alternative approaches cannot be drawn. Future prospective studies with comparative cohorts are warranted to validate these findings.

## CONCLUSIONS

Therefore, even if the horizontal scar lays in a more visible place than the horizontal scar in wise-pattern procedures, this is our procedure of choice in patients with large/ptotic breasts that have to undergo SRM.

One of the main limitations of the study is the small number of cases and the lack of an internal control group, which may pave the way for further and more powerful analysis in the future.

We think this is a favourable compromise for a fast recovery, decreasing scars and the risk of complications that can keep patients far from their everyday life.

### Conflict of interest statement

The authors declare no conflict of interest.

### Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

### Author contributions

RB, AF: A
DF: W, DT, S
GPA, XP: D

### *Abbreviations*

A: conceived and designed the analysis
D: collected the data

DT: contributed data or analysis tool
S: performed the analysis
W: wrote the paper

### Ethical consideration

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

## References


1 Malata CM, Hodgson ELB, Chikwe J, et al. An application of the lejour vertical mammaplasty pattern for skin-sparing mastectomy: a preliminary report. Ann Plast Surg 2003;51:345-350. https://doi.org/10.1097/01.SAP.0000067724.64084.BC

2 Movassaghi K, Stewart CN. The "Smile Mastopexy": a novel technique to aesthetically address the excess skin envelope in large, ptotic breasts while preserving nipple areolar complex during prosthetic breast reconstruction. Aesthet Surg J 2022;42:NP393-NP403. https://doi.org/10.1093/asj/sjac021

3 Albright WB, Hawkes PJ. The bell pattern: a novel breast incision approach to skin-reducing mastectomies. Aesthetic Surg J Open Forum 2020;2:ojz031. https://doi.org/10.1093/asjof/ojz031

4 Masiá J; iBAG Working Group. The largest multicentre data collection on prepectoral breast reconstruction: the iBAG study. J Surg Oncol 2020;122:848-860. https://doi.org/10.1002/jso.26073

5 Caputo GG, Marchetti A, Dalla Pozza E, et al. Skin-Reduction Breast Reconstructions with Prepectoral Implant: Plast Reconstr Surg 2016;137:1707-1705. https://doi.org/10.1097/PRS.0000000000002227

6 Onesti MG, Di Taranto G, Ribuffo D, Scuderi N. ADM-assisted prepectoral breast reconstruction and skin reduction mastectomy: expanding the indications for subcutaneous reconstruction. J Plast Reconstr Aesthet Surg 2019;S1748681519304929. https://doi.org/10.1016/j.bjps.2019.11.004

7 Kontos M, Lanitis S, Constantinidou A, et al. Nipple-sparing skin-reducing mastectomy with reconstruction for large ptotic breasts. J Plast Reconstr Aesthet Surg 2020;73:690-695. https://doi.org/10.1016/j.bjps.2019.11.025

8 Maruccia M, Elia R, Gurrado A, et al. Skin-reducing mastectomy and pre-pectoral breast reconstruction in large ptotic breasts. Aesthetic Plast Surg 2020;44:664–672. https://doi.org/10.1007/s00266-020-01616-2

9 Gardani M, Cocconi A, Palli D. Skin-reducing mastectomy and prepectoral breast reconstruction using the Braxon® ADM: a single-centre experience. Minerva Surg 2022;77:473-480. https://doi.org/10.23736/S2724-5691.21.08941-3

10 Champaneria MC, Wong WW, Hill ME, Gupta SC. The evolution of breast reconstruction: a historical perspective. World J Surg 2012;36:730-742. https://doi.org/10.1007/s00268-012-1450-2

11 Lewin R, Jepsen C, Hallberg H, et al. Immediate breast reconstruction with a wise pattern mastectomy and NAC-sparing McKissock vertical bipedicle dermal flap. J Plast Reconstr Aesthet Surg 2018;71:1432-1439. https://doi.org/10.1016/j.bjps.2018.05.027

12 Kankam H, Hourston G, Forouhi P, et al. Combination of acellular dermal matrix with a de-epithelialised dermal flap during skin-reducing mastectomy and immediate breast reconstruction. Ann R Coll Surg Engl 2018;100:E197-E202. https://doi.org/10.1308/rcsann.2018.0127

13 Langer K. On the anatomy and physiology of the skin. I. The cleavability of the cutis. (Translated from Langer, K. (1861). Zur Anatomie und Physiologie der Haut. I. Uber die Spaltbarkeit der Cutis. Sitzungsbericht der Mathematisch-naturwissenschaftlichen Classe der Kaiserlichen Academie der Wissenschaften 44:19). Br J Plast Surg 1978:31:3-8.

14 Ridge MD, Wright V. The directional effects of skin. A bio-engineering study of skin with particular reference to Langer's lines. J Invest Dermatol 1966;46:341-346.

15 Giaquinto AN, Sung H, Miller KD, et al. Breast Cancer Statistics, 2022. CA Cancer J Clin 2022;72:524-541. https://doi.org/10.3322/caac.21754

16 Mokhtari-Hessari P, Montazeri A. Health-related quality of life in breast cancer patients: review of reviews from 2008 to 2018. Health Qual Life Outcomes 2020;18:338. https://doi.org/10.1186/s12955-020-01591-x

17 Fortin J, Leblanc M, Elgbeili G, et al. The mental health impacts of receiving a breast cancer diagnosis: a meta-analysis. Br J Cancer 2021;125:1582-1592. https://doi.org/10.1038/s41416-021-01542-3

18 Zucca-Matthes G, Haikel RL, Matthes A. Skin-reducing mastectomy. In: Urban C, Rietjens M, El-Tamer M, et al. Oncoplastic and Reconstructive Breast Surgery. Cham: Springer International Publishing, pp. 531-539.

19 Economides JM, Graziano F, Tousimis E, et al. Expanded algorithm and updated experience with breast reconstruction using a staged nipple-sparing mastectomy following mastopexy or reduction mammaplasty in the large or ptotic breast. Plast Reconstr Surg 2019;143:688e-697e. https://doi.org/10.1097/PRS.0000000000005425

20 Caputo GG, Pisano G, Albanese R, et al. Immediate pre-pectoral implant-based breast reconstruction after J-pattern skin reducing mastectomy. Plast Reconstr Surg 2024;154:233e-236e. https://doi.org/10.1097/PRS.0000000000011028

21 Nava MB, Cortinovis U, Ottolenghi J, et al. Skin-Reducing Mastectomy: Plast Reconstr Surg 2006;118:603-610. https://doi.org/10.1097/01.prs.0000233024.08392.14

22 Wise RJ. A preliminary report on a method of planning the mammaplasty. Plast Reconstr Surg 1956;17:367-375. https://doi.org/10.1097/00006534-195605000-00004

23 Pechevy L, Carloni R, Guerid S, et al. Skin-reducing mastectomy in immediate reconstruction: how to limit complications and failures. Aesthet Surg J 2017;37:665-677. https://doi.org/10.1093/asj/sjw258

[24] Pontell ME, Saad N, Brown A, et al. Single stage nipple-sparing mastectomy and reduction mastopexy in the ptotic breast. Plast Surg Int 2018;2018:9205805. https://doi.org/10.1155/2018/9205805

[25] Longo B, Giacalone M, D'Orsi G, et al. Immediate Hybrid Breast Reconstruction: Dual-Plane Approach Using Prepectoral Implants and Retropectoral Fat Grafting. Plast Reconstr Surg 2025;1;156:209-222. https://doi.org/10.1097/prs.0000000000011984

[26] D'Orsi G, Giacalone M, Calicchia A, et al. BIA-ALCL and BIA-SCC: updates on Clinical Features and Genetic Mutations for Latest Recommendations. Medicina (Kaunas) 2024;10;60:793. https://doi.org/10.3390/medicina60050793

[27] Longo B, Di Napoli A, Curigliano G, et al. Clinical recommendations for diagnosis and treatment according to current updated knowledge on BIA-ALCL. Breast 2022;66:332-341. https://doi.org/10.1016/j.breast.2022.11.009