

# Latissimus Dorsi Myocutaneous Flap in Immediate Reconstruction after Salvage Mastectomy Post-Lumpectomy and Radiation Therapy

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**Background:** Breast reconstruction after salvage mastectomy (SM) for recurrent cancer represents a challenge in preradiated patients due to the increased complication rate. Latissimus dorsi myocutaneous flap (LDMF) represents a good reconstructive option due to its versatility, safety, and adaptability.

**Methods:** Fifty-nine patients treated in the Breast Surgery Unit at the University Hospital of Parma (Italy) between January 2010 and December 2017 for ipsilateral breast recurrent cancer, previously treated by partial mastectomy plus whole-breast radiation therapy, were analyzed. They underwent SM and immediate reconstruction with implant-assisted pedicled LDMF. We registered local treatment, oncologic characteristics, complications, capsular contracture rate, DASH test, and BREAST-Q scores.

**Results:** Mean implant volume was 403 g (range 135–650 g). Contralateral operations were 16/59 (27.1%). We obtained complete postoperative pain control in most cases with paracetamol. Medium hospital stay was 2.8 days. We registered 3.4% major complications and 6.8% minor ones. Mean follow-up was 26.65 months (range 3–91.9 months). DASH questionnaire evidenced no disability for 71.19% of patients and minimum disability for 28.81% of them. BREAST-Q Aesthetic Questionnaire obtained 92.72%. No patient developed Baker III or IV capsular contracture.

**Conclusions:** LDMF with implant is a reliable and safe procedure for 1-step breast reconstruction after SM for recurrent cancer in radiated breast. It entails a low rate of major complications, achieving stable and pleasant results without significant upper limb functional impairment, also for elderly women and larger breasts. Thus, a definite role is yet predictable for this flap in the setting of SM in all cases not suitable for free-flap reconstruction. (*Plast Reconstr Surg Glob Open* 2019;7:e2296; doi: 10.1097/GOX.0000000000002296; Published online 3 July 2019.)

## INTRODUCTION

Adjuvant radiation therapy (ART) is a local treatment, complementary to breast-conserving surgery, applied to the majority of early breast cancers. The risk of local relapse in these patients is estimated to be between 0.5% and 1% per annum. The absolute number of patients who require a breast reconstruction having had prior radiation is growing. Performing breast reconstruction after salvage

mastectomy (SM) for recurrent cancer represents an authentic challenge due to the increased complication rate in patients with prior radiation, particularly when implant-only reconstructions are analyzed. For this reason, autologous flaps are considered the best resource to mitigate such undesired drawbacks.

After 40 years from the introduction of the latissimus dorsi myocutaneous flap (LDMF) in breast reconstruction,<sup>1,2</sup> its use experienced continuously changing considerations in the evolving scenario of autologous flap-based reconstructive techniques. Analyzing the early series of LDMF associated to implant, although with biased and limited studies, some authors observed a high capsular contracture rate<sup>3,4</sup>; for this reason, the procedure failed to reach widespread use in primary breast reconstruction. In the meantime, the pedicled transverse rectus abdominis myocutaneous (TRAM) flap gained fast popularity, obtaining a soft, natural-shaped breast even without use of implants.

Because TRAM flap complications seemed nonnegligible, both for their incidence and functional burden,

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the microsurgical free deep inferior epigastric perforator (DIEP) flap and gluteal free flaps were generated with the purpose to obviate the abovementioned problems.<sup>5</sup>

During this tumultuous evolution in breast flap reconstruction, LDMF remained relegated to a sporadic role, but continued to be a good option in reconstruction after SM in breasts with prior radiation, even primarily used when abdominal flaps are not feasible.<sup>6,7</sup> Whether free or pedicled, autologous abdominal-based flap breast reconstruction, although suitable for patients undergone ART, is not appropriate for thin or severely obese patients (body mass index >30)<sup>8,9</sup> and sometimes, because of the longer recovery time and the additional scar at the donor site, it is refused even by the eligible ones. Moreover, neither elderly patients nor those with comorbidities or having had prior abdominal surgery are good candidates for DIEP flap reconstruction.

In this very complex landscape, LDMF now seems to resurrect from its own ashes, never completely defeated, thanks to its versatility, safety, and adaptability to almost all kinds of patients with few contraindications. The LDMF probably might maintain a definite not negligible role, once redefined in its modern path. Recent series in the literature reported, for implant-assisted LDMF, an acceptable capsular contracture rate ranging from 3% to 6%.<sup>10-13</sup> The utility of this procedure for immediate reconstruction after SM for cancer recurrence in breasts with prior radiation remained viable across decades, and a meta-analysis of Fischer in 2016 demonstrated the advantages of LDMF-assisted reconstruction over implant-only in this setting.<sup>14</sup> In fact, implant reconstructive procedures without autologous tissue were burdened by intolerable rates of major complications, unpleasant aesthetic results, and failures discouraging their use in such patients.<sup>15,16</sup> A well-vascularized soft muscular flap has a favorable interaction with a field that has undergone ART, obtaining an improvement of the overhanging skin and exerting a protective role against the undesired reactions of the surrounding tissues to the implant presence.

The majority of studies analyzed the staged expander-LDMF/implant, most commonly used in delayed reconstruction after SM in the setting of previous ART.<sup>6</sup> However, when feasible, 1-step breast reconstruction after mastectomy represents the better approach, both for patient expectation and for the economic effectiveness. By paying attention to some technical details, LDMF can allow definitive reconstruction with just 1 operation.

With the intention to contribute to the definition of the actual role of LDMF, we analyzed the recent literature and critically reviewed our institutional experience with this procedure as applied to immediate implant-assisted reconstruction after SM in patients previously treated with ART.

## MATERIALS AND METHODS

The database of a cohort of 59 consecutive patients surgically treated for ipsilateral breast recurrent cancer, previously treated by partial mastectomy plus whole-breast ART and subsequently having undergone a total SM associated to immediate reconstruction with implant-assisted traditional LDMF, was analyzed. All patients in the Breast

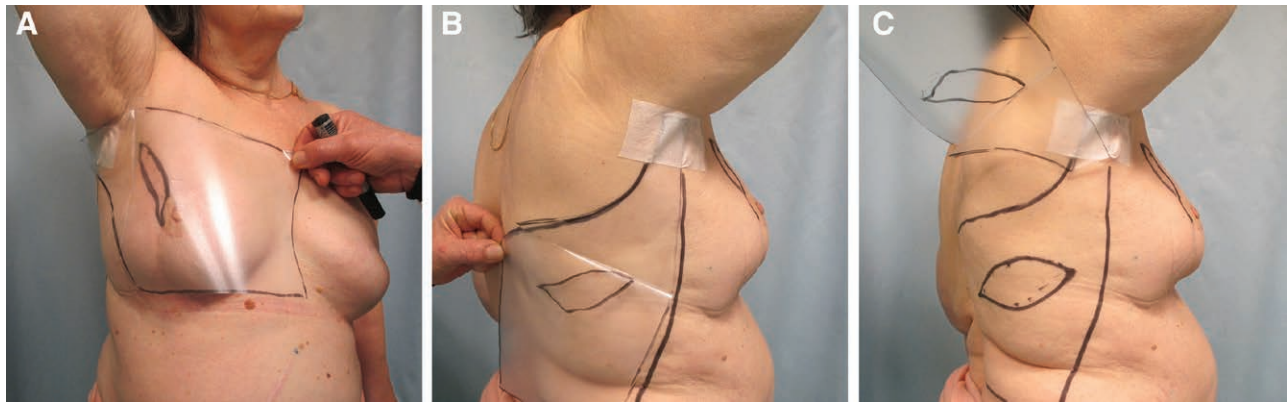
Surgery Unit at the University Hospital of Parma (Italy) between January 2010 and December 2017 were treated by a team including oncologic and plastic surgeons. The research protocol of the study was approved by the local Ethical Committee. We registered the kind of previous local treatment, the oncologic characteristics of the primary and the recurrent tumor. Every complication related to LDMF reconstruction was also registered. We considered major complication any event related to an unplanned return to operative theater. We recalled all patients to a long-term follow-up visit and, with previous informed consent, submitted them to the Disability of the Arm, Shoulder and Hand (DASH) test to assess objectively the functional long-term outcome. Moreover, we submitted them to the BREAST-Q test (Memorial Sloan Kettering Cancer Center and University of British Columbia, 2006) to evaluate patients' satisfaction with the procedure.<sup>17</sup> We also checked whether capsular contractures of Baker III or IV degree were present. During this clinical study, the principles outlined in the Declaration of Helsinki have been followed.

### Surgical Technique

We assessed the viability of the LD, before deciding for LDMF, by the manœuvre of forced adduction of the arm against the hip. The shape and dimension of the planned dorsal skin paddle were drawn from the contour of the anterior skin defect. In our clinical practice, to solve this crucial issue, we take advantage to use a polyethylene-sheet model, tailored with the shape of LD and laid upon the breast, on which we paint the necessary skin island. By rotating the model posteriorly, the desired paddle is marked on the proper dorsal area (Fig. 1).

Then, with the patient in supine position, we removed both the scar tissue derived by the previous surgery and the surrounding skin visibly altered by radiation boost using this access to perform mastectomy. We took great care to preserve at least 1 cm of subcutaneous fat in mastectomy flaps and the inframammary fold structures. Then, through a 5-cm incision in the axilla, we removed the sentinel node or carried out a complete axillary clearance when required. Afterward, through the same access, we checked the thoracodorsal neurovascular bundle, dissecting the surrounding fibrous tissue, especially in cases of previous axillary surgery. We divided proximally the thoracodorsal nerve to avoid postoperative animation.<sup>18</sup> The anterior margin of the LD was separate from the surrounding fibroadipose tissue downward as possible. We created a subcutaneous tunnel anteriorly to the humeral insertion of the pectoralis major muscle, communicating with the breast area. Finally, we provisionally close the skin by staples.

After turning the patient in the lateral decubitus, we incised the dorsal cutaneous paddle tailored for a large patch of the lacking anterior skin. We harvested the LDMF in accordance with the traditional technique described by Hammond.<sup>19</sup> We transposed the flap without tension, through the tunnel, to the anterior chest wall. Before closure, we irrigated the donor site with ropivacaine-saline solution (1 mg/ml) for better postoperative pain control. We inserted a close-suction drain and put some quilting stitches be-



**Fig. 1.** Pre-operative planning of latissimus dorsi myocutaneous flap. A, B, and C, The method of reporting the proper skin island contour by mean of a polyethylene-sheet model.

tween the subcutaneous layer of the underside flap and the chest wall, to obliterate the lower aspect of the dead space.<sup>20</sup>

In the third step, with the patient lying again in supine position, the LDMF was oriented to allow a perfect coincidence of the skin paddle with the cutaneous breast defect; afterward the edges of LD were fastened to the chest wall beginning with lower and medial borders. In all cases the muscular sheet completely covered the prosthetic without release of its humeral insertion. We always left intact the pectoralis major muscle. After temporary implant sizer positioning to evaluate symmetry and definitive implant selection, we fixed the remaining margins of the latissimus muscle pushing the implant down and medially, to obtain a precise and ptotic implant pocket. In every case of completed reconstruction, Natrelle (Allergan, Dublin, Ireland) textured cohesive gel-filled anatomical prostheses were used. We placed a drain into the muscular pocket and closed the skin with subcuticular continuous resorbable suture. In skin-sparing mastectomies, we did not reconstruct the nipple at this surgical time. We performed simultaneous contralateral breast symmetrization mammoplasty, whether reductive or additional when required.

A postoperative brassiere and a supramammary elastic belt were put on. Patient mobilization was encouraged soon in the first postoperative day, without any restriction in the upper arm abduction. We advised patients to limit their efforts in lifting weights with their upper limb for 3 postoperative weeks. We discharged all patients with drains in place and removed them during postoperative medical examinations in clinic when the amount of fluid was less than 30 ml/d.

#### Analysis and Statistical Methods

Data analysis was executed with statistic packages IBM-SPSS v.22, JASP v.0.8.6, and R v.3.5.0. For the descriptive analysis of the continuous variables, we calculated standard indexes, such as the mean, median, trimmed mean, variance, SD, quartiles, minimum, maximum, range, asymmetry, and kurtosis coefficients. When relevant, we also reported standard error and confidence intervals at 95%. Qualitative data, namely categorically mutable, were reported in frequency tables and expressed as absolute, relative, cumulative frequency and percentages.

## RESULTS

Patients' characteristics, demographics, and tumor characteristics are listed in Table 1. Mean body mass index was  $24.7 \pm 5.3$  and 37 patients (62.7%) had a bra cup  $\geq D$ . Ten patients (16.95%) resulted BRCA1 or BRCA2 mutation carriers, whereas 49 (83.05%) were negative or not tested. The previous conservative procedures were 32 (54.2%) quadrantectomies with sentinel node biopsy, 12 (20.3%) quadrantectomies with complete axillary clearance, and 15 (25.4%) quadrantectomies without any axillary procedure. The mean interval between the previous ART and SM was 116 months (median 99 months). The radiation dose consisted of 50 Gy whole-breast plus a boost of 10 Gy on the tumor site for a total of 60 Gy. The mastectomy was nipple sparing in 52 cases (88.1%) and skin sparing in 7 (11.9%). The mean implant volume was 403 g (range 135–650 g). Contralateral operations were 16/59 (27.1%), 10/16 (62.5%) mastectomies and direct-to-implant reconstructions for risk reduction in BRCA1 or BRCA 2 mutation carriers, and 6/16 (37.5%) for symmetrization, whether simultaneous or staged.

We obtained complete postoperative pain control in almost all cases, administering only paracetamol. Two patients required 3 days with ketoprofen. The medium hospital stay was of 2.8 days. Analgesic assumption in all cases stopped within 7 days. We registered 2 (3.4%) failures with implant removal: in 1 patient for infection of hematoma and in the other for a large mastectomy flap necrosis. Four patients (6.8%) developed a mastectomy flap localized superficial necrosis spontaneously healed with ambulatory dressing. Nine patients (15.25%) required a 2- to 3-fold seroma aspiration in the donor site after drain removal, but no late seromas requiring surgical revision were registered. Apart from the abovementioned cases, we reported no further complications in breast site (ie, seroma, cellulitis, and implant malposition).

The mean follow-up was of 26.65 months (range 7–91.9 months). No patient was lost at follow-up. We evaluated the upper limb postoperative function through clinical examination by surgeon and physiotherapist and administration of DASH questionnaire. Forty-two patients upon 59 (71.2%) showed no residual disability derived from surgery, whereas 17/59 (28.8%) exhibited minimum disability (range 2.3–

**Table 1. Demographics and Tumor Characteristics of Patients Who Underwent Salvage Mastectomy and LDMF/Implant Reconstruction**

	Cancer 1	Cancer 2 (Second Ipsilateral)
	Quadrantectomy + RT	Salvage Mastectomy + LDMF/Implant Reconstruction
Age (mean), y	46.6	56.4
Median	45	55
SD	10.6	10.7
Histology		
Invasive ductal	33 (55.9%)	39 (66.1%)
Invasive lobular	7 (11.9%)	8 (13.6%)
Other invasive	4 (6.8%)	0 (0%)
In situ	15 (25.4%)	12 (20.3%)
Horm. Rec. status		
ER PR—pos	48 (81.4%)	52 (88.1%)
ER PR—neg	11 (18.6%)	7 (11.9%)
HER-2		
Pos	3 (5.1%)	4 (6.8%)
Neg	41 (69.5%)	43 (72.9%)
Unknown	15 (25.4%)	12 (20.3%)
Malignancy grade		
G 1	19 (32.2%)	22 (37.3%)
G 2	23 (39.0%)	23 (39.0%)
G 3	17 (28.8%)	14 (23.7%)
Tumor size		
pT 1	35 (59.3%)	37 (62.7%)
pT 2	9 (15.3%)	10 (17.0%)
Tis	15 (25.4%)	12 (20.3%)
Lymph node status		
pN0	49 (83.0%)	52 (88.1%)
pN1	8 (13.6%)	6 (10.2%)
pN2	2 (3.4%)	1 (1.7%)
Axillary surgery		
SLNB	32 (54.2%)	39 (66.1%)
ALND	12 (20.4%)	7 (11.9%)
None	15 (25.4%)	13 (22.0%)
Adjuv. Horm. T		
Yes	45 (76.3%)	48 (81.4%)
None	14 (23.7%)	11 (18.6%)
Adjuv. Chemot.		
Yes	12 (20.3%)	8 (13.6%)
None	47 (79.7%)	51 (86.4%)

ALND, axillary lymph node dissection; ER, estrogen receptor; HER, human epidermal receptor; Neg, negative; Pos, positive; PR, progesterin receptor; RT, radiation therapy; SLNB, sentinel lymph node biopsy.

18.2). The work module of DASH questionnaire, applied to all patients, revealed no residual disability for 38/59 patients (64.4%), minimum disability for 18/59 (30.5%, range 6.25–18.2), and mild disability for 3/59 (5.1%, range 25–31.25). The sport/activity module of DASH questionnaire, applied to 37 upon 59 patients, showed no disability for 24/37 patients (64.9%), minimum disability for 11/37 patients (29.7%, range 6.25–18.2), and mild disability for 2/37 (5.4%, range 31.25–37.5; Table 2). Moreover, we evaluated patients' satisfaction through BREAST-Q, applying both the reconstruction module and the LD scales postoperative. Satisfaction with breasts section obtained  $78.7 \pm 14.9$  (mean  $\pm$  SD), psychosocial well-being section obtained  $87.6 \pm 10.4$  (mean  $\pm$  SD), physical well-being of chest section obtained  $90.7 \pm 6.7$  (mean  $\pm$  SD), sexual well-being section obtained  $68.2 \pm 14.6$  (mean  $\pm$  SD), satisfaction with back appearance section obtained  $85.7 \pm 10.1$  (mean  $\pm$  SD), and satisfaction with shoulder and back function obtained  $90.6 \pm 8.3$  (mean  $\pm$  SD; Table 3).

**Table 2. DASH Questionnaire Scores**

DASH GENERIC (Applied to 59/59 patients)	Patient, %	Range
No disability (0%)	42/59 (71.19%)	
Minimum disability (1%–20%)	17/59 (28.81%)	2.27–18.18
Other	0/59 (0%)	
DASH WORK (applied to 59/59 patients)		
No disability (0%)	38/59 (64.41%)	
Minimum disability (1%–20%)	18/59 (30.51%)	6.25–18.18
Mild disability (21%–40%)	3/59 (5.08%)	25–31.25
Other	0/59 (0%)	
DASH SPORT/ACTIVITY (applied to 37/59 patients)		
No disability (0%)	24/37 (64.86%)	
Minimum disability (1%–20%)	11/37 (29.73%)	6.25–18.18
Mild disability (21%–40%)	2/37 (5.41%)	31.25–37.5
Other	0/37 (0%)	

No patient developed Baker III or IV capsular contracture. For patients with a follow-up longer than 1 year (49/59, 80.05%), we noticed a small volume reduction of the reconstructed breast (about 10%), due to LD atrophy, well objectified from immediate postoperative and long-term follow-up photographs.

## DISCUSSION

Immediate breast reconstruction favorably affects quality of life without influencing cancer recurrence. In fact, this approach allows the patient, after total mastectomy, to have promptly restored a breast mound with undeniable psychological benefit.

ART previously applied to breast tissue strongly deteriorates subcutaneous and muscular vascularization and prevents immediate reconstruction with implant or tissue expanders, leading surgeons to use autologous flaps alone or combined with prosthesis in delayed or staged setting. Another crucial issue in patients affected by second primary tumors is represented by the previous operation they underwent. This kind of surgery involves the excision of a glandular segment mostly associated with a cutaneous portion upon the tumor; moreover, during the ART, a radiation boost is applied to the surgical scar area, frequently causing evident dystrophy.

Thus, the recommendable removal of tissues that are severely damaged by radiation boost produces an additional gap with the prior deficit of skin. To restore an adequate breast mound cutaneous envelope, the LDMF translation, in addition to provide an implant pocket and improve the subcutaneous vascularization of the breast, supplies a skin island that needs to be positioned in the exact correspondence of the cutaneous anterior deficiency, adjusting the shape to individual requirement (Fig. 2).

In our opinion, the initial isolation of the thoracodorsal neurovascular bundle through a small axillary incision is of paramount importance in patients who had prior axillary surgery. In fact this procedure allows the surgeon to avoid uneasy or incomplete freeing of the vessels through the inconvenient dorsal access, at risk to produce a deleterious angulation caused by surrounding fibrotic scar tissue when the flap is rotated. In our experience, according to other au-

**Table 3. BREAST-Q Results**

BREAST-Q reconstruction module postoperative (mean scores $\pm$ SD)	
Satisfaction with breasts (applied to 59/59 patients)	78.7 $\pm$ 14.9
Psychosocial well-being (applied to 59/59 patients)	87.6 $\pm$ 10.4
Physical well-being chest (applied to 59/59 patients)	90.7 $\pm$ 6.7
Sexual well-being (applied to 30/59 patients)	68.2 $\pm$ 14.6
Satisfaction with information (applied to 59/59 patients)	88.8 $\pm$ 7.1
Satisfaction with surgeon (applied to 59/59 patients)	95.2 $\pm$ 4.5
Satisfaction with medical team (applied to 59/59 patients)	94.1 $\pm$ 4.8
Satisfaction with office staff (applied to 59/59 patients)	92.5 $\pm$ 5.3
Satisfaction with implants (applied to 59/59 patients)*	7.1 $\pm$ 0.7
Adverse effects of radiation (applied to 59/59 patients)†	14.3 $\pm$ 3.2
BREAST-Q latissimus dorsi scales postoperative (mean scores $\pm$ SD)	
Satisfaction with back appearance (applied to 59/59 patients)	85.7 $\pm$ 10.1
Satisfaction with shoulder and back function (applied to 59/59 patients)	90.6 $\pm$ 8.3

\*This section of the questionnaire should be considered as stand-alone. Higher scores reflect a better outcome; scores go from a minimum of 2 to a maximum of 8.

†This section of the questionnaire should be considered as stand-alone. Higher scores reflect a better outcome; scores go from a minimum of 6 to a maximum of 18.

thors,<sup>21</sup> the nerve should be divided, otherwise high risk of animation deformity is impending on many reconstructions. Muscle denervation could be responsible for the observed light muscle atrophy in the long-term follow-up; hence, this factor should be considered when choosing implant volume.

The use of anatomical shaped implants represents, in our opinion, the best choice in postmastectomy reconstruction to recreate a natural breast mound. It is well known

that, during the period of our study, anatomical prostheses surface was textured. Recent concerns about implant-related anaplastic large cell lymphoma to now did not generate a definite ban of such devices, and in our experience, we did not register any case of this kind of disease.

If we recognize that immediate reconstruction results in a better psychological outcome for women, the optimization of timing and approach for reconstruction after SM deserves a convinced effort toward 1-step operations. LDMF represents a stronghold tool for this purpose also for larger breasts. Although only few authors chose this attitude,<sup>13,23</sup> we found that such modality fulfills the requirements of both patients and surgeons.

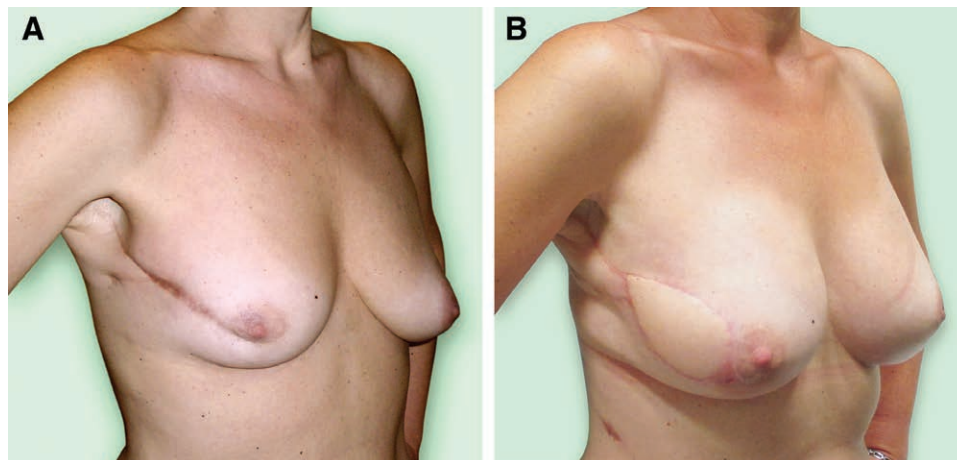
Analyzing our results, the immediate LDMF/implant breast reconstruction after SM is a well-tolerated and painless procedure, seldom requiring narcotics or prolonged analgesia, with a fast recovery period.

Moreover, in our hands, this technique does not require any additional simultaneous or staged procedure in the reconstructed breast (ie, lipofilling) to improve aesthetic result.

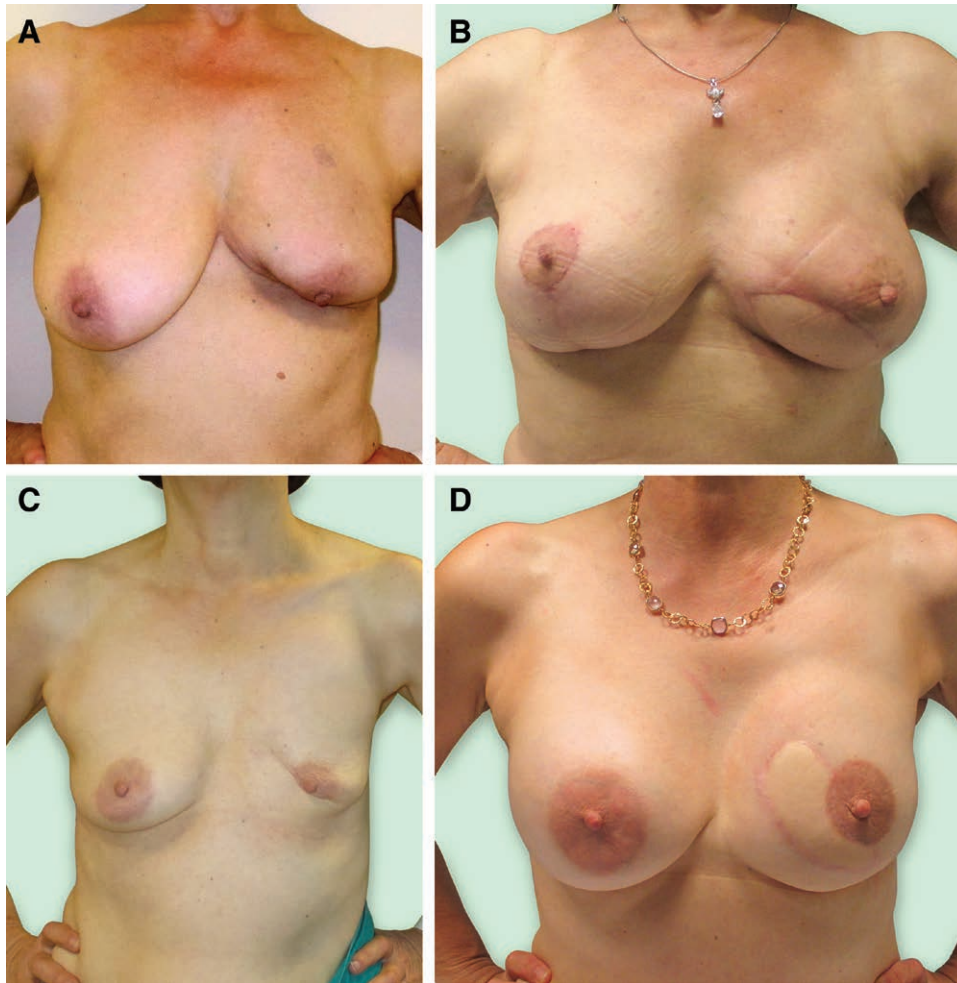
In not rare circumstances, SM not only represents an oncologic necessity, but also an opportunity to remedy for aesthetically grotesque results of prior conservative treatment, with comprehensible improvement in patient well-being (Fig. 3).

Our data are consistent with other studies from the functional point of view, as almost all patients revealed a DASH score with minimal or no disability of their upper limb.<sup>22-23</sup>

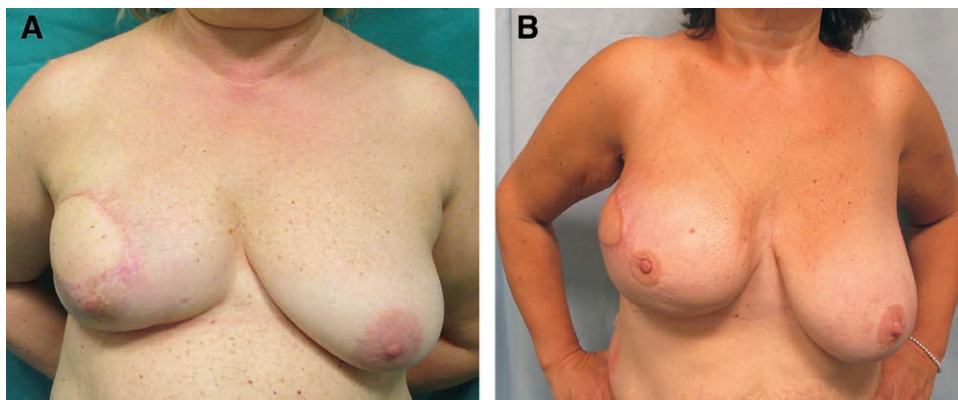
We did not test patients about the range of motion of the shoulder joint nor about their shoulder strength. This represents a limitation of our study in the objective assessment of the possible detrimental effects of LDMF. On the other hand, some degree of shoulder impairment may depend from mastectomy and axillary dissection procedures, as LD muscle does not contribute to shoulder range of motion.<sup>24</sup>



**Fig. 2.** A, Patient of 45 years old: 7 years after a right superolateral lumpectomy plus radiation therapy she developed a local recurrence and was diagnosed with BRCA1 mutation. B, PoD 232 after right nipple-sparing salvage mastectomy and immediate reconstruction with LDMF plus silicone implant (475 g) associated with left risk-reducing mastectomy plus direct-to-implant ADM-assisted reconstruction (420 g). ADM, acellular dermal matrix; PoD, postoperative day.



**Fig. 3.** Examples of breast reconstruction with latissimus dorsi myocutaneous flap and definitive implant. A, Patient of 65 years old: 11 years after left inferomedial lumpectomy plus radiation therapy she developed local recurrence. B, PoD 145 after left nipple-sparing salvage mastectomy and 1-step reconstruction with LDMF plus silicone-implant (335 g) associated with right augmentation (160 g) with T-inverted pexys for symmetry. C, Patient of 62 years old: 15 years after left inferomedial lumpectomy plus radiation therapy she developed local recurrence. D, PoD 270 after left nipple-sparing salvage mastectomy and 1-step reconstruction with LDMF plus silicone-implant (300 g) associated with right augmentation for symmetry (240 g) and partial areolar tattooing. PoD, postoperative day.



**Fig. 4.** Patients of (A) 67 and (B) 73 years old. Both patients, after right lumpectomy plus radiation therapy, developed local recurrence. PoD 90 after right nipple-sparing salvage mastectomy and 1-step reconstruction with LDMF plus silicone implant. Both patients refused contralateral symmetrization and reported high degree of satisfaction by BREAST-Q test. PoD, postoperative day.

Interestingly, in accordance with Venus survey,<sup>25</sup> most patients without a contralateral symmetrization procedure were highly satisfied with the outcome. This may be due to the LDMF utilization with few restrictions even for elderly patients characterized by a lower aesthetic expectation, resulting in just happy to have their breast reconstructed and comfortably dressing with dignity (Fig. 4). In addition, other authors found that symmetry is not always an essential condition for achieving subjective satisfaction with reconstruction.<sup>26</sup>

## CONCLUSIONS

LDMF with implant is a reliable and safe procedure for I-step breast reconstruction after SM for recurrent cancer in breasts that have undergone prior radiation. It entails a low rate of major complications and failures, achieving stable and pleasant results without significant upper limb functional impairment. The results of this procedure are particularly indicated when abdominal flaps are not feasible or refused by the patient. Most patients are scarcely compliant to staged or delayed procedures and often would agree only with an immediate and definitive reconstructive proposal. For elderly women submitted to SM, implant-assisted LDMF offers a reasonable chance to avoid disfigurement with high degree of subjective satisfaction, even without symmetry matching. For obtaining optimal results, LDMF-implant immediate reconstruction after completion mastectomy in a context of prior radiation requires a careful planning and a faultless technique with striking attention to crucial details. Thus, a definite role is yet predictable for this flap in the setting of SM in all cases not suitable for free-flap reconstruction.

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