



Immediate Single-stage Endoscopic Latissimus Dorsi Breast and Nipple Reconstruction

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Summary: Immediate breast reconstruction usually is a multistep surgical treatment. We introduce a new technique with positive results that reduces the reconstruction to 1 single step. This new technique promises to reduce patient consequences from multistaged procedures while reducing the costs. A retrospective review of 7 patients is presented. (*Plast Reconstr Surg Glob Open* 2014;2:e122; doi: 10.1097/GOX.000000000000067; Published online 20 March 2014.)

The cosmetic result of immediate mastectomy reconstruction with latissimus dorsi can be improved by sparing incisions.^{1,2} Endoscopic harvesting of latissimus dorsi muscle flap is a well-known and well-documented technique, but it is still not widespread in clinical practice. The procedure was popularized by Bostwick³ and Fine et al⁴ as a technique to aid partial breast reconstruction or limb free flap reconstruction. Missana and Pomel¹ reported its use in total breast reconstruction after skin-preserving mastectomies. We describe our experience with this oncoplastic technique in skin-sparing mastectomies taking advantage of the small inferior incision to reconstruct the nipple-areola complex.

PATIENTS AND METHODS

A retrospective review was performed on all patients who underwent postmastectomy reconstruction using the single-stage breast and nipple endoscopic latissimus dorsi during 2011. All patients ($n = 7$) collected represent a single surgeon's experience

(J.M.V.). The skin-sparing mastectomy and immediate breast reconstruction were planned with the extirpative surgeon, and patients were marked on the day before or just before surgery. Patient demographics, chemotherapy and radiation status, complications, and outcomes were recorded. The case collection period was chosen to allow for a minimum 1-year follow-up and is summarized in Table 1.

RECONSTRUCTIVE TECHNIQUE DECISION

Patients who underwent endoscopic latissimus dorsi flap reconstruction were assessed preoperatively by the author regarding all options. Those who were indicated the single-stage breast and nipple endoscopic latissimus dorsi flap reconstruction usually had a lower body mass index (under 25), lack of abdominal tissue, predictable acceptable scar resulting in donor site and A or B breast cup. Young women concerned about future pregnancy or refusing scarring abdominal donor site were also more frequent in this group. The skin-sparing mastectomy and immediate breast reconstruction were planned and performed by the same surgeon.

FLAP DESIGN AND OPERATIVE TECHNIQUE

The marking was performed just before surgery with the patient awake and in the standing position. The mastectomy incision was traced always in periareolar fashion. The limits of the desired muscle flap,

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Table 1. Cases Data

Patient	Age	BMI	Pathology	Mastectomy Incision	Endoscopic Operating Time	Contralateral Procedure	Postoperative Stay	Follow-up (mo)	Complication
1	36	23	IDC GIII	Periareolar	60 min	Areolar augmentative mammoplasty	3	19	None
2	54	21	IDC GIII	Periareolar	43 min	None	3	18	None
3	63	23	DCI	Periareolar	46 min	Areolar augmentative mammoplasty	3	15	None, partial nipple necrosis
4	36	21	IDC GI	Periareolar	54 min	Areolar augmentative mammoplasty	3	14	Seroma, partial nipple necrosis
5	33	18	IDC GII	Periareolar	60 min	Areolar augmentative mammoplasty	3	13	None
6	43	22	IDC GIII	Periareolar	65 min	None	4	12	Breast hematoma postmastectomy
7	47	20	IDC GIII	Periareolar	50 min	Areolar augmentative mammoplasty	3	12	None

BMI, body mass index; DCI, ductal carcinoma in situ; G, histologic grade; IDC, invasive ductal carcinoma.



Fig. 1. A, Presurgical landmarks. B, External inset of flap before endoscopic dissection, through axillary incision. C, Intraoperative harvesting detail. D, Intraoperative nipple reconstruction detail and back incision detail.

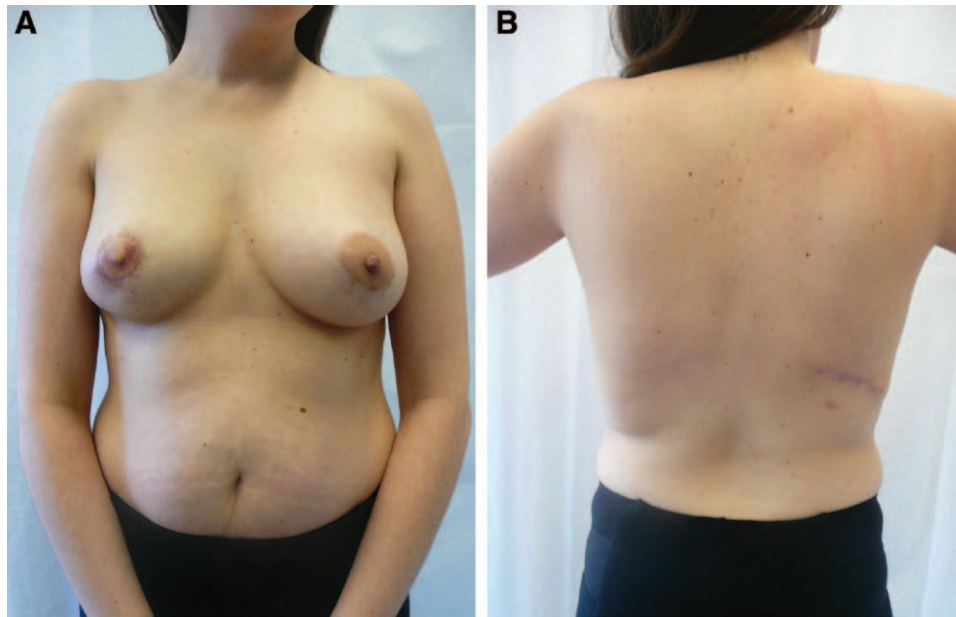


Fig. 2. A, Result after 3 mo of surgery (frontal view). B, Back view.

the axillary incision, and the lumbar counter incision were marked, and the tip of the scapula and the posterior superior iliac crest identified as reference points. After mastectomy and axillary surgery, the patient was placed in lateral decubitus with the ipsilateral arm flexed at 90°. The dissection of the latissimus dorsi started with the identification, under direct vision, of the thoracodorsal pedicle via an axillary incision created previously to perform nodal surgery (sentinel lymph node biopsy or lymphadenectomy) not exceeding 7 cm in length. Also under direct vision and using a cold light lamp retractor, cranial portion of the anterior border of the latissimus dorsi was dissected and detached from the serratus anterior muscle. Then, the endoscopy-assisted surgery began with the dissection in the superficial plane from lateral to medial until the trapezius muscle was identified. The dissection proceeded caudally in the superficial plane until the lumbar incision mark. Thus, performing endoscopic dissection of the deep plane of the latissimus dorsi, perforators emerging from thoracolumbar fascia were identified, clipped, and transected.

Once the muscle was harvested, the lumbar skin mark was incised, circularly, less than 5 cm and remaining attached the skin paddle to the latissimus. Under direct vision, the lower edge of the flap was transected. Also under direct vision the humeral insertion of the latissimus dorsi muscle was transected to allow its transposition to the breast defect. The thoracodorsal nerve was then identified and transected. Again in the decubitus position, after detaching the pectoralis major, the flap was insetted and an implant placed under the muscles. Then, the skin

paddle was placed in the center and the nipple reconstructed with a local flap (Figs. 1–3).

DISCUSSION

For patients lacking subcutaneous tissue in abdomen, gluteus, or upper leg, a latissimus dorsi flap in combination with an implant continues to offer excellent results. The latissimus dorsi flap offers vascularized coverage to the underlying device, which is a reassuring element for reconstructive surgeons performing immediate breast reconstruction.

The distal portion of the latissimus is nourished by the descending branch and a lower skin paddle. The reliability of lower skin paddles in latissimus dorsi is well documented.⁵

The coverage is very important and the author believes that this muscular coverage offers a well-vascularized and permanent coverage. Acellular dermal matrix offers many potential advantages such as the ability to give a type of incorporated coverage of the lower pole of the implant without muscle transposition. This is not vascularized coverage and has to become vascularized through the surrounding tissues. The short- and long-term results in patients who have undergone implant-based reconstruction using acellular dermal matrices have become a popular topic of debate as concerns for infections and seromas arise.^{6–8} Unfortunately, there is no strong evidence comparing with standard techniques.⁹

The occurrence of a seroma is a common complication with the use of latissimus dorsi muscle or musculocutaneous flap for reconstructive purposes. In our series, we observed seroma in 2 cases (28%),

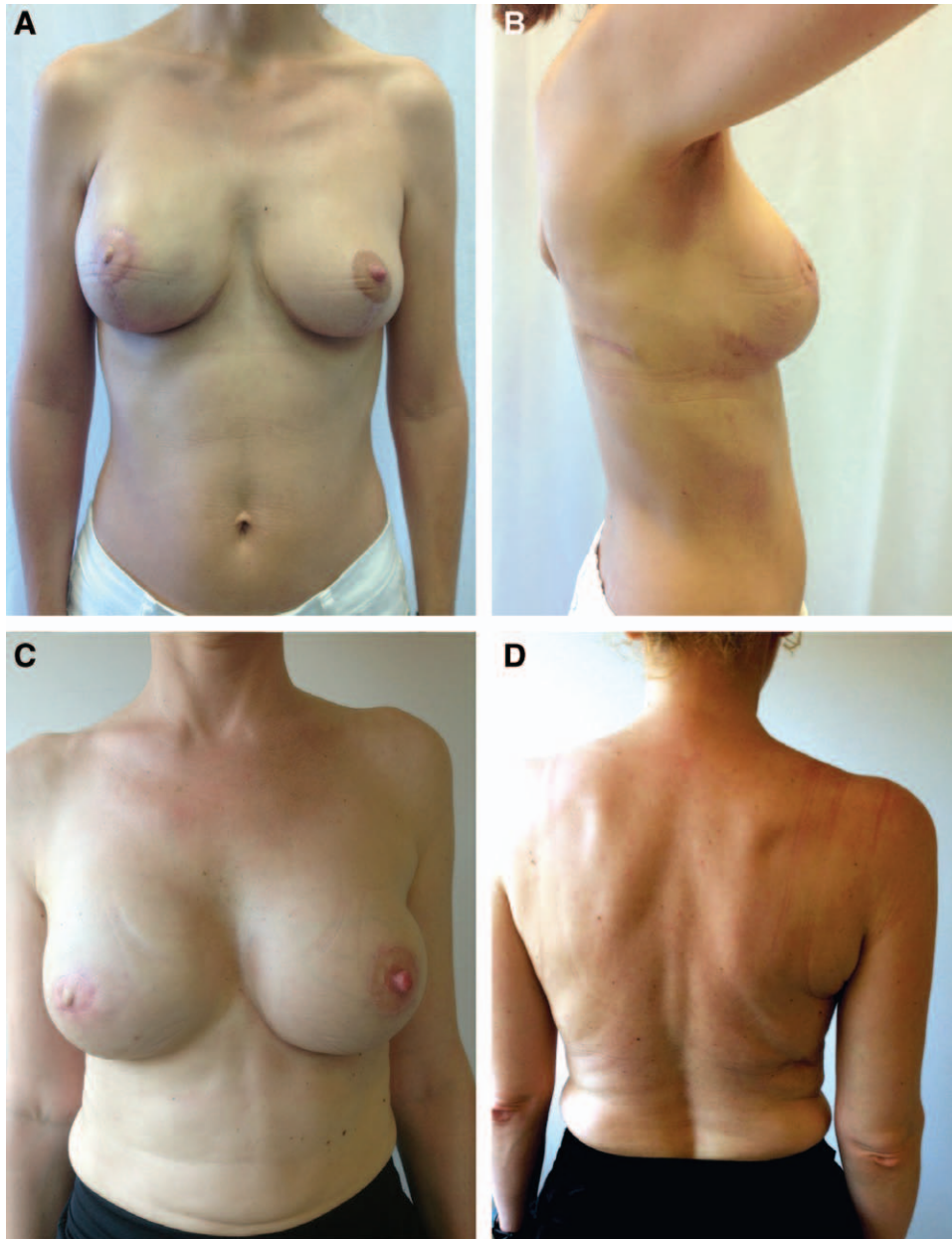


Fig. 3. A and B, Result after 3 mo (frontal and lateral views). C and D, Result after 6 mo (frontal and back views).

similar to the rates reported in the literature. The mean duration of drainage in the donor site was 5 days, with a maximum of 7 days. The criterion for drainage withdrawal was 30 ml or less collected per day with a serious appearance.¹⁰ Seroma in case 4 was drained by needle aspiration during postoperative control. Several risk factors have been postulated for the occurrence of seroma: advanced age, high body mass index, dissected cavity, or performance of lymphadenectomy in the same surgical intervention.¹¹⁻¹³ The use of autologous fibrin or the use of attaching stitches in the donor area have been proposed to reduce the occurrence of seroma and

to shorten the duration of drainage.^{14,15} In our series, we applied fibrin glue spray for the donor area (5 cm³ of Tissucol, Baxter International) in all cases.

Safety of nipple-areolar complex reconstruction in 1 step with latissimus dorsi breast reconstructions has been well documented by other authors.^{16,17}

The single-stage technique was introduced in our practice since 2011, when we perform 117 total breast reconstructions. We performed this technique in 7 patients (6%), Deep inferior epigastric perforator flap in 48 patients (41%), classic latissimus dorsi plus prosthesis in 10 patients (9%), and direct prosthesis with acellular dermis in 52 patients (44%).

This new scarless technique is well accepted by patients. The final scars, one in the axillary fold, always oncologically needed, and another smaller inferior on the lumbar area, are easy widened and well tolerated. The inferior lumbar scar allows the surgeon to reconstruct the nipple area and to save another surgical time.

The endoscopic approach achieves lower morbidity with less scarring in the donor area, lower risk of dehiscence, scar hypertrophy, or scar retraction and reduces the need for dressings and the time required for healing.^{18,19} The minimal anatomical variability and the amount of tissue available for use in reconstruction also represent an advantage over fasciocutaneous perforator flaps.²⁰

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