

**Liliana Barone-Adesi, M.D.**

Breast Unit  
Catholic University of “Sacro Cuore”  
University Hospital “A. Gemelli”  
Rome, Italy

Correspondence to Dr. Salgarello  
Via Massimi 101  
00136 Rome, Italy  
m.salgarello@mclink.it

**DISCLOSURE**

*The authors have no financial interest to declare in relation to the content of this communication.*

**REFERENCES**

1. Salgarello M, Visconti G, Barone-Adesi L. Fat grafting and breast reconstruction with implant: Another option for irradiated breast cancer patients. *Plast Reconstr Surg.* 2012;129:317–329.
2. Salgarello M, Visconti G, Farallo E. Autologous fat graft in radiated tissue prior to alloplastic reconstruction of the breast: Report of two cases. *Aesthetic Plast Surg.* 2010;34:5–10.

**To Sever or Not the Thoracodorsal Nerve in Latissimus Dorsi Flap Breast Reconstruction**

Sir:

**W**e read with pleasure the extremely interesting article by Kääriäinen et al.<sup>1</sup> on surgical denervation of the musculocutaneous latissimus dorsi flap for breast reconstruction, and we congratulate the authors on their study. Use of the latissimus dorsi muscle for breast reconstruction has maintained a strong popularity because of the relative simplicity with which it can be harvested coupled with reliable and consistent flap vascularity; the ability to provide additional prosthetic coverage; the lack of requirement for microsurgical skills; the lack of intensive, sophisticated, costly postoperative flap monitoring; and the lack of the requirement for preoperative imaging to investigate the vascular anatomy. The latissimus dorsi flap can be an alternative technique for both immediate and delayed reconstructions, even without implants, as purely autogenous tissue,<sup>2</sup> and several variations of this flap have been described over the years with a wide range of skin paddle designs and orientations.<sup>3–5</sup> Whether or not to cut the thoracodorsal nerve is often a dilemma, and we would like to share our approach in denervation of the myocutaneous latissimus dorsi flap.

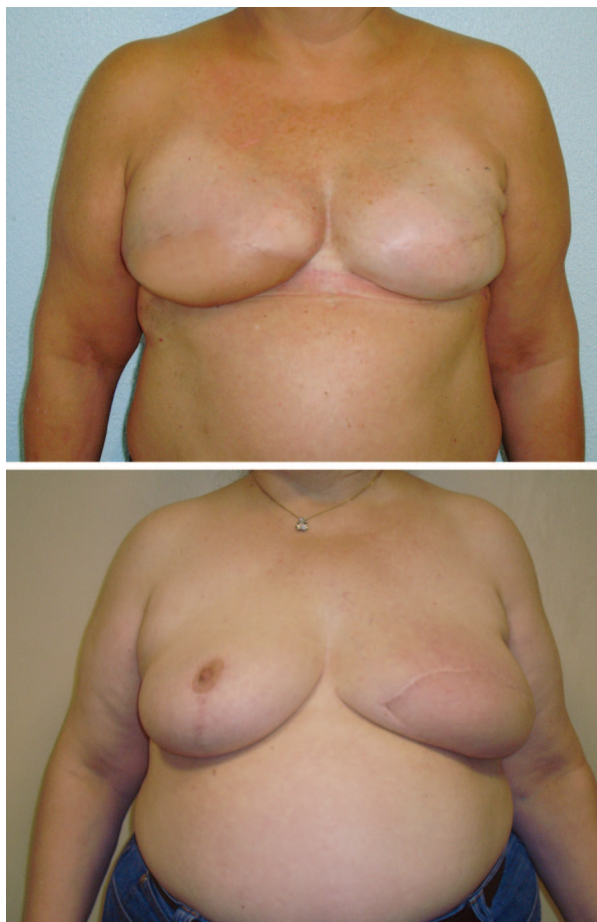
In our unit, we are accustomed to performing three different types of latissimus dorsi flap surgery for breast reconstruction: standard latissimus dorsi combined with implant, descending branch muscle-sparing latissimus dorsi flap with implant, and autologous latissimus dorsi flap. In these three different settings, we cut the nerve in the standard latissimus dorsi flap procedure (Fig. 1) and do not in muscle-sparing and autologous latissimus dorsi procedures because we want to preserve the greatest volume of the flap (Fig. 2). In extended autologous latissimus dorsi flaps, where only the patient’s own tissue of the back is used to reconstruct the

breast, it is particularly important to have a healthy and trophic muscle flap, which maintains its volume as much as possible. Even in muscle-sparing latissimus dorsi flap surgery, where only a vertical strip of muscle is harvested, based on the descending branch of the thoracodorsal vessels, keeping the nerve intact may preserve the muscle volume to guarantee adequate implant coverage, avoiding any shrinkage of the flap.

We agree with the authors that thoracodorsal nerve severing should be performed safely without jeopardizing flap vascularity, and in delayed breast reconstruction with previous axillary dissection and radiotherapy there could be some scar tissue that may render the procedure more difficult and dangerous. Regarding the irksome contractions, we surmise that these are not real problems because they tend to fade over time. The important point is to warn patients about it; if they persist, the nerve can always be severed during a secondary procedure, such as during prosthesis replacement or nipple reconstruction.



**Fig. 1.** A 54-year-old patient underwent breast reconstruction with a standard latissimus dorsi flap, with an implant on the right and expander replacement with implant on the left. The thoracodorsal nerve was cut. With muscle contraction, no distortion is the reconstructed breast is present. Mild atrophy of the flap is present.



**Fig. 2.** Muscle-sparing and autologous latissimus dorsi flap breast reconstruction patients. The thoracodorsal nerve was not divided in either patient. Note the trophism of the two flaps.

The authors reported that they completely transect the muscle at both the origin and the insertion, and we believe that in case of nerve sparing, the muscle contractions may hamper the vascular pedicle, causing pedicle avulsion. For that reason, we keep the humeral insertion intact. Furthermore, we wonder whether the authors noted any difference in muscle atrophy in the implant latissimus dorsi flap group compared with the autologous latissimus dorsi flap group. Finally, with fat graft injection, some of the minor deformities can be corrected, and flap volume flap can be improved if necessary.

DOI: 10.1097/PRS.0b013e31825900fe

**Stefano Bonomi, M.D.**

**Andrè Salval, M.D.**

**Flavia Sorbi, M.D.**

**Fernanda Settembrini, M.D.**

Department of Plastic Reconstructive Surgery and Burn  
Unit Center  
Ospedale Niguarda Ca' Granda  
Milano, Italy

Correspondence to Dr. Salval

Department of Plastic Reconstructive Surgery and Burn

Unit Center

Ospedale Niguarda Ca' Granda

Piazza Ospedale Maggiore, 3

20162 Milano, Italy

andresalval@gmail.com

## DISCLOSURE

*The authors have no financial interest to declare in relation to the content of this communication.*

## REFERENCES

1. Kääriäinen M, Giordano S, Kauhanen S, et al. The significance of latissimus dorsi flap innervation in delayed breast reconstruction: A prospective randomized study. Magnetic resonance imaging and histologic findings. *Plast Reconstr Surg.* 2011;128:637e–645e.
2. Delay E, Gounot N, Bouillot A, Zlatoff P, Rivoire M. Autologous latissimus breast reconstruction: A 3-year clinical experience with 100 patients. *Plast Reconstr Surg.* 1998;102:1461–1478.
3. Saint-Cyr M, Nagarkar P, Schaverien M, Dauwe P, Wong C, Rohrich RJ. The pedicled descending branch muscle-sparing latissimus dorsi flap for breast reconstruction. *Plast Reconstr Surg.* 2009;123:13–24.
4. McCraw JB, Papp CT. Latissimus dorsi myocutaneous flap: "Fleur de lis" reconstruction. In: Hartrampf CR, ed. *Hartrampf's Breast Reconstruction with Living Tissue.* Norfolk: Hampton Press; 1991;221.
5. Bailey S, Saint-Cyr M, Zhang K, et al. Breast reconstruction with the latissimus dorsi flap: Women's preference for scar location. *Plast Reconstr Surg.* 2010;126:358–365; discussion 366.

## Reply: To Sever or Not the Thoracodorsal Nerve in Latissimus Dorsi Flap Breast Reconstruction

*Sir:*

We read with great interest the comments of Drs. Bonomi, Salval, Sorbi, and Settembrini about our article.<sup>1</sup> The notes made are well justified. However, there are some comments that we would like to make.

In their practice, the thoracodorsal nerve is saved in autologous total or partial latissimus dorsi flaps. This is done to preserve the volume of the flap in the long run. According to the results of our study, the volume remained practically the same in patients with a cut nerve and an intact nerve. The atrophy of the muscular fibers was more severe in the denervated muscles, but the volume was replaced by fatty tissue. Thus, saving the nerve is not necessary to preserve the volume of the flap.

The conclusion not to cut the nerve in our practice is based on the result that the muscle activity diminished significantly in the intact nerve group in most patients within 1 year. In addition, we found muscle activity in some of the patients in the denervated group. This is probably because of aberrant nerve connections or reinnervation of the muscle. The clinical results are presented more precisely in another article that we have not yet published.

In conclusion, cutting or saving the nerve does not have an effect on the flap volume or muscle activity in the long run. Thus, both practices seem to be justified.

Contrary to the opinion of the discussants, we prefer to cut the tendon of the muscle from its humeral insertion