



Thoracodorsal Artery Perforator Flap: Basic Surgical Determinants

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Received: May 04, 2012
Accepted: May 06, 2012

Arch Clin Exp Surg 2012;1: 270-271
DOI: 10.5455/aces.20120506072849

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Dear Editor,

The Thoracodorsal Artery Perforator (TDAP) flap is a relatively new member of the perforator flap family in reconstructive surgery. It has been used for reconstruction of regional soft tissue defects, including trunk, axilla and breast, or as a free flap in reconstruction of various distant tissue defects, such as face, elbow, forearm and lower extremity [1-4]. In shedding light on literatures and according to our experience in this field, adhering to some basic surgical determinants may significantly increase the success of planning and harvesting the TDAP flap.

1. The understanding of the perforator anatomy is essential for safe and efficient harvesting of the TDAP flap. The first musculocutaneous perforator of the TDAP flap usually emerges from the point 8 to 10

cm inferior to the axillary fold and 1 to 2 cm behind the lateral border of the latissimus dorsi muscle. This point is the location of the proximal skin perforator originating from the descending branch of the thoracodorsal artery. The second landmark is 4 cm below the scapular tip and 2.5 cm behind the lateral border of the latissimus dorsi muscle [5-7].

2. The surgeons have to detect and mark the cutaneous perforators of the thoracodorsal artery on the back using a Doppler flowmeter before the operation. There is a general correlation between the audible volume of the signal and the diameter of the perforator [2-4].

3. The flap size and shape should be designed according to the defect size, with incorporation of the point of the perforator artery to obtain a long pedicle for free

flap transfer and to provide appropriate mobilization for pedicled flap transfers. Usually, pedicled flaps should be designed in such a way that the perforator enters the skin paddle right in the center of the flap island. However, the free flaps should be designed on the basis of the proximal perforator, which is placed on the proximal third of the flap to increase effective pedicle length, and the size of the flap [1-3].

4. The patient should be placed in the lateral decubitus position with the arm abducted 90 degrees over, whilst under general anesthesia. However, some authors suggested flap harvesting in the supine position [8].

5. Flap elevation is commenced from the anterior to posterior, developing a plane above the deep fascia of the latissimus dorsi and serratus anterior muscles, which is thick medially and which becomes thinner above the anterior part of the latissimus dorsi muscle [2,3].

6. The dissection should be done carefully under loupe magnification for identification of the pulsating perforator. Wide exposure is essential to perforator dissection within the muscle and the dissection proceeds in the loose areolar tissue above the muscle. Some variations can be seen in the size and location of the perforators. For this reason, during this dissection, the surgeon should be aware that the real location of the perforator might be different from the location detected by the Doppler flowmeter [2-4].

7. The dissection should be performed close to the pedicle, ligating muscular branches with surgical clips or bipolar cautery. The thoracodorsal nerve and its branches should be freed from the pedicle with an atraumatic dissection technique. Subsequently, the flap should be carefully detached from the underlying muscle until the selected perforator is encountered [2-4].

8. The thinning procedure of the flap may be performed. The soft tissue underlying the superficial fascia may be trimmed, leaving only skin and a partial thickness of superficial adipose tissue. However, a 1-cm-wide deep fascia cuff is left untrimmed around each skin perforator to prevent injury to them [5].

9. The expansion of the TDAP flap is possible. The pre-expanded TDAP flap may be used safely to recon-

struct any size of soft tissue defects and the donor site may be closed primarily with low tension [4].

In conclusion, the thoracodorsal perforator flap is a reliable option for the reconstruction of soft tissue defects. It may be elevated safely to perform some surgical principles. We recommend this flap as the treatment of choice in the various defects.

Conflict of interest statement

The authors have no conflicts of interest to declare.

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