How do I do it? Passing a Pedicled Flap Through a Subcutaneous Tunnel

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Abstract Latissimus dorsi myocutaneous flaps are used to cover body structures or replace tissue that has been lost due to trauma, infection, or surgical excision for tumor. Transfer of these flaps from donor to recipient site is a vital step of surgery as forceful passage of flap may cause damage to blood supply of flap or devitalize the tissue by excessive shearing force. Use of polyvinyl chloride bag for transfer of latissimus dorsi flap through subcutaneous tunnel has been found to be very effective in dealing with this problem.

Keywords Latissimus dorsi · Myocutaneous flap · Subcutaneous tunnel

Introduction

Myocutaneous and fasciocutaneous flaps represent important advances in reconstructive surgery. They enable the surgeon to provide coverage of vital structures in a reliable way, with consistent good results. Primarily, latissimus dorsi myocutaneous flaps are used to cover body structures or replace tissue that has been lost due to trauma, infection, or surgical excision for tumor. Transfer of these flaps from donor to recipient site is a vital step of surgery as forceful passage of flap may cause damage to blood supply of flap or devitalize the tissue by excessive shearing force [1]. Here, we describe a new method of passing flap through subcutaneous tunnel.

Technique

Our patient was a 40-year-old woman with a diagnosis of multicentric invasive ductal carcinoma of the right breast. She was planned for mastectomy and latissimus dorsi flap reconstruction in the same sitting. Her sentinel lymph node biopsy was negative. After simple mastectomy, reconstruction of the right breast was done with latissimus dorsi myocutaneous flap. Following steps have been followed during transfer of latissimus dorsi flap from donor to recipient site:

1. Creation of tunnel
 - (a) Create a wide tunnel, pass a sponge holder in the tunnel, and open it from inside. Pull it out with the prongs of sponge holder till wide open. Repeat this step till a desired width of tunnel is created.
 - (b) Next, pass your gloved hand lubricated with small amount of sterile liquid paraffin to further broaden the tunnel.
2. Achieve hemostasis within the tunnel under direct vision.
3. Once the flap is passed, these bleeders would be obscured and may create a hematoma that may compress the vascular pedicle later.
4. Place the flap within a sterile polyvinyl chloride bag—take the plastic bag of suction drain receptacle. Cut it open on one side and gently slip the flap into it (Fig. 1a).
5. Lubricate the outer surface of bag with sterile liquid paraffin (Fig. 1b).
6. Slip the bag containing the flap, gently pushing (not pulling) it through the tunnel (Fig. 1c, d).
7. Remove the bag and insert the flap into recipient defect and suture it in place.

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Fig. 1 **a** A latissimus dorsi myocutaneous flap passed inside a sterile polyvinyl chloride (PVC) bag. **b** The outer surface of bag is lubricated with sterile liquid paraffin. **c** The corner of bag is gently manipulated through the subcutaneous tunnel. **d** The flap inside the bag is delivered into the recipient defect

Discussion

The author has been dealing with the plastic and reconstructive cases for more than 10 years. During this long experience, it was found that passing a large myocutaneous or fasciocutaneous flap through a subcutaneous tunnel may damage the blood supply of flap or devitalize the tissue by excessive shearing force. Although shearing effect on different layers of the flap can be prevented by suturing skin with fascia as tag sutures at different points, additional use of this method further reduces the “coefficient of friction” between the flap surface and the inner surface of subcutaneous tunnel. Easy gliding of the flap minimizes the

shearing force between different layers of flap and improves its viability. The technique is simple and expedient that works well.

Conflict of Interest None

References

1. Biggs TM, Cronin ED (1981) Technical aspects of the latissimus dorsi myocutaneous flap in breast reconstruction. *Ann Plast Surg* 6 (5):381–8