

Perineal Electric Burn Reconstruction Using Modified Thoraco-Umbilical Flap*

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Abstract

Perineal reconstruction is an essential component of the overall treatment plan of perineal electric burn, but it is a very difficult and complex job. The modified thoraco-umbilical flap may be a perfect way of repairing perineal area. It is based on the deep inferior epigastric artery and vein and the superior epigastric artery and vein, which look like the “reverse TRAM flap”. The large flap could be fashioned into a perfect perineal area without the need for free flap. It left a satisfactory donor scar, and it avoided the need to change the patient's position during the operation. Four cases were reconstructed by modified thoraco-umbilical flap after perineal electric burn, and all of them were satisfied with the results. The modified thoraco-umbilical flap has been emerged as a very useful reconstructive tool and is particularly valuable in reconstruction of the perineal electric burn.

Keywords

Perineal Electric Burn, The Modified Thoraco-Umbilical Flap

1. Introduction

The perineal area serves an important function. Perineal reconstruction is an essential component of the overall treatment plan of perineal electric burn. When perineal electric burn occurs, it is very hard to reconstruct. Skin graft is not the best way because the contract scar will happen. Local flap transfer may be the best way for perineal electric burn, but there is no proper local flap when the local skin, muscle and artery were destroyed [1]. Due to the special function and appearance of the perineal area [2], reconstructive options for perineal trauma are not very satisfactory.

*The study was approved by ethics committee of our hospital, and all the 4 patients signed informed consent before the operation.

2. Methods

The TRAM flap has emerged as a very useful reconstructive tool and is particularly valuable in reconstruction of the breast following mastectomy [3] [4]. From the point of view of form, the modified thoraco-umbilical flap looks like the “reverse TRAM flap”, is based on the deep inferior epigastric artery and vein and the superior epigastric artery and vein [5]. Flaps are typically marked approximately 12 cm high at the midline and extend approximately 22 - 24 cm laterally from the midline (Figure 1). The modified flap can extend the midline if there is necessary. The large flap could be fashioned into a perfect perineal area without the need for free flap. It left a satisfactory donor scar, and it avoided the need to change the patient’s position during the operation (Figure 2). The modified thoraco-umbilical flap has emerged as a very useful reconstructive tool and is particularly valuable in reconstruction of the perineal electric burn.

3. Case Report

Four cases were electrician, and were hurt by electric when they sat on the ladder. Four cases were reconstructed by the modified thoraco-umbilical flap, and all patients were satisfied with the results. With the patient in a supine position, a doppler probe is used to identify the deep inferior epigastric artery and the superior epigastric artery. The size and the shape of the flap were designed according to the wound area of perineum. During flap harvest, the superficial inferior epigastric vessels are approached first. The anterior rectus sheath is opened around the perforators and the vessels are carefully dissected down through the rectus muscle to the deep inferior epigastric artery and vein. The flap was transferred from the subcutaneous tunnel. All of the patients were satisfied with the function and appearance of the flap.

4. Discussion

The reconstructive goal of perineal trauma is to obtain durable coverage and function. Axial pattern skin flap and local random flap are the main ways for perineal area. But to the electric burning patients, the wound area are large and irregular, the soft tissue and artery near the wound area are often destroyed, local axial pattern skin flap and local random flap are very difficult to be designed and performed. The modified thoraco-umbilical flap

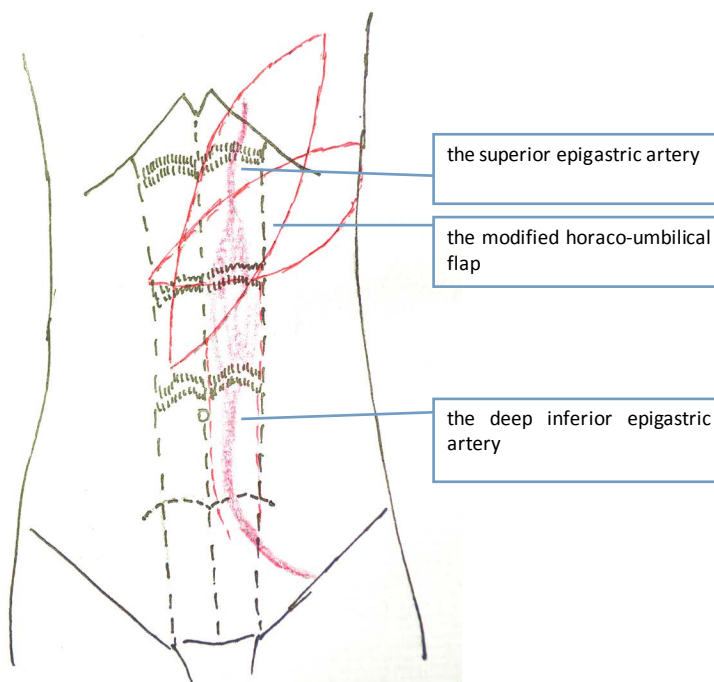


Figure 1. The modified horaco-umbilical flap is based on the deep inferior epigastric artery and vein and the superior epigastric artery and vein. Flaps are typically marked approximately 12 cm high at the midline and extend approximately 22 - 24 cm laterally from the midline.

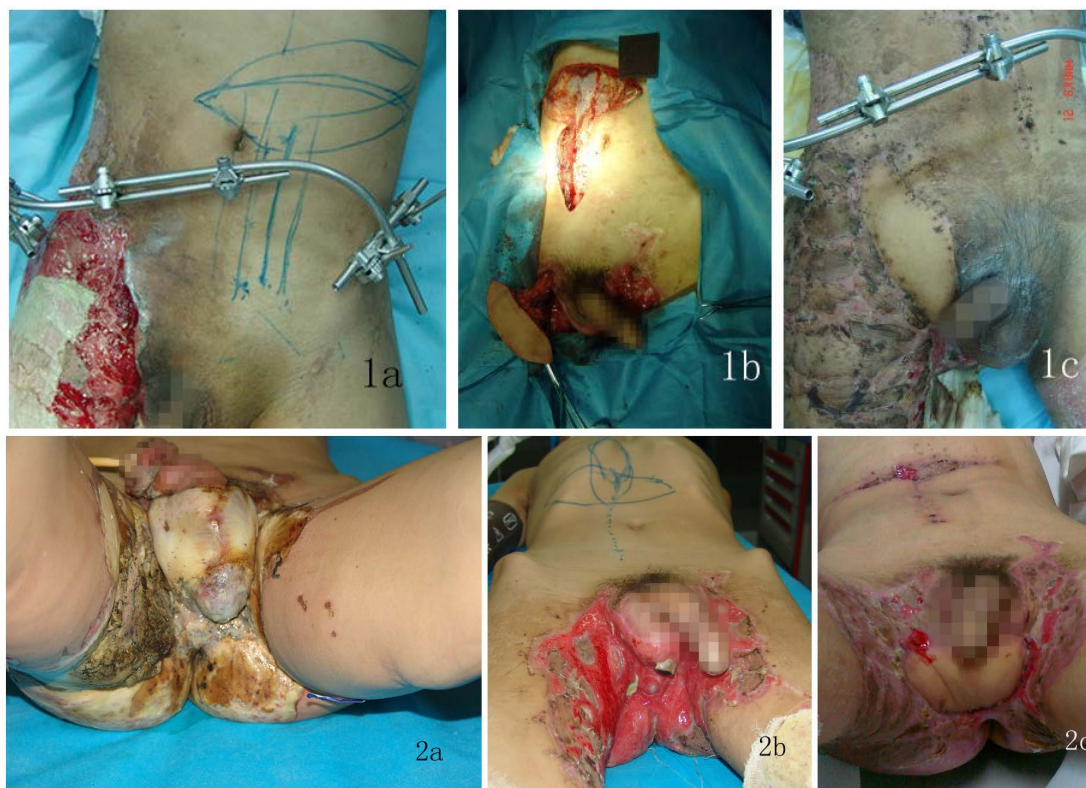


Figure 2. (1a) the serious perineal trauma after electric burn; (1b) the modified thoraco-umbilical flap was transferred to perineal area; (1c) the appearance of the flap after 4 weeks. (2a) the electrical injury of perineal area; (2b) the perineal trauma area was repaired by the modified thoraco-umbilical flap; (2c) the appearance of the flap after 3 weeks.

may be the perfect flap to repair perineal, especially to the serious and large perineal trauma. In addition, the modified thoraco-umbilical flap can extend the midline and be more flexible compared to the traditional thoraco-umbilical flap.

5. Conclusion

The modified thoraco-umbilical flap is a very useful reconstructive tool for the reconstruction of the perineal electric burn, and this way is worth promoting.

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