Case Report

Successful Reconstruction of Congenital Perineal Skin Defect Using Gluteal-Fold Bilobed Perforator Flap

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Abstract

Perineovaginorectal defect usually requires surgical repair; however, direct closure often leads to dehiscence. We present two patients with a congenital perineal skin defect who were successfully treated using a gluteal-fold bilobed perforator flap. This flap facilitates esthetic restoration and a more natural perineovaginorectal appearance, using only a one-stage procedure. This technique may be a favorable option for perineal and genital repair.

Keywords: Bilobed flap, perforator flap, perineal skin defect, reconstruction

Introduction

Perineovaginorectal defect healing is difficult to achieve spontaneously, and direct closure of these wounds often leads to dehiscence. Thus, local flaps are often required for resurfacing in this area.[1,2]

We have applied a bilobed perforator flap raised in the gluteal-fold region. This flap has been used to reconstruct congenital perineal defects in two patients, resulting in successful outcomes. The flap was vascularized by the cutaneous perforator vessels from the internal pudendal artery; thus, the circulation of the flap was favorable.[3] The technical details and surgical results of this new method are presented in this paper.

Materials and Methods

Two patients with congenital perineal skin defects were treated using a gluteal-fold bilobed perforator flap between 2008 and 2013.

The location of the cutaneous perforator vessels from the internal pudendal artery was assessed on the medial side of the ischial tuberosity preoperatively using a Doppler flow meter. The flap should include these points and designed to be large enough to cover skin the defect between the anus and vagina by transposing a wide skin lobe. The bilobed flap can be designed both in the first and last quarter shapes [Figure 1a and b]. A small triangular flap is added to the base of the large lobe, being about 40% of the large flap. Dissection is carried out distally to proximally in a suprafascial plane until the perforator vessel can be seen [Figure 1c]. The large flap is transposed to cover the perineal skin defect, the small flap is transposed to cover the donor site of the large flap, and the points of the donor sites of the small triangular flaps are pulled to meet each other and sutured.

Access this article online

Quick Response Code:

Website: www.afrjpaedsurg.org

DOI: 10.4103/ajps.AJPS_29_16

Case Reports

Case 1

A 1-year-old female consulted our hospital with the complaint of an ulcer of the perineal region. She had a congenital low type of imperforate anus, and the bowel had a narrow opening to the vagina. Initially, she had undergone anoplasty, involving moving the anus to an appropriate place.

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How to cite this article: Fujioka M, Hayashida K, Saijo H. Successful reconstruction of congenital perineal skin defect using gluteal-fold bilobed perforator flap. Afr J Paediatr Surg 2017;14:15-7.

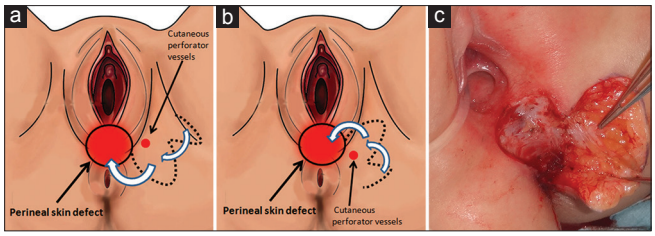


Figure 1: (a) The bilobed flap designed in the first quarter. (b) The bilobed flap designed in the last quarter. (c) Intraoperative view of the elevated perforator flap. Arrow shows cutaneous perforator vessels

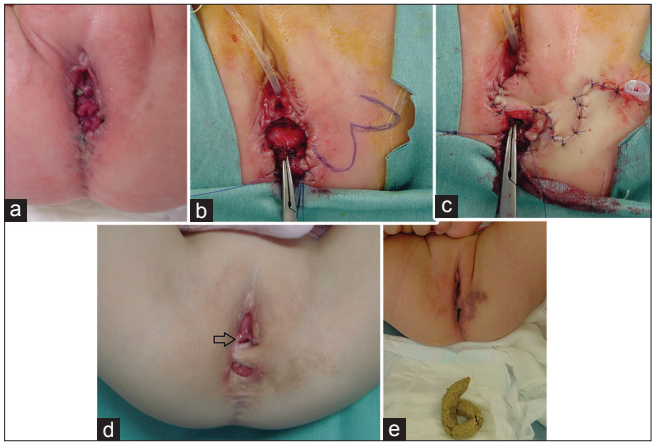


Figure 2: (a) Preoperative view of Case 1. A 1.5 cm × 1.5 cm ulcer was noted between the anus and vagina. (b) After debridement, a bilobed flap was elevated from the left gluteal lesion. (c) The large flap was transposed to cover the perineal skin defect, and the small flap was transposed to cover the donor site of the large flap. (d) Six-month postoperative view. The viability of the flap was favorable, and it divided the anus and vagina. (e) Six-month postoperative image showing favorable bowel control

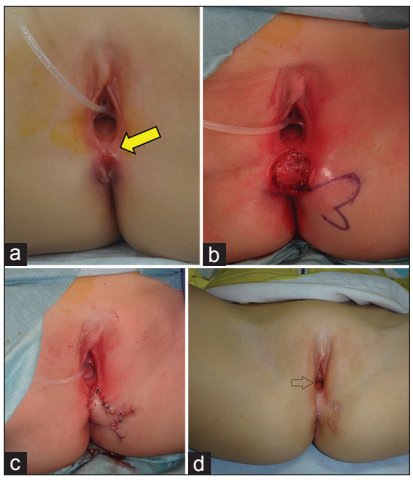


Figure 3: (a) Preoperative view of Case 2. A 1.0 cm × 1.5 cm ulcer was noted in the perineal lesion (arrow). (b) The ulcer was excised completely, and a bilobed perforator flap was designed. (c) Intraoperative view of flap transfer. The large flap was transposed to cover the perineal defect, and the small flap was transposed to cover the donor site of the large flap. (d) Three-month postoperative image showing a favorable appearance

The perineovaginorectal wound had been sutured directly. However, the mid-vaginorectal wound developed dehiscence. On examination, a 1.5 cm × 1.5 cm ulcer was found between the anal and vagina [Figure 2a]. A bilobed perforator flap was elevated from the left gluteal lesion and rotated toward the skin defect [Figure 2b and c].

The viability of the flap was favorable without infection or necrosis, and it also showed an excellent appearance. She also gained favorable bowel control [Figure 2d and e].

Case 2

A 3-year-old female consulted our medical center with the complaint of an ulcer of the perineal region. She showed congenital hypoplasy of the perineovaginorectal lesion revealing a skin defect. She consulted the department of paediatrics, and it was verified that she had no other functional disorders. On examination, a 1.0 cm × 1.5 cm ulcer was found in the perineal area [Figure 3a]. The ulcer was excised completely, and the skin defect was reconstructed with a bilobed perforator flap [Figure 3b and c].

The viability of the flap was favorable without infection or necrosis, and it also showed an excellent appearance [Figure 3d].

Discussion

A perineovaginorectal defect rarely shows a healing tendency with conservative treatment or direct closure, because of contamination due to urine and stool, as well as continuous strain and physical stimulation of the wound. Thus, some flap surgery is usually required for resurfacing.[1,2] To reconstruct a large defect of the perineal lesion, including that after debridement of a pressure ulcer and infected vulvar skin, abrasion of irradiated tissue, radical excision of a malignant neoplasm, and reconstruction of rectovaginal fistula, several musculo- and fasciocutaneous flaps are available.[4,5] However, relatively small perineal skin defects, not more than 2 cm in diameter, can be repaired using local flaps, which do not require extended incision for flap harvest, microvascular anastomoses, or the sacrifice of muscle or main vessels. Many investigators have reported a variety of skin flaps to reconstruct perineal defects: rotated buttock flap by Dumanian and Donahoe, subcutaneous pedicled flap by Sakai *et al*., and superomedial thigh flap by Hirshowitz and Peretz.[6-8]

The flap elevated near the wound is favorable for improved texture and color match. However, donor sites for local flaps are too limited to close them directly when a relatively large flap is required. To solve this problem, a bilobed flap is useful. The large flap is transposed to cover the skin defect, and the small flap is transposed to cover the donor site of the large flap, the points of the donor sites of the small triangular flaps can be pulled to meet each other and sutured [Figure 1c]. The bilobed flap facilitates the harvesting of a local flap of sufficient size of as well as the safe closure of a donor site.

Application of the perforator flap concept has many advantages for harvesting a well-vascularized flap. Perforator

flaps are defined as flaps with a blood supply from isolated perforating vessels of a stem artery. The most significant advantages of the perforator flap are that there is no need to sacrifice any main arteries; thus, there is minimal morbidity at the donor site.[9] This type of flap is thin in comparison with fasciocutaneous flaps, and the vascularity is reliable. Furthermore, the dissection of perforator flaps is carried out at a suprafascial plane level, which is free from nervous disturbance. The small incision also reportedly reduced intraoperative bleeding.[10]

An ideal flap is thought that to be a good vascularized skin paddle with the same thickness and width as the wound, which minimizes negative impacts on walking, creates a natural esthetic appearance and requires only a single-stage operation.[9] A gluteal-fold bilobed perforator flap fully satisfies these requirements; thus, we believe that this flap should be recommended as the first choice for perineovaginorectal resurfacing.

Conclusion

The gluteal-fold bilobed perforator flap facilitates esthetic restoration and a more natural perineovaginorectal appearance, using only a one-stage procedure. This technique may be a favorable option for perineal and genital repair.

Financial support and sponsorship

Nil.

Conflicts of interest

Any financial or personal relationships with other people or organizations that could inappropriately influence (bias) the authors' actions.

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