which is often thin, and the pectoralis major muscle without damaging the tissue expander, preventing the recurrence of collapse in this area of connective tissue when inserting it after the ligation of sutures during repair. This technique may be improved by combining it with horizontal mattress sutures.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

Patient Consent

The patient provided written informed consent for the publication and the use of their images.

References

1. Schulman MR, Chun JK. The conjoined sternalis-pectoralis muscle flap in immediate tissue expander reconstruction after mastectomy. Ann Plast Surg 2005;55:672-5.
2. Barlow RN. The sternalis muscle in American whites and Negroes. Anat Rec 1934;61:416-26.
3. Alani HA, Balalaa N. Complete tissue expander coverage by musculo-fascial flaps in immediate breast mound reconstruction after mastectomy. J Plast Surg Hand Surg 2013;47:399-404.

Double-sided folded internal pudendal artery perforator flap for the repair of a recurrent rectovaginal fistula

Sang Keon Lee, Yong Seok Lee, Seung Yong Song, Won Jai Lee, Dong Won Lee
Institute for Human Tissue Restoration, Department of Plastic and Reconstructive Surgery, Severance Hospital, Yonsei University College of Medicine, Seoul, Korea

Correspondence: Dong Won Lee
Department of Plastic and Reconstructive Surgery, Yonsei University College of Medicine, 50-1 Yonsei-ro, Seodaemun-gu, Seoul 03722, Korea
Tel: +82-2-2228-2215, Fax: +82-2-393-6947
E-mail: xyphoss@yuhs.ac

The authors would like to thank Dong-Su Jang, a medical illustrator in the Medical Research Support section of Yonsei University College of Medicine, Seoul, Korea, for assistance with the illustration.

Received: 7 Feb 2017 • Revised: 14 Sep 2017 • Accepted: 19 Sep 2017
pISSN: 2234-6163 • eISSN: 2234-6171
https://doi.org/10.5999/aps.2017.00269
Arch Plast Surg 2018;45:90-92
Copyright © 2018 The Korean Society of Plastic and Reconstructive Surgeons
This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/4.0/) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

A 53-year-old woman underwent 3 fistulectomies performed by a colorectal surgeon due to a recurrent rectovaginal fistula (RVF), which developed 2 years after complicated labor dystocia with an episiotomy.
Nonetheless, the fistula recurred, and the patient was referred to the Department of Plastic and Reconstructive Surgery, where a plan was made to use a double-sided folded internal pudendal artery perforator (IPAP) flap to repair the recurrent RVF (Fig. 1A). Prior to this operation, a laparoscopic diverting loop ileostomy was performed by a colorectal surgeon.

After complete debridement of the fistula and the surrounding unhealthy tissue, the exact localization of the flap to be elevated was determined via tracing of the IPAP using Doppler ultrasound (Fig. 1B). The flap was partitioned into 2 compartments in a distal to proximal direction from the perforator, and each flap was designated as “R” and “V,” respectively. The “R” and “V” areas were determined considering the size of the rectal opening and the distance between the vulva and the vaginal opening. The proximal part of the “R” flap was de-epithelialized and folded with the subcutaneous fat sides facing each other, and was then transposed between the vagina and rectum to replace the damaged rectovaginal septum (Fig. 2). As a result, both the vaginal and rectal openings of the fistula were covered with a well-vascularized skin paddle (Fig. 1C).

At a 3-month postoperative visit, the fistula was confirmed to be completely closed by a Gastrografin contrast enema (Fig. 3), and transrectal ultrasonography performed 1 year postoperatively also showed no evidence of RVF recurrence (Fig. 4).

RVF is not a common complication of pelvic procedures. However, RVF repair is usually challenging for both patients and surgeons because of its high recurrence rate after primary repair [1]. The inflamed state of the tissue, poor vascular perfusion of the bed, and fibrotic adhesions from prior surgery are thought to be the most important factors contributing to recurrence. Therefore, treatment of recurrent RVF necessitates coverage of both the vaginal and rectal sides of the fistula with healthy, well-vascularized, perfused flaps [2]. Various surgical techniques, such as random pattern flaps, muscle transposition, and even artificial mesh grafts, have been tried for repairing recurrent RVF. However, none of these methods have been accepted as a procedure of choice because of an unsatisfactory recurrence rate and poor cosmetic and functional outcomes [1]. In this case, a technique covering the entire fistula region with a well-vascularized IPAP flap was utilized. The IPAP flap is considered an excellent choice for reconstruction of the pelvic region because it can be used without causing any notable functional deformities. Furthermore, it has a dominant vascular pedicle that can be used for perineal transposition with adequate length. All these factors contribute to the use of the IPAP flap in pelvic reconstructive surgery [3]. However, adaptation of the folded IPAP flap to cover both the vaginal and rectal sides at the same time in the treatment of a recurrent RVF has not been previously reported, and the outcome was satisfactory. In conclusion, the use of a double-sided folded IPAP flap can be considered a reliable and feasible procedure to cover both the vaginal and rectal sides of an RVF with a well-vascularized, perfused skin paddle.

Conflict of Interest

No potential conflict of interest relevant to this article.
was reported.

Patient Consent

The patient provided written informed consent for the publication and the use of their images.

References

1. Kaoutzanis C, Pannucci CJ, Sherick D. Use of gracilis muscle as a “walking” flap for repair of a rectovaginal fistula. J Plast Reconstr Aesthet Surg 2013;66:e197-200.
2. Corte H, Maggiori L, Treton X, et al. Rectovaginal fistula: what is the optimal strategy?: an analysis of 79 patients undergoing 286 procedures. Ann Surg 2015;262:855-60.
3. Hashimoto I, Abe Y, Nakanishi H. The internal pudendal artery perforator flap: free-style pedicle perforator flaps for vulva, vagina, and buttock reconstruction. Plast Reconstr Surg 2014;133:924-33.