Vaginal reconstruction after pelvic exenteration with a vertical deep inferior epigastric perforator flap in 10 steps

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Accepted 6 July 2020
Published Online First
13 August 2020

ABSTRACT

Pelvic exenteration is a radical and challenging surgery requiring a functional reconstruction after pelvic organ resection and, to date, it remains the only treatment with curative intent in selected cases of gynecological cancer relapse previously treated with radiotherapy. Organ replacement including vaginal reconstruction has evolved parallel to the refinement of surgical resection and represents a major goal. The advantages of vaginal reconstruction after pelvic exenteration include anatomical and functional reconstruction which would optionally allow sexual intercourse, better patients' quality of life, self-esteem, and body image, and lower long-term postoperative complications related to 'empty pelvis syndrome'.¹ Among the different techniques described for vaginal reconstruction, the vertical rectus abdominis myocutaneous (VRAM) flap represents the most commonly employed technique due to its surgical simplicity and the low rate of immediate postoperative complications.² The main constraint of this technique is related

to fascia and muscle harvesting, which can compromise the abdominal wall integrity in the long term.³ The deep inferior epigastric perforator (DIEP) flap was described for vaginal reconstruction as a technique which allowed the sparing of the muscle and the fascia from the abdominal wall,⁴ hence, reducing the rate of donor site complications.³ In addition, this technique does not require vascular anastomoses and, therefore, the risk of thrombosis is low.¹ In this [video 1](#), vaginal reconstruction with the DIEP flap has been standardized in the 10 following steps:

- Step 1: Patient selection
- Step 2: Preoperative doppler perforator identification
- Step 3: Midline incision
- Step 4: Perforator artery dissection
- Step 5: Skin flap harvesting
- Step 6: Anterior rectus abdominis muscle fascia opening
- Step 7: Transmuscular flap transposition
- Step 8: Inferior epigastric artery skeletonization
- Step 9: Flap conformation for vaginal reconstruction

Video 1. Vaginal reconstruction after pelvic exenteration with a vertical Deep Inferior Epigastric Perforator flap

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To cite: Angeles MA, Martínez-Gómez C, Martínez A, et al. *Int J Gynecol Cancer* 2020;**30**:2015–2016.

Video article

Step 10: Postoperative care

The sequences correspond to different patients who underwent an anterior or total pelvic exenteration followed by complex pelvic and urinary reconstruction for gynecologic malignancies.

To summarize, the DIEP pedicled flap for vaginal reconstruction represents a good alternative to the VRAM flap since it minimizes donor site complications and its elasticity is higher.³ However, DIEP harvesting demands a long training and high-level surgical skills, requiring a multidisciplinary surgical team including oncologic reconstructive surgeons.

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Funding Martina Aida Angeles acknowledges the grant support from "la Caixa" Foundation, Barcelona (Spain), ID 100010434. The fellowship code is LCF/BQ/EU18/11650038.

Competing interests GF reports personal fees from Olympus outside of the submitted work.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement All data relevant to the study are included in the article

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