TAMIS-assisted Mucosal Advancement Flap for Repair of a Low-Output Rectal Fistula After Radical Cystectomy: Video and Technical Notes

Guillermo Estébanez Peláez, José L. Maestro de Castro, Esta Choolani Bhojwani, Fernando Labarga Rodríguez, Vicente Simó Fernández

Department of General and Digestive Surgery, Río Hortega University Hospital, Valladolid, Spain

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Correspondence to
Guillermo Estébanez Peláez
gestebanez@saludcastillayleon.es

INTRODUCTION

Early postoperative rectal fistulas following major pelvic surgery are uncommon but carry substantial morbidity. Successful repair depends on accurate identification of the internal opening, closure with well-vascularized tissue, and preservation of sphincter function.[1]
The endorectal mucosal advancement flap is a well-established sphincter-preserving technique for the treatment of complex anorectal fistulas, with reported healing rates ranging from 50% to 70%.[2,3]
When the internal opening is located high in the rectum and requires a flap with greater proximal mobilization, the conventional transanal approach may be technically demanding. TAMIS provides excellent visualization, stable exposure, and improved ergonomics, making it a valuable and reproducible platform for these procedures.[4]
We describe a TAMIS-assisted endorectal mucosal advancement flap for repair of a low-output rectal fistula diagnosed on postoperative day 7 after radical cystectomy with ileal conduit urinary diversion.

CASE DESCRIPTION

A man underwent radical cystectomy with ileal conduit urinary diversion. On postoperative day 7, a small amount of feculent drainage was noted from the pelvic drain. Flexible sigmoidoscopy identified a small internal opening on the anterior wall of the distal rectum. Cross-sectional imaging confirmed a low-output rectal fistula without associated abscess or secondary fistulous tracts.
Given the low fistula output, distal location of the defect, and healthy surrounding mucosa, a TAMIS approach was selected to perform an endorectal mucosal advancement flap.

Surgical Technique (TAMIS-Assisted Endorectal Mucosal Advancement Flap)

The procedure was performed under general anesthesia with the patient in the prone jackknife position.
A single-port transanal access platform was inserted, and a low-pressure pneumorectum was established. A 30° laparoscope and standard laparoscopic instruments were used.

1. **Exposure and Preparation of the Defect**
The internal opening was identified on the anterior wall of the distal rectum. Circumferential debridement of the surrounding mucosa was performed until healthy, well-vascularized tissue was exposed.

2. Flap Design
A broad-based rectangular mucosal advancement flap was fashioned and elevated in the submucosal plane. Adequate proximal mobilization was achieved to allow tension-free advancement over the defect while preserving flap vascularity.

3. Flap Advancement and Fixation
The flap was advanced distally to cover the fistulous opening and secured to healthy rectal mucosa with interrupted absorbable sutures.

4. **Completion of the Procedure**
The transanal access platform was removed. No pelvic drains or setons were placed.

Postoperative Course

The postoperative course was uneventful. No recurrent feculent drainage was observed, and fecal continence was preserved. After 8 months of follow-up, there was no clinical evidence of fistula recurrence. Endoscopic examination demonstrated complete healing of the advancement flap with complete closure of the rectal defect.

DISCUSSION

Management of postoperative rectal fistulas after major pelvic surgery should be individualized according to fistula etiology, output, location of the internal opening, presence of infection or abscess, tissue quality, and previous interventions. Multiple surgical approaches have been described for complex rectourinary, particularly rectourethral, fistulas, including transanal, transperineal, transsphincteric, and abdominal techniques, with or without interposition of well-vascularized tissue.[1]
The introduction of transanal endoscopic microsurgery (TEM) expanded the application of endoscopic transanal techniques for rectourethral fistula repair. In 1996, Wilbert et al.[5] described combined endoscopic transanal closure of rectourethral fistulas. Quinlan et al.[6] subsequently reported successful repair of an iatrogenic rectourethral fistula using TEM, and Bochove-Overgaauw et al.[7] later highlighted the feasibility and minimally invasive nature of this approach in selected patients.

TAMIS represents a further evolution of transanal endoscopic surgery by providing excellent exposure, stable pneumorectum, enhanced visualizationand improved ergonomics for intracorporeal dissection and suturing.[4] The first report of TAMIS for rectourethral fistula repair was published by Atallah et al.[8] in 2014, representing a landmark contribution that introduced this novel minimally invasive approach for the treatment of this complex condition.

In the present case, TAMIS offered several technical advantages, including stable magnified visualization of the internal opening, precise submucosal dissection, creation of a broad, well-vascularized advancement flap, and improved ergonomics for suturing within the confined space of the distal rectum.

Rottoli et al.[9] subsequently described a TAMIS-based full-thickness rectal advancement flap for the treatment of high perianal and complex rectovaginal fistulas, further supporting the versatility of this approach. Although the available evidence remains limited to case reports and small series, these experiences suggest that transanal endoscopic platforms may represent an effective minimally invasive alternative in carefully selected patients.

CONCLUSION

TAMIS provides a safe and effective platform for endorectal mucosal advancement flap repair in selected low-output rectal fistulas. In this patient, the technique achieved durable fistula closure while preserving continence and avoiding more invasive surgical procedures.

Author Contributions
GEP: Conceptualization, Investigation, Data Curation, Writing – Original Draft.
JLMC: Methodology, Investigation, Writing – Review & Editing.
ECB: Methodology, Writing – Review & Editing.
FLR: Project Administration, Supervision, Writing – Review & Editing.
VSF: Supervision, Writing – Review & Editing.

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ORCIDs:
Guillermo Estébanez Peláez: 0000-0003-1122-2701
José Luis Maestro de Castro: 0000-0003-2735-109X
Esta Choolani Bhojwani: 0000-0001-8146-9123
Fernando Labarga Rodríguez: 0000-0002-8324-0311
Vicente Simó Fernández: 0000-0003-3392-1933

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