

Laparoscopic repair of a proximal ureteral injury during transperitoneal para-aortic lymphadenectomy: A video article

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Abstract

Ureteral injury during advanced gynecologic laparoscopic procedures is an uncommon but potentially serious complication, particularly during para-aortic lymphadenectomy performed for oncologic staging. We describe the laparoscopic management of a proximal right ureteral transection encountered during transperitoneal para-aortic lymphadenectomy in a 56-year-old woman (body mass index 36 kg/m²) with high-risk endometrial carcinoma. The injury was recognized intraoperatively and repaired using a tension-free ureteroureterostomy over a double-J stent. Key technical steps, including exposure in obese patients and preservation of ureteral vascularity, are demonstrated. This report highlights that timely intraoperative recognition and laparoscopic repair of proximal ureteral injury can prevent major morbidity and obviate open surgery, emphasizing the importance of advanced, minimally invasive surgical expertise. *J Turk Ger Gynecol Assoc.*

Keywords: Ureteral injury, para-aortic lymphadenectomy, laparoscopy, endometrial cancer, ureteroureterostomy

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Introduction

Ureteral injury is an uncommon but serious complication of gynecologic laparoscopic surgery, with a reported incidence ranging from 0.2% to 6.0% depending on procedure type and patient characteristics (1). Such injuries carry the risk of delayed diagnosis, prolonged morbidity, and potential loss of renal function (2). In the context of endometrial cancer staging, para-aortic lymphadenectomy is an essential component for patients at high-risk of lymphatic spread and can be performed via either transperitoneal or extraperitoneal approaches (3). The transperitoneal route offers advantages, such as early uterine removal and intraoperative frozen-section analysis, enabling tailored lymphadenectomy. However, this approach presents technical challenges, particularly regarding bowel retraction and exposure of retroperitoneal structures. Delayed recognition of ureteral injury is associated with increased morbidity and impaired renal outcomes, whereas prompt

intraoperative identification and minimally invasive repair may be facilitated by advanced surgical expertise, thus improving postoperative recovery and outcome.

Herein, we describe the laparoscopic management of a proximal ureteral transection encountered during transperitoneal para-aortic lymphadenectomy, focusing on technical considerations for safe exposure, early recognition, and immediate repair. This report was prepared in accordance with the SCARE 2025 guideline (4).

Case report

Intraoperative frozen-section analysis revealed upgrading of the tumor measuring 8×4 cm at its maximum diameter to grade 3 with deep myometrial invasion. According to the ESMO-ESGO-ESTRO consensus classification, the patient was categorized as high-risk, and pelvic and para-aortic lymphadenectomy was subsequently performed.



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During meticulous retroperitoneal inspection, a proximal transection of the right ureter was identified intraoperatively. Dense perirenal adipose tissue and restricted working space increased the technical difficulty of exposure. Both ureteral ends were carefully mobilized to preserve vascularity and allow a tension-free end-to-end anastomosis. A continuous ureteroureterostomy was performed using a 4-0 absorbable suture over a 4.8-Fr double-J ureteral stent. The key steps of intraoperative recognition and laparoscopic repair are demonstrated in Video 1.

The total operative time was 180 minutes, with an estimated blood loss of approximately 100 mL. Anastomotic integrity was confirmed intraoperatively by visualization of urine flow and was verified by postoperative imaging. The patient was discharged on postoperative day 6 without complications and remained asymptomatic at 16 months of follow-up.

Discussion

Prompt recognition and immediate repair of ureteral injury are important for minimizing morbidity and preserving renal function. Previous series have demonstrated that ureteral injuries identified intraoperatively can be successfully managed when addressed without delay (2). Reported risk factors include visceral obesity and the use of energy devices near perirenal fat, highlighting the importance of strict adherence to anatomical landmarks during para-aortic dissection (1,5). Surgical repair techniques vary according to the location and extent of injury. While ureteroneocystostomy remains the most reported reconstructive option, ureteroureterostomy is appropriate in selected cases with short defects, well-vascularized ureteral ends, and the ability to achieve a tension-free anastomosis (5). When performed laparoscopically by experienced surgeons, outcomes are comparable to open repair while offering reduced postoperative pain and faster recovery (6).

The present experience demonstrates that a proximal ureteral transection occurring during transperitoneal para-aortic lymphadenectomy may be managed laparoscopically without conversion to open surgery, even in technically demanding settings such as visceral obesity. The accompanying surgical video illustrates practical steps for exposure, early recognition, and precise suturing, providing an educational resource for surgeons confronted with similar intraoperative complications. In specialized gynecologic oncology centers, formal training in advanced retroperitoneal dissection facilitates immediate laparoscopic repair of ureteral injuries when they are encountered. Postoperative urologic follow-up remains essential to ensure long-term functional success.

Conclusion

Although ureteral injury during laparoscopic para-aortic lymphadenectomy is uncommon and should be avoided

if at all possible, when it occurs it represents a technically demanding complication requiring prompt recognition and advanced laparoscopic skills. This report demonstrated that proximal ureteral transections may be successfully repaired laparoscopically through a tension-free ureteroureterostomy, avoiding conversion to open surgery. In centers with sufficient expertise, minimally invasive repair represents a reliable alternative to traditional open management with favorable postoperative outcomes.

Video 1.



<http://dx.doi.org/10.4274/jtgga.galenos.2026.2026-2-11.video1>

Ethics

Ethics Committee Approval: Institutional review board approval was waived because this study is a single-case video article and does not involve research on human subjects.

Informed Consent: Written informed consent was obtained from the patient for publication of the case details and accompanying video/images.

Footnotes

Conflict of Interest: No conflict of interest is declared by the authors.

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