AMERICAN JOURNAL OF MEDICAL AND CLINICAL SCIENCES, 2024
VOL 9, NO. 4, PAGE 1 – 2

CASE REPORT

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Novel Strategies in the Laparoscopic Management of Left Mid Ureteric Recurrent Stricture: Use of Flexible Ureteroscopy on Table

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ABSTRACT

Recurrent ureteric strictures pose significant challenges in urological practice, necessitating innovative surgical strategies for successful resolution. This case report details the use of on-table flexible ureteroscopy during laparoscopic management of a left mid-ureteric recurrent stricture. A 41-year-old male patient was successfully managed using a combined laparoscopic and flexible ureteroscopic approach, presenting a novel technique that enhances surgical precision and patient outcomes.

ARTICLE HISTORY

Received 01 June 2024
Accepted 12 July 2024
Published 20 July 2024

KEYWORDS

Ureteric stricture, Laparoscopic management, Flexible ureteroscopy, Laser lithotripsy, Recurrent stricture.

Introduction

Recurrent ureteric strictures pose significant challenges in urological practice, necessitating innovative surgical strategies for successful resolution. Traditional open surgical approaches are being replaced by minimally invasive techniques that offer enhanced precision and reduced morbidity [1-3]. Precisely delineating the stricture zone intraoperatively is crucial to minimize ureter shortening and target only the affected tissue.

This case report details the use of on-table flexible ureteroscopy during laparoscopic management of a left mid-ureteric recurrent stricture using a combined laparoscopic and flexible ureteroscopic approach, presenting a novel technique that enhances surgical precision and patient outcomes.

Case Presentation

A 41-year-old male presented with recurrent left flank pain and episodes of urinary tract infection over the past year. His medical history included a prior ureteroscopic intervention for a left mid-ureteric stricture due to impacted ureteric calculus, managed with balloon dilation and stenting. Despite these efforts, the patient experienced recurrent symptoms indicative of stricture recurrence.

Investigations

Initial ultrasound (USG) of the kidneys, ureters, and bladder (KUB) revealed left-sided hydronephrosis.

Previous Intraoperative Retrograde Ureterogram confirmed a mid-ureteric stricture on the left side, approximately 2 cm in length, with proximal ureteral dilatation. Laboratory investigations showed normal renal function with no evidence of active infection.

Procedure

A team comprising two urologists collaborated to develop an innovative treatment strategy tailored to the patient's condition. Given the recurrent nature of the stricture and its location, a combined laparoscopic and flexible ureteroscopy approach was planned [4-6]. The patient was positioned in a modified lateral decubitus position under general anesthesia.

Laparoscopic Access

Three laparoscopic ports were placed: a 10 mm port at the umbilicus for the camera, and two 5 mm ports in the left lower quadrant for working instruments. The retroperitoneum was entered, and the left ureter was identified and carefully dissected to expose the stricture site.

On-Table Flexible Ureteroscopy

Concurrently, a flexible ureteroscope was introduced via the urethra into the bladder and advanced up the left ureter. This endoscopic view provided real-time visualization of the stricture from within the ureter, allowing precise identification of the stricture's proximal and distal margins.

Stricture Management

The stricture was incised using a laparoscopic cold knife under direct endoscopic guidance, ensuring complete incision and minimal damage to the surrounding healthy ureteral tissue. The flexible ureteroscope allowed for continuous monitoring, enhancing the accuracy of the incision.

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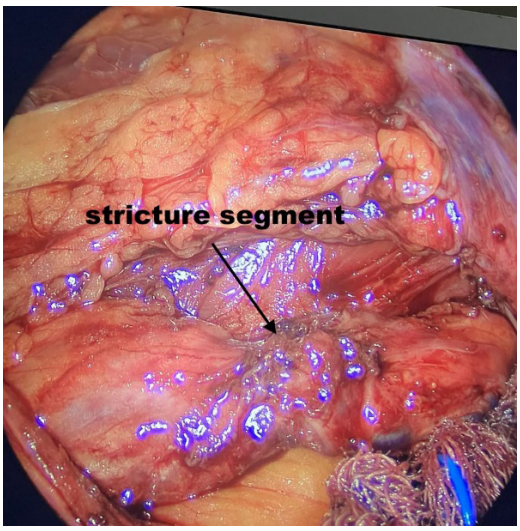

Figure 1: Laparoscopic view of stricture segment of ureter.

Figure 2: Combined RIRS + Laparoscopic view (glow of light) of stricture segment of ureter.

Stent Placement

Following the excision of the stricture segment post anastomosis, a double-J stent was placed endoscopically to ensure patency of the ureter and facilitate healing. The stent was positioned under direct vision using both laparoscopic and endoscopic views to confirm correct placement.

Figure 3: Flexible Ureteroscopic view of stricture segment of ureter.

Postoperative Course

The patient had an uneventful postoperative recovery and was discharged on the third postoperative day. Follow-up imaging at 6 weeks, including a Retrograde Ureterogram, showed resolution of the hydronephrosis and a patent ureter with no evidence of stricture recurrence. The double-J stent was removed after 6 weeks.

Discussion

Recurrent ureteric strictures due to impacted ureteric stones [4], especially in the mid-ureter, present a therapeutic challenge. The combination of laparoscopic and flexible ureteroscopic techniques [7] on-table offers several advantages:

- **Enhanced Visualization**: Real-time endoscopic imaging facilitates precise identification and management of the stricture, reducing the risk of incomplete treatment.
- **Minimally Invasive**: The laparoscopic approach minimizes postoperative pain and accelerates recovery, while the flexible ureteroscope allows for a less invasive means of ensuring ureteral patency.
- **Reduced Morbidity**: Combining these techniques reduces the need for extensive dissection and potential complications associated with more invasive procedures.

Conclusion

The novel strategy of using on-table flexible ureteroscopy during laparoscopic management of recurrent mid-ureteric strictures represents a promising approach that enhances surgical precision and patient outcomes. This technique merits further investigation and could potentially be adopted as a standard practice for managing complex ureteric strictures.

Acknowledgement

Dr. Althaf Hussain, Specialist Urologist.
Dr. Anand Srivastava, Specialist Urologist.
Dr Shimar Syed, Specialist Anesthetist.

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