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Combined antegrade and retrograde endoscopic treatment of complete ureteroenteric obstruction following cystectomy with ileal conduit: A case report

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ABSTRACT

Management of ureteroenteric anastomotic stricture after urinary diversion remains challenging. Although open surgical repair is the gold standard procedure, less invasive endourological intervention is often preferred. In the event of complete obstruction of anastomosis, combined simultaneous antegrade and retrograde endoscopic treatment is required to achieve through-and-through access. Herein we report a case of complete obstruction of ureteroenteric anastomosis following cystectomy with ileal conduit. The cut-to-the-light method was used with a combination of a percutaneous antegrade flexible ureteroscope and a retrograde flexible cystoscope. A holmium: YAG laser incision was made along the full length of the stricture, and through-and-through access was achieved.

Introduction

Ureteroenteric anastomotic stricture (UAS) following cystectomy and urinary diversion has a reported incidence of 2.6%–13.5%.[1] Although open surgical reimplantation has been the gold standard treatment for UAS and has a success rate of 71%–93%, it tends to result in morbidity and prolonged hospital stay.[1,2] A minimally invasive endourological approach is increasingly preferred as the first-line strategy for UAS.[1] Most cases of UAS are managed endoscopically via either antegrade or retrograde access.[2] However, in the event of complete obstruction of the anastomosis, combined simultaneous antegrade and retrograde endoscopic treatment is required to obtain through-and-through access.[2] The holmium (Ho):YAG laser is minimally invasive, allows accurate tissue incision with effective hemostasis, and causes less damage to the surrounding tissue.[3] Here we describe a patient with complete obstruction of a ureteroenteric anastomosis whom we treated with the Ho:YAG laser using a simultaneous antegrade and retrograde approach.

Case presentation

A 79-year-old Japanese man had undergone open radical cystectomy with creation of an ileal conduit for muscle-invasive bladder cancer. The preoperative serum creatinine level was 1.00 mg/dL. An ureteroenteric anastomosis had been fashioned using the Wallace 1 technique. Left ureteral stent was removed on day 13 postoperatively and right ureteral stent was removed on day 14 postoperatively. After a 68-day follow-up period, elevated serum creatinine (4.66 mg/dL) was identified. Abdominal computed tomography revealed bilateral hydronephrosis. There was no sign of local recurrence or distant metastasis. Percutaneous nephrostomy tubes were placed bilaterally. Antegrade pyelography demonstrated a left ureteroenteric anastomosis with a partial stricture. A hydrophilic guidewire was introduced via an antegrade approach and passed through the stenotic segment up to the ileal conduit. The segment was dilated using an 8 mm. × 4 cm. balloon dilation catheter (20 atm, 5 min). A single J stent was deployed through a retrograde approach and a 12-Fr nephrostomy tube was placed in the left kidney. The right ureteroenteric anastomosis was considered to be obstructed completely because contrast medium could not pass through the strictured segment. A 12-Fr nephrostomy tube was placed in the right kidney.

Combined simultaneous antegrade and retrograde endoscopic treatment was performed to achieve through-and-through access. Under general anesthesia, the patient was placed in a left lateral position (Fig. 1). A 16.5-Fr flexible cystoscope was passed via a retrograde approach to the distal end of the obliterative stricture. Complete

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obstruction of the right ureteroenteric anastomosis was confirmed under direct cystoscopic visualization. Using an antegrade approach, a 7.95-Fr flexible ureteroscope was passed to the proximal end of the obliterative stricture. The stricture was 4 mm in length (Fig. 2). The cut-to-the-light technique was employed using a percutaneous antegrade flexible ureteroscope combined with a retrograde flexible cystoscope. The Ho:YAG laser incision was performed via retrograde access towards the illuminated ureteroscope placed at the proximal end of the stricture using a 200-μm Ho:YAG laser fiber under direct cystoscopic visualization (Fig. 3). The parameters used for endoureterotomy were 0.8 J per pulse and a pulse rate of 8 Hz. A full-length incision was made in the obliterated segment. A hydrophilic guidewire was passed through the stenotic segment via the flexible ureteroscope and extracted cystoscopically with a grasping forceps to obtain through-and-through access. The segment was dilated using an 8 mm. × 4 cm. balloon dilation catheter (20 atm, 10 min) under direct cystoscopic visualization. A single J stent was then placed via retrograde access. A 12-Fr nephrostomy tube was placed in the right kidney. Postoperatively, the serum creatinine level was 2.3 mg/dL. The bilateral nephrostomy tubes were removed and both single J stents remain in place.

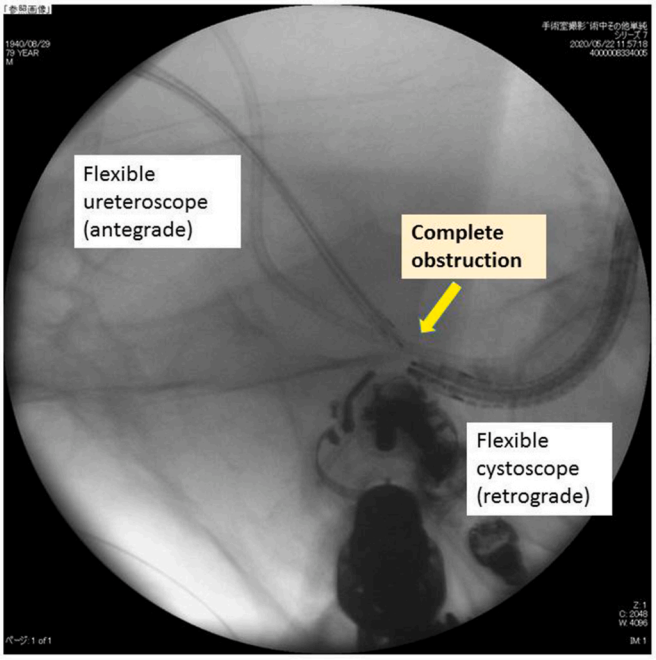

Fig. 2. Simultaneous antegrade and retrograde endoscopic treatment using a percutaneous antegrade flexible ureteroscope combined with a retrograde flexible cystoscope.

Discussion

UAS is a discouraging complication for patients and has been attributed to local ischemia or perianastomotic fibrosis due to urine leakage, edema, or chronic inflammation.[2] Although there is no difference in the stricture rate between a Wallace-type anastomosis and a Bricker-type anastomosis,[4] high body mass index (BMI) and Clavien complication ≥3 in the first 30 days are risk factors for UAS.[5] In our patient, BMI was 18.3 and there was no Clavien complication ≥3 in the first 30 days postoperatively.

Stricture length and degree of patency are critical factors that influence the clinical outcome when UAS is treated endoscopically.[2] Gomez et al. reviewed 28 cases of UAS (in 27 patients) that were treated endoscopically and found that all 7 cases of UAS with a length <1 cm were treated successfully but that the success rate was only 61.9% (13/21) when the UAS was ≥1 cm.[1] Hu et al. found that the success rate was higher for shorter strictures and that there was a significant association between the degree of patency and the outcome of endourological intervention. The success rates of partial UAS and complete UAS were 85.0% and 33.3%, respectively.[2]

Most cases of UAS are managed by endoscopic treatment via either antegrade or retrograde access.[2] When the anastomosis is completely obstructed, combined simultaneous antegrade and retrograde endoscopic treatment is required to achieve through-and-through access.[2] Hu et al. described the use of combined simultaneous antegrade and retrograde endoscopic treatment using the modified cut-to-the-light

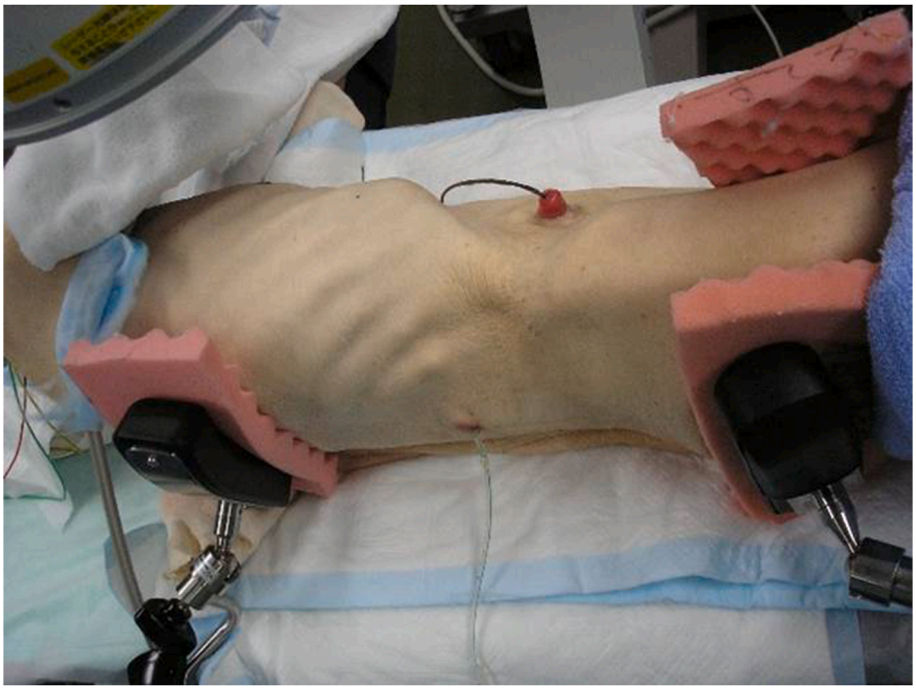

Fig. 1. Patient positioning during a combined simultaneous antegrade and retrograde endoscopic procedure.

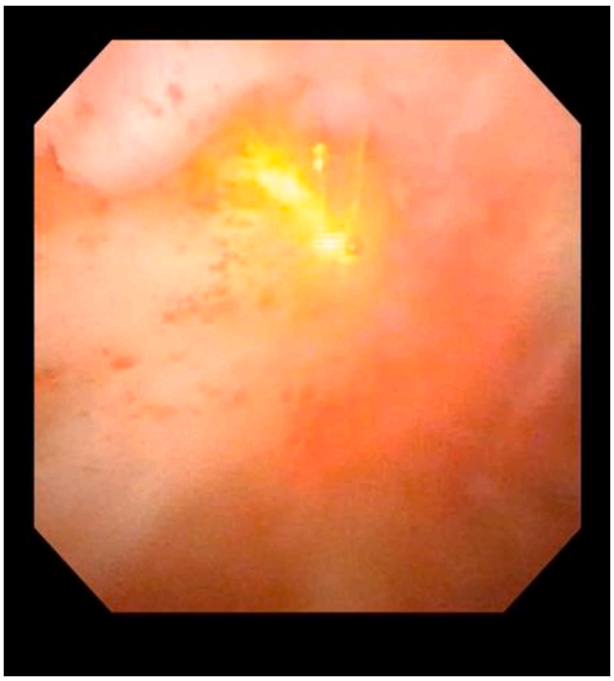

Fig. 3. Holmium:YAG laser incision of the obstructed segment using the "cut-to-the-light" technique under direct cystoscopic visualization.

technique to treat UAS. Their method entailed first turning off the light of the flexible ureteroscope passed via an antegrade route to the proximal end of the stricture and then making the Ho:YAG laser incision towards another illuminated endoscope placed retrograde to the distal end of the stricture. In our case, cystoscopic visualization on the ileal conduit side was better than ureteroscopic visualization on the nephrostomy side. We did not turn off the light on the flexible cystoscope and the Ho:YAG laser incision was performed safely towards the illuminated ureteroscope placed at the proximal end of the stricture under direct cystoscopic visualization.

The duration of postoperative stenting is 6–8 weeks in the published studies.[2] In our patient, the postoperative serum creatinine level remained high. The nephrostomy tubes that had been placed on both sides were removed but single J stents were placed bilaterally.

Conclusion

A combined simultaneous antegrade and retrograde endoscopic procedure using the cut-to-the-light technique was an effective and less invasive method for treating complete ureteroenteric obstruction.

Consent

Informed consent was obtained from the patient.

Disclosure

There is no financial or personal relationships to disclose.

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Declaration of competing interest

None.

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