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CASE REPORT

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Distal ureteral calculi in a patient with ileal conduit and urinary diversion treated via antegrade ureteroscopic lithotripsy: A case report

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Abstract

Ureteral calculi management in patients with urinary diversion is challenging for most urologists. The surgeon should consider the patient's diversion type, BMI, stone size and location, and his/her experience with the procedure. We report an 85-year-old ileal conduit diversion man presented with ureteral calculi and treated via antegrade ureteroscopic lithotripsy.

KEYWORDS

antegrade, case report, percutaneous, ureteral calculus, ureteroscopy, urinary diversion

1 | INTRODUCTION

Radical cystectomy and urinary diversion is the gold-standard treatment option for patients with muscle-invasive bladder cancer.[1] Patients with urinary diversion are more likely to develop strictures at the site of ureterointestinal anastomosis and urolithiasis, as urine reflux and pouch stasis enhance the chance of stone development.[2] The risk of stone development in these patients depends upon the type of diversion used. The stone incidence in colonic conduits, ileal conduits, the Kock pouch, ileal ureter, continent cecal reservoirs, the Mitrofanoff procedure, and vesicostomies has been reported 3–4, 10–12, 16.7, 17, 20, 10–12, and 33%, respectively.[2]

Adhesion following bladder reconstruction, stricture at the site of anastomosis, and urinary diversion complications are the urologists' primary technical dilemmas in these patients.[3,4] Percutaneous nephrolithotomy (PCNL), Extracorporeal shock wave lithotripsy (SWL), anterograde–retrograde combination ureteroscopy (URS), percutaneous anterograde URS, and open surgeries are all possible options for treating urinary tract stones in patients with urinary diversion.[4,5]

Many parameters, including stone location and diameter, patient condition and diversion type, and surgeon's experience should be considered when selecting a therapeutic approach.[5] Few reported cases of distal ureteral stones in radical cystectomy patients with an ileal conduit that have undergone antegrade URS lithotripsy exist in the literature.[3,4,6] Here, we report our experience in treating distal ureteral stone via antegrade ureteroscopic lithotripsy in an 85-year-old man who had previously undergone radical cystectomy and ileal conduit.

and the attached stone using a rigid ureteroscope combined with holmium laser lithotripsy. A similar procedure was also reported by Wang et al.[14]

When neoureteric orifices cannot be located, injection of contrast via percutaneous renal access may not be possible. Thus, by using ultrasound to be aware of the adjacent structure, a small finder needle is advanced into the collecting system, allowing a nephrostogram to be taken safely.[6] The prone position is the most common patient position in PCNL procedures. However, in cases with uroenteric stenosis, supine, and supine-modified positions can help to do the maneuvers during the stone removal.[4,6]

In our case, we used the US for guidance and the mini PCNL equipment set (15 Fr rigid nephroscope) to reduce the parenchymal damage. This approach may contribute to reduced complications during and after the procedure.[15,16]

We learned several key points from our experience with the case. It is ideal to choose the thinnest holmium laser fiber with sufficient energy to perform the cutting. This allows the fiber to pass through the space between the ureteroscopic operation channel and the basket extractor. We recommend that the surgeons should conduct an analytic in-vitro test before the surgery to choose the best energy setting for the cutting while preventing damage to the ureter.

Intraoperative perfusion pressure must be precisely maintained and controlled. Unrestricted pressure can increase the risk of postoperative infection and also cause dilation in the reconstructed ureteral lumen. When the lumen diameter of the reconstructed ileal ureter is large, both rigid and flexible ureteroscopes can be used for successful antegrade ureteroscopy. Finally, we recommend using a basket extractor in cases where the calculi diameters are smaller than the diameter of the ureteral lumen.

4 | CONCLUSION

With the rising number of patients undergoing radical cystectomy and ileal conduit, urologists are facing more urolithiasis cases as late complications. Treatment for these disorders is complex, and decision-making on each patient's treatment should be tailored to the patient's unique features, the location and size of their calculi, and the surgeon's experience with the procedure. This study aimed to show that antegrade URS may be a reproducible, less invasive option for treating distal ureteral stones in patients with ileal conduit urinary diversion.

AUTHOR CONTRIBUTIONS

Ali Eslahi: Conceptualization; formal analysis; funding acquisition; investigation; project administration. **Faisal Ahmed:** Conceptualization; data curation; formal analysis; supervision; writing – original draft. **Mehdi Salehipour:** Conceptualization; data curation; formal analysis; funding acquisition; project administration. **Mohammad Reza Askarpour:** Data curation; investigation; project administration. **Sajad Kiani:** Software; visualization; writing – original draft. **Firoozeh Akrami:** Investigation; supervision; visualization; writing – original draft.

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CONFLICT OF INTEREST STATEMENT

None.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

INFORMED CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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