



Endourology

Minimally invasive transurethral laser incision for management of ectopic ureter orifice stenosis in adult patient

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ABSTRACT

The aim of this report is to present our experience of performing transurethral laser incision for management of ectopic ureter orifice stenosis in adult patient. A 61-year-old male was presented with right flank pain. Computed tomography urography showed right complete double collecting system, upper moiety hydronephrosis, and parenchymal thinning of the upper moiety. Cystoscopy showed right ectopic ureter orifice on the prostatic part of the urethra. Transurethral laser incision was performed at the 12 o'clock position of the stenotic orifice with Thulium laser. This report showed that transurethral laser incision was a minimally invasive procedure with good result.

Introduction

Ectopic ureter is defined as ureter orifice insertion apart from the normal insertion on the bladder trigone.¹ Ectopic ureter is usually correlated with a double or duplex collecting system.² Ectopic ureter is an uncommon condition commonly diagnosed during antenatal or in the early postnatal period.³ Ectopic ureter is rarely diagnosed in adults with non-specific symptoms.³ The management of ectopic ureter must be individualized based on the clinical and pathophysiological characteristics of each patient.² Transurethral endoscopic incision of ectopic ureter orifice stenosis is a simple and minimal invasive approach. The aim of this report is to present our first experience of performing transurethral laser incision for management of ectopic ureter orifice stenosis in adult patient.

Case presentation

A 61-year-old male was presented with chief complaint of right flank pain which worsened since 1 month before. The pain was intermittent, blunt, and not radiating. Fever was denied. History of diabetes mellitus or hypertension was denied. There was no remarkable finding on physical examination. Laboratory investigation showed hemoglobin 14.4 g/dL, leukocyte $8.69 \times 10^3/\mu\text{L}$, ureum 30 mg/dL, and creatinine 1.23 mg/dL. Computed tomography (CT) urography showed a right sided complete double collecting system, hydronephrosis, grade IV hydronephrosis of the upper moiety, thinning of kidney parenchyma of the upper moiety, and

suspected right hyperdense lesion at the renal pelvis sized 12.3 mm (Fig. 1). We diagnosed this patient hydronephrosis and hydronephrosis of right upper moiety due to suspected ureterovesical junction stenosis with suspected right pyelum stone. Cystoscopy, retrograde pyelogram (RPG), retrograde intrarenal surgery (RIRS), and transurethral laser incision was then planned.

During cystoscopy, there were two ureter orifices at the bladder trigone in normal position. RPG from the right ureter orifice showed the lower moiety of the right kidney (Fig. 2). On further evaluation, there was ectopic ureter orifice on the prostatic part of the urethra (Fig. 3). There was stenosis on the orifice. RPG of the ectopic ureter orifice showed the upper moiety of the right kidney (Fig. 2). There was hydronephrosis and severe hydronephrosis. These findings confirmed diagnosis of ectopic ureter orifice stenosis. Ureteral access sheath (UAS) was then inserted and flexible ureterorenoscopy (fURS) was performed. Evaluation of the upper moiety pelvicalyceal system showed no stone (Fig. 3). Both UAS and fURS was then taken out. From cystoscopy sheath, transurethral laser incision was then performed at the 12 o'clock position of the stenotic ectopic ureter orifice (thulium laser, power 10 Watt, aimbeam 30%) (Fig. 3).

Total surgery time was 50 minutes with minimal bleeding. There was no remarkable complication during and after the surgery. The patient was discharged on post-operative day 1. Follow up visit two weeks after the surgery showed resolution of the flank pain symptom.

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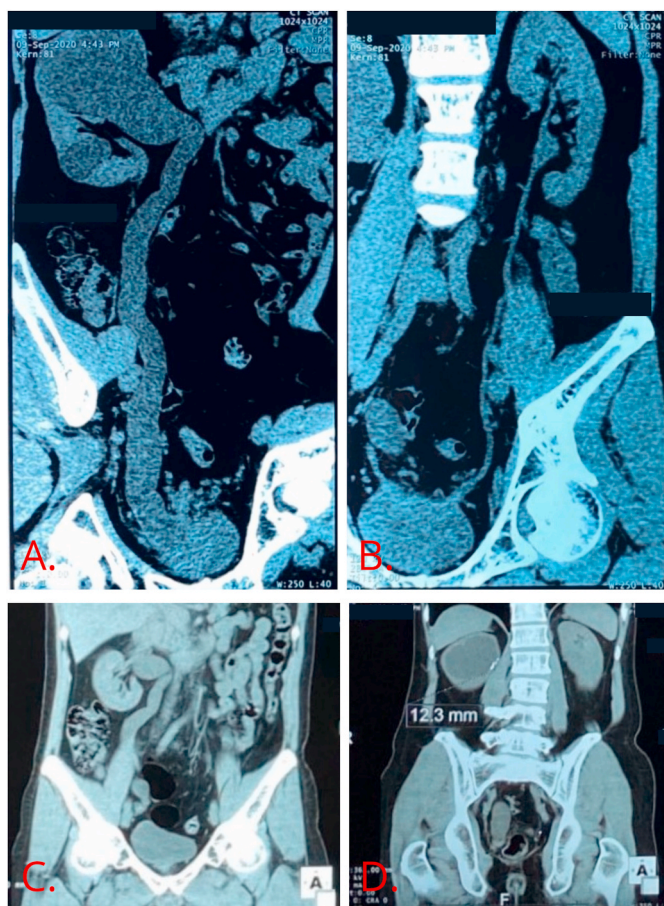


Fig. 1. (A) Ureter reconstruction of the right ectopic ureter from the upper moiety with parenchymal thinning of the upper moiety; (B) ureter reconstruction of the left ureter; (C) Lower moiety of the right double collecting system; (D) Hydronephrosis and hyperdense lesion at the renal pelvis of the upper moiety.

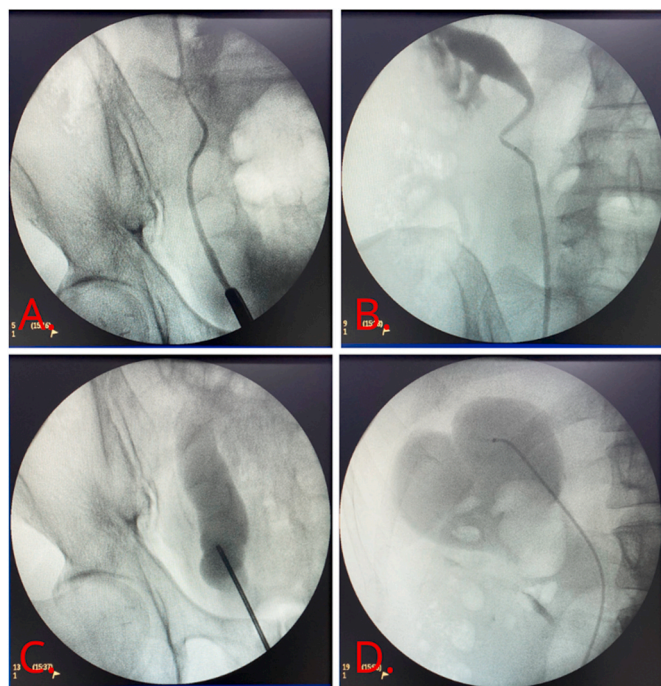


Fig. 2. (A,B) Retrograde pyelogram from the right ureter orifice at the bladder trigone showed the lower moiety kidney; (C,D) Retrograde pyelogram from the ectopic ureter orifice at the prostatic part of the urethra showed the upper moiety kidney.

Discussion

Ectopic ureter diagnosis is very rare in adults.³ Ectopic ureter is seen 2–12 times more frequently in female and usually associated with ureteral duplication in female and single renal collecting system in male.¹ In this case the patient was 61-year-old-male with complete double collecting system. The symptoms of adult ectopic ureter are variable.³ In our case the patient presented with recurrent right flank pain due to ectopic ureter orifice stenosis.

The management of ectopic ureter must be individualized based on the clinical and pathophysiological characteristics of each patient.² In this case the patient presented with ectopic ureter orifice stenosis, hydroureter, hydronephrosis, and thinning of the kidney parenchyma. Endoscopic incision is a simple and minimal invasive approach to release obstruction due to stenosis of the ectopic ureter stenosis. Van Savage and Slaughenhaupt also reported resolution of hydro-ureteronephrosis after transurethral incision of the ectopic ureteral orifice at the bladder neck in the neonate.⁴ To our knowledge, there is no comparative study who evaluate laser treatment specifically for stenotic ectopic ureter orifice. However, endoscopic laser pyelotomy and ureterotomy are good options for management of benign ureteral stricture with minimal perioperative morbidity and high success rate.⁵ In our case, we successfully performed the incision of stenotic ectopic ureter orifice with thulium laser. There was no remarkable complication during and after the surgery. There was also clinical resolution of flank pain symptom after the procedure.

The novelty of this report is rare presentation of ectopic ureter orifice stenosis in adult which was successfully managed with minimal invasive transurethral laser incision. To our knowledge, this is the first report of such case. However, this technique also had limitation. Although transurethral laser incision showed good results, laser is an expensive equipment and not readily available in some institutions. However, laser can be replaced with Collins knife or diathermic electrocautery for transurethral incision.

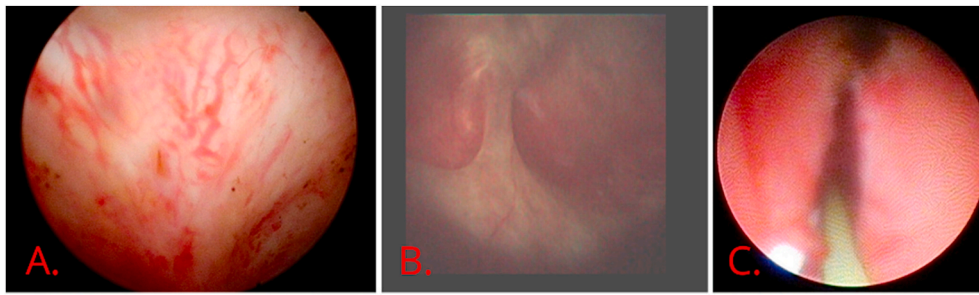


Fig. 3. (A) Ectopic ureter orifice at the prostatic part off the urethra; (B) Flexible ureterorenoscopy evaluation showed no stone at the right upper moiety collecting system; (C) Final appearance after transurethral laser incision of the stenotic ectopic ureter orifice.

Conclusion

As reported, transurethral laser incision as a minimally invasive management of ectopic ureter orifice stenosis in adult patient showed good result without significant complication. This could be a good alternative for management of such ectopic ureter cases.

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Declaration of competing interest

None.

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