Excising multiple ureteral cysts endoscopically utilizing the OmniPlus-Max 80 W holmium laser

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Abstract

We present a rare case of ureteral cysts in the left ureter treated by an endoscopic holmium laser. These cysts caused asymptomatic hydronephrosis in the left kidney. Complete cyst removal was performed by a ureteroscopically applied holmium laser. Six months post-procedure, the patient had no recurrence, which suggests that endoscopic excision is an optimal treatment for this disorder. Periodic ureteroscopic examination is indicated for further observation.

Introduction

Ureteral cysts are rare disorder; there are about 11 literature entries pertaining to pyelum and ureteral cysts.

The pathogenesis of pyelum and ureteral cysts has not been established. Risk factors include allergy, contusion, and hormonal imbalance.[1] Other authors draw attention to genetic susceptibility[2] and kidney stones.[3] Ureteral cysts may be accompanied by lumbar pain and hematuria.[4] Diagnostics include intravenous urogram (IVU) and computer tomography (CT).[5] Polyp diameters vary from 0.6 to 1.2 cm.[6] This case involved numerous and varied cysts of the left ureter, which were the cause of impaired urine flow from the pyelum of the left kidney.

Case report

A 65-year-old female was admitted to the urology clinic for the treatment of confirmed blockage (by abdominal ultrasound) of the pyelum structure and upper ureter distension of the left kidney with no clinical symptoms or hematuria. The patient's history included a right hemicolectomy in 2011 and surgery for kidney stones in both kidneys followed by extracorporeal shock wave lithotripsy (ESWL) and left side ureteroscopic lithotripsy (URS) in 2003. Basic laboratory tests did not indicate any deviation from the standard range of renal function. An initial diagnostic ureteroscopy, during the first hospitalization, indicated polyp growth in the left ureter (Fig. 1).

A double-J catheter was inserted and empirical amoxicillin and clavulic acid therapy was initiated. General urine tests, including urine culture, confirmed urinary infection. Under out-patient status, the patient underwent a renoscintigraphy which indicated delayed marker detection in the left kidney with 32% total secretion activity indicating impaired flow to the bladder. A subsequent intravenous urogram indicated delayed contrast secretion, and dye detection in the left ureter occurred after 3 hours.

The patient was re-admitted after 3 months and the double-J catheter was removed to facilitate an ureteroscopic procedure, during which biopsies were taken of the cystic polyps before removal by holmium laser (Fig. 2).

During removal of the cystic polyps in the left ureter, the polyps released a thick milky-yellow liquid which was also sampled for culture (results were negative). After the procedure, the double-J catheter was inserted again for 2 weeks**.** The histopathological biopsy results of the samples taken from the walls of the polyps did not indicate atypia, dysplasia, or cancerous changes, but did confirm cysts (no. 482192: tissue with urothelial epithelium in inflammatory infiltration, equivalent to ureteral cysts).

Upon removal of the catheter, the control abdominal ultrasonography indicated continued distension of the left kidney pyelum. The subsequent IVU image was similar to the image of the previous procedure for de-roofing and cyst wall removal, but the successive ureteroscopic examination of the left ureter indicated proper passage for its full length without pathological narrowing or cyst recurrence (Fig. 3). The patient was released the next day in good health.

Discussion

There are earlier related studies. Xu and colleagues presented a 12-year-old girl with 3 right ureters with 1 ureteral cyst and ectopic location of the right kidney.[6] Ishuzaki and

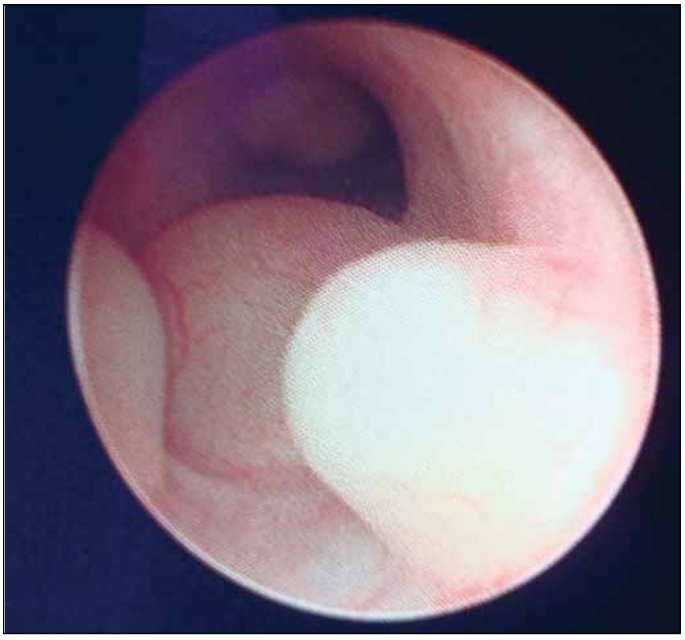

Fig. 1. An initial diagnostic ureteroscopy showing polyp growth in the left ureter.

colleagues described the presence of an epidermoid cyst of the ureter in a 72-year-old man.[7] Arai and colleagues described a 65-year-old female with multiple epidermoid cysts in the right pyelum, detected by chance during an IVU for stones in the left ureter.[8] Finally, Awan and colleagues described a cystic mass in a blind-ending ureter which could be misinterpreted as an abdominal mass and thus could have contributed to diagnostic difficulty.[9]

Ureter cysts are rare, confirmed by the scant literature. These cysts can cause impeded urine flow from a kidney which may in turn cause hydronephrosis ending with irreversible impaired kidney function. Furthermore, ureter cysts can also be the source of urinary tract and pyelum infections. Because of the rarity of this condition, there is no standardized treatment.

The excision of cyst walls by holmium laser may be an effective treatment in the case of small cysts. In the case of larger cysts, more invasive procedures, including partial ureter removal and suturing the ends together, may be required.

Conclusion

This case study, in the postoperative period, showed no cyst re-growth or iatrogenic ureter narrowing. The application of the holmium laser, with the use of an ureteroscope for excising the walls of ureteral cysts, is a minimally invasive procedure with little or no side effects. The patient's continued pyelum distension of the left kidney (as seen in the ultrasonography abdominal image), and delayed contrast detection in the IVU, may be the result of long-term illness.

Fig. 2. Three months later, an ureteroscopic procedure was done in which biopsies were taken of the cystic polyps.

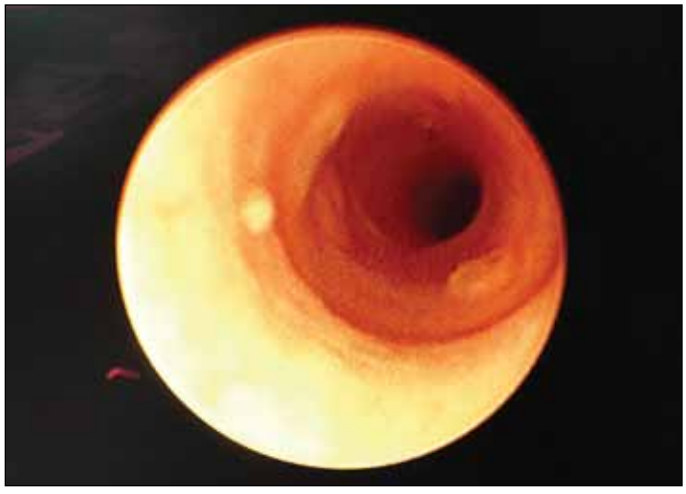

Fig. 3. The successive ureteroscopic examination of the left ureter indicating proper passage for its full length without pathological narrowing or cyst recurrence.

This laser procedure allowed us to recuperate the left ureter and return full function of the left kidney.

Competing interests: Authors declare no competing financial or personal interests.

This paper has been peer-reviewed.

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