Pelvic lipomatosis with ureteral calculi managed by flexible ureteroscopy

A case report

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Abstract

Rationale: Pelvic lipomatosis (PL) is a benign disease characterized by overgrowth of adipose tissue in pelvic space. Hydronephrosis and ureterectasis are common complications caused by PL in urinary system. But PL accompanied with upper urinary tract calculi is rare. Also there has been no report of PL with ureteral calculi managed by flexible ureteroscopy (fURS).

Patient concerns: A 62-year-old man who has been diagnosed of PL was found to have a right-side ureteral calculi by ultrasonography in the routine health examination. In addition, the patient has a history of open surgery of uretero-vesical reimplantation in the left side 13 years ago because of heavy hydronephrosis in the left side.

Diagnoses: The diagnosis was PL with ureteral calculi in the right side and heavy hydronephrosis in the left side.

Interventions: FURS was performed to remove the right ureteral calculi.

Outcomes: A follow-up of 1 year showed that there was no progression of the hydronephrosis in right side and serum creatinine was stable.

Lessons: FURS is a suitable option for the upper urinary tract calculi accompanied with anatomical abnormality such as horseshoe kidney, pelvic ectopic kidney and so on. For patient of PL accompanied with upper urinary tract calculi, FURS is suitable and indicated.

Abbreviations: CT = computed tomography, fURS = flexible ureteroscopy, PL = pelvic lipomatosis, UAS = ureteral access sheath.

Keywords: flexible ureteroscopy, pelvic lipomatosis, ureteral calculi

1. Introduction

Pelvic lipomatosis (PL) is a rare benign disease caused by overgrowth of adipose tissue in pelvis along the perivesical and perirectal space.1,2 Due to external compression of urinary tract by adipose tissue, it may cause bladder outlet obstruction and hydronephrosis.1 PL occurs with upper urinary tract calculi is rare. Because the excessive fat deposition occupied the pelvis, the bladder is elevated and the bladder neck is stretched,3 which makes it difficult to treat the ureteral calculi by rigid ureteroscopy.3 Here we reported a case of PL with ureteral calculi managed by flexible ureteroscopy (fURS).

2. Case report

A 62-year-old man with PL was found a right-side ureteral calculi by ultrasound in the routine health examination. Thirteen years ago, when he was diagnosed with PL, CT scan found a heavy hydronephrosis in the left side. So he had accepted an open surgery of uretero-vesical reimplantation in the left side, without necessary follow-up after the surgery. Three years ago, a severe hydronephrosis was observed in the left side and kidney stone in the right side in health examination, but he did not take any further treatment. This time, CT scan demonstrated a proliferation of adipose tissue predominantly in the pelvic space (Fig. 1), a severe hydronephrosis in the left side and mild hydronephrosis along with a calculi in lower ureter in the right side (Fig. 2). The intravenous urography showed that the upper urinary tract in left side was barely showed up, bladder was elevated and the upper urinary tract in right side was dilated slightly (Fig. 3). Serum creatinine was 99 μmol/L, the count of white blood cell was 47 per microliter in urinalysis and the urine culture was negative.

During the surgery, patient in lithotomy position under general anesthesia, rigid ureteroscope was not able to reach into the bladder cavity due to the elongated bladder neck and elevated bladder base. So the cystoscopy was accomplished with flexible ureteroscope directly. However, the flexible ureteroscope failed to get into the right ureter with or without guidewire due to the stricture of uretero-vesical orifice. Finally, after several failed attempts of inserting a guidewire into kidney because of the tortuous lower ureter with calculi in right side and the difficulty to hold the position of flexible ureteroscope in bladder cavity, the guidewire passed the contortion of ureter and ureteral calculi. Then ureteral access sheath (UAS), in a size of 12/14Fr, was
Figure 1. CT scan demonstrated adipose tissue surrounding the bladder. CT=computed tomography.

Figure 2. Ureteral calculi in the right side by images reconstruction.
placed into the lower ureter in right side and the unbroken stone was basketed through UAS. The ureteral stent was placed routinely, and in consideration of the inconvenience to remove the stent, the wire on the stent was passed through the urethra and fixed on the catheter. Two weeks after the surgery, the catheter and the stent were removed together. A follow-up of 1 year showed that there was no progression of the hydronephrosis in right side and serum creatinine was stable.

3. Discussion

PL is a benign disease with low incidence which was previously reported to be 0.6–1.7 per 100,000 hospital admissions in United States.\(^6\),\(^7\) Because of the external compression at vesicoureteral junctions by the pelvic fat, hydronephrosis and ureterectasis are often bilaterally equal but when asymmetry was present, obstruction was usually more severe on the left side. Medially displaced ureters are more often than laterally displaced. Bladder was elevated with protruding deformation like the elongation of the prostatic urethra and the elevation of the bladder neck.\(^8\) All those changes of anatomical position lead to the difficulty of surgery, especially the endourethral surgery.\(^9\),\(^10\)

The present case was complicated due to the diagnosis of PL with ureteral calculi in the right side. Because of the severe hydronephrosis in the left side, any risk which may aggravate hydronephrosis in the other side is unacceptable. Even though the ureteral calculus was not the reason of ureterectasis and hydronephrosis in the right side, it should be handled.

FUReS is a suitable option for the upper urinary tract calculus accompanied with anatomical abnormality such as horseshoe kidney, pelvic ectopic kidney, etc.\(^11\) For this case, in consideration of the history of open surgery in lower abdomen, FUReS is applicable. If retrograde FUReS failed, antegrade FUReS with percutaneous nephrostomy can be performed.

In the debate of using ureteral access sheath (UAS) for the FUReS operation or not, we believe that UAS can reduce the resistance of axial advancing and rotation of flexible ureteroscope which indeed contribute to the success of this surgery, so UAS placement is recommended if possible.\(^12\)

We believe that this is the first case report of PL combines with upper urinary tract calculus treated by FUReS, and for patient of PL accompanied with upper urinary tract calculi, FUReS is suitable and indicated. But more clinical cases and practices are needed to confirm its feasibility.

4. Patient consent statements

We confirm that the patient’s individual characteristics are not maintained in text and figures. The patient has provided informed consent for publication of the case.

Author contributions

Writing – original draft: Lei Yang.
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