

Laparoscopic repair of sciatic ureteral hernia: A case report

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ABSTRACT

We present a rare case of sciatic ureteral herniation with consecutive renal unit obstruction. 72 year old woman presented with gross hematuria associated with unilateral hydronephrosis. During work up IVP and MRI were performed, and the diagnosis of sciatic ureteral hernia was established. Condition was resolved by laparoscopic hernia repair.

1. Introduction

Herniations of the ureter are extremely rare conditions, with about 130 cases reported in the literature to date. The ureter can herniate through many intraperitoneal and retroperitoneal apertures, such as the: inguinal canal; sciatic notch; space between the iliac vessels and psoas muscle; and even the diaphragmatic aperture. Of all those listed, the inguinal canal is the most common site of ureteral herniation.¹ Ureteral sciatic herniation (USH), conversely, is rare with fewer than 40 cases reported to date. The sciatic notch is divided into the greater and lesser sciatic foramen by the sacrospinous and sacrotuberous ligaments. The fibers of the piriformis muscle subdivide the greater sciatic foramen into superior and inferior compartments. Suprapiriformis ureterosciatic herniation (USH) is much more common than infrapiriformis protrusion. Other than the ureter, small bowel, colon, ovary, fallopian tube, and bladder have been seen to herniate through the sciatic foramen.²

2. Case presentation

A 72 year old female presented to the Clinic of Urology with a single episode of gross hematuria. She also endorsed occasional dull left flank pain over the preceding months. At presentation she was afebrile and her physical examination was unremarkable. Patients history was notable for a car accident many years prior which resulted in multiple bone fractures – which had led to a profound spine scoliosis. Otherwise patient has had no other complaints. Her medical history was notable for

hypertension controlled on ACE inhibitor. Patient had no previous surgeries, and birthed one child. Patient has denied any allergies. Urea and creatinine values were slightly elevated. UA/dipstick showed many RBC, no WBC nor bacteria, and culture was negative. Cystoscopy was unremarkable. Ultrasound showed left kidney hydronephrosis (grade 2/3). Subsequently, patient was sent for intravenous pyelography (IVP). IVP confirmed left hydroureteronephrosis with a bizarre projection of tortuous ureter, and almost complete blockage in contrast drainage at the level of iliac vessels. Since radiological findings were inconclusive magnetic resonance imaging (MRI) was performed. MRI (Fig. 1A) revealed ureteral herniation through the left sciatic foramen with extrinsic compression of the ureter and consecutive proximal hydro-ureteronephrosis. After discussing the treatment options with the patient, we decided on laparoscopic surgical treatment.

Laparoscopic liberation (Video clip 1. A and B) of left ureter was done, followed by retrograde J-J stent insertion (Video clip 1. C). Postoperative course was uneventful and the patient was discharged on the post-operative day 2. Within 2 weeks after surgery, urea and creatinine levels fell to reference values. KUB was performed four weeks after surgery (Fig. 2A). Two months postoperatively, the J-J stent was removed. Follow up retrograde pyelography was performed (Fig. 2B and C), showing resolution of ureteral herniation as well as hydroureteronephrosis.

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Fig. 1. A. Preoperative imaging.

3. Discussion

Suprapiriformis ureterosciatic herniation is more common in older women than men. This is likely a consequence of age-related pelvic floor muscle atrophy in the setting of a larger and wider bony pelvis (and sciatic foramina).² There are reports in the literature of various predisposing factors associated with ureterosciatic herniation, such as atrophy of the muscles lining the sciatic foramina, hip joint and neuromuscular disorders and parietal pelvic fascia defects.³ In our case, the patient did not suffer from any neuromuscular disease or hip joint disorders. She did however, experience severe trauma in the past, leading to a profound spine deformity which may be the contributing factor of her ureteral hernia formation.

Clinical presentation of USH can consist of various signs and symptoms, including abdominal or flank pain, nausea/vomiting, hematuria, pyelonephritis or even signs of urinary sepsis. However, some patients may present with mild discomfort or can be asymptomatic.³ Given the rare occurrence of this condition and the variability of clinical presentation, a diagnosis of USH is usually made incidentally.⁴ A looped ureter displaced laterally, inferiorly, and posteriorly through the sciatic notch is typically pyelographic finding seen in USH. This finding is also known as the “curlicue” sign, and is considered pathognomonic for ureterosciatic hernia. It is important to remember that occasionally,

ureterosciatic hernia may be overlooked because herniation can be intermittent.⁴ Use of CT scans and MRI examination can provide an accurate evaluation of the ureter, hernia sac, and neighboring neurovascular structures.

Ureterosciatic hernia treatment options include surveillance, stenting, or surgical repair. The choice of treatment depends on clinical presentation, degree of urinary obstruction and the presence of medical comorbidities. Observation is typically reserved for asymptomatic patients with minimal hydronephrosis and a stable serum creatinine and urea level. Ureteric stenting, done antegrade or retrograde, is feasible for symptomatic patients with signs of obstructive uropathy and impaired renal function. Surgical repair of this condition typically requires excision of the hernia sac, reduction of ureteral length with ureterocystotomy or ureteroureterostomy, and transabdominal or translumbar reduction of the hernia with fixation of the ureter. Surgical approach might be open, laparoscopic or robotic. A surgical option that we used was laparoscopic ureterolysis followed by retrograde insertion of J-J stent into a previously liberated ureter. This was successfully performed in our case, by following the surgical steps outlined by Singh et al.⁵ during their robotic assisted laparoscopic repair of USH on a 75-year-old female patient. The significant difference in surgical steps between these two USH repairs was that we did not perform ureteral stenting through a ureterotomy. Avoiding ureterotomy is appropriate if retrograde stent placement can be performed safely and appropriately. Avoiding ureterotomy also minimizes potential complications such as bleeding, urine leak, and delayed ureteral stricture.

4. Conclusion

Ureterosciatic hernias present a very rare pathology of the urinary system. Pyelography, CT or MRI should be used as a diagnostic tool for USH. Given its rarity, even the most experienced urologists can be surprised by these findings. There are several modalities of USH treatment, and the choice of therapy depends on the severity of clinical presentation, renal function and the general condition of the patient. Laparoscopic approach was successful in our case. We strongly believe that open surgery should not be the first choice in treatment of USH.

Consent

The patient provided informed consent for the information presented here to be shared.

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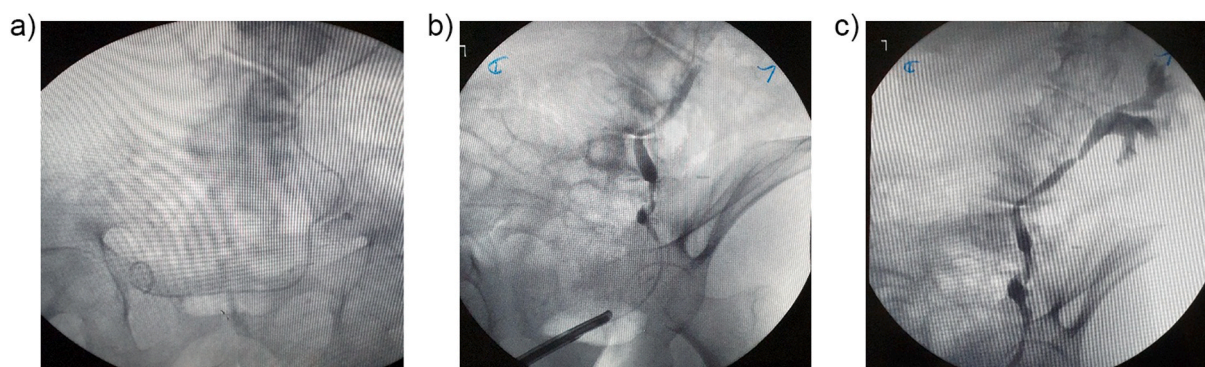


Fig. 2. A-C. Postoperative imaging.

Declaration of competing interest

None.

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