CASE REPORT

Seventy-six-year-old woman with an unusual anatomy of the left ureter

George A Demetriou,¹ Sohan Perera,² Constantine Halkias,¹ Shwan Ahmed²

¹Department of General Surgery, East Sussex Healthcare NHS Trust, St Annes House, Saint Leonards-on-sea, UK

²Department of Urology, East Sussex Healthcare NHS Trust, St Annes House, Saint Leonards-on-sea, UK

Correspondence to

George A Demetriou, Department of General Surgery, East Sussex Healthcare NHS Trust, St Annes House, 729 The Ridge, Saint Leonards-on-sea TN37 7RD, UK; dr.george.demetriou@gmail.com

Accepted 29 September 2016

SUMMARY

We present a case of a 76-year-old woman, who attended with features suggestive of renal colic; however on imaging, she was found to have a right pelvic kidney and a left-sided uretero-sciatic hernia (USH), identified on CT urography (CT urogram). She was managed conservatively as she had a normal renal function and reported no symptoms in follow-up appointments. USH are rare hernias, where the ureter herniates through the sciatic foramen. Patients might present with sepsis in which case they require emergency stenting either antegrade or retrograde or with pain in which a less urgent approach can be followed and plan for surgery. Our literature review only identified a small number of similar cases, and the most successful treatment method for those symptomatic patients who required a procedure was the surgical repair.

BACKGROUND

Interesting imaging finding.

CASE PRESENTATION

A 76-year-old woman presented with right-sided loin pain and vomiting for a day. Her pain was gradual in onset and mild initially but became severe, constant and sharp during the day.

She had a background of hypertension and asthma but well controlled with medications (salbutamol as required and amlodipine).

On examination, she was in pain but her vitals were within normal limits and her abdominal examination revealed a soft non-tender abdomen.

INVESTIGATIONS

Her haematological investigations were normal and had an estimated glomerular filtration rate (eGFR) of 75 mL/min. Her urinalysis showed microscopic haematuria.

A CT of kidney, ureter and bladder (CT-KUB) revealed a hydronephrotic pelvic right kidney but no evidence of stones. A follow-up CT urogram revealed a pelvic right kidney located between bladder and sacrum with severe hydronephrosis, and a left-sided dilated collecting system with an unusual path of the lower third of the ureter in that it formed a loop outside the greater sciatic foramen (GSF) forming a uretero-sciatic hernia (USH) (figure 1A, B).

A mercaptoacetyltriglycine renogram (MAG-3) was reported as a split function of 35% right side and 65% left side. However, due to the anatomical location of the right kidney with its pelvis lying into close proximity to the bladder the radiologist suggested that this result should be interpreted with caution.

DIFFERENTIAL DIAGNOSIS

- Vascular emergency (abdominal aortic aneurysm or renal artery aneurysm rupture).
- Renal colic.
- Pyelonephritis (less likely due to the normal inflammatory markers).

TREATMENT

She was admitted for a period of observation and pain management and was discharged the following day with a follow-up appointment.

Figure 1 (A) Coronal view of CT urogram, demonstrating the left ureter clearly herniating outside the pelvis through the sciatic foramen. (B) Sagittal view of CT urogram, showing the close relation between right pelvic kidney, its pelvis and the bladder.

To cite: Demetriou GA, Perera S, Halkias C, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2016-217499

OUTCOME AND FOLLOW-UP

Our patient's initial symptoms were likely due to right-sided renal colic related to her hydronephrotic right kidney, as she had normal inflammatory markers and a CT-KUB, which was negative for stones. Two weeks later however she represented with a urinary tract infection and positive urinalysis. Her mid-stream urine (MSU) sample did not grow any organism and made a full recovery after a course of oral antibiotics.

At 5 months following up clinic appointment, she had a stable renal function and reported no further symptoms; she was therefore managed conservatively with six-monthly follow-up appointments.

DISCUSSION

USH is extremely rare, a review of English literature in the last 30 years, identified 17 cases with 1 bilateral USH, all but 4 were left side and all elderly women apart from 1 man. The mean age was 74 years (57–92). One was an incidental finding in an asymptomatic patient, seven presented with urosepsis and the rest due to pain. The mode of treatment was robotic in 2, laparoscopic in 7, 2 conservative, 1 for a patient who was not fit for any procedure and 1 for the asymptomatic man. Four had an attempted reduction of the hernia by stenting, but one failed and required laparoscopic repair. Two had ureteroscopic reduction, but one failed and required laparoscopic repair.

The GSF is formed by the sacrospinous ligament inferiorly and the greater sciatic notch anterosuperiorly. It is divided into suprapiriform and infrapiriform by the piriformis muscle. Weakness in this muscle can create potential space for the hernia to form. Most of these hernias are superior to piriformis. The diagnosis is made by CT urogram or intravenous urogram (IVU) by identifying the classical 'curlicue' sign, which is due to the kinking of the ureter at the hernia site. However, it should

be kept in mind that the herniation can be intermittent in some cases.¹ The higher prevalence in female patients reflects the different pelvic anatomy and the larger size of GSF.² Our patient was fitting the above demographics, and in addition she had a hydronephrotic right pelvic kidney and this was an extra factor for the formation of the hernia due to the left lateral displacement of the bladder seen also in the scan.

Learning points

- ▶ Even though uretero-sciatic hernia is extremely rare, it should be kept in mind in cases with a history of unexplained loin pain and hydronephrosis in elderly women.
- ▶ The diagnosis can be confirmed with a CT urogram by identifying the pathognomonic 'curlicue' sign of the affected ureter.
- ▶ Surgical repair of the defect offers the less recurrence rates.

Contributors GAD wrote the manuscript. CH assisted in writing and paper review. SP had the initial idea to write up and helped with writing. SA supervised the whole process.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Losanoff JE, Basson MD, Gruber SA, *et al.* Sciatic hernia: a comprehensive review of the world literature (1900–2008). *Am J Surg* 2010;199:52–9.
- 2 Tsuzaka Y, Saisu K, Tsuru N, *et al.* Laparoscopic repair of a ureteric sciatic hernia: report of a case. *Case Rep Urol* 2014;2014:787528.

Copyright 2016 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow