Ureteric obstruction secondary to a paraperitoneal inguinal hernia

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ABSTRACT

Ureteric obstruction is a rare consequence of inguinoscrotal hernias. We report the case of a 71-year-old man who presented with a left hemiscrotal swelling and ipsilateral hydronephrosis. Following investigations, he was found to have a sliding inguinal hernia involving the left ureter. His left inguinal hernia was repaired electively and without complication. Follow-up imaging revealed resolution of the hydronephrosis and a more conventional course of the left ureter.

KEYWORDS

Ureteroinguinal hernia – Hydronephrosis – Paraperitoneal

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A 71-year-old retired engineer was referred to our department via his general practitioner with a 2-week history of sudden enlargement of the left testicle. This was initially painful but was settling with oral antibiotics. He complained of urinary hesitancy, poor flow and incomplete bladder emptying. His past medical history included a total hip replacement some years earlier. He did not take any regular medications. Abdominal examination revealed a soft abdomen, which was non-tender, and no masses were palpable. Digital rectal examination detected a moderately enlarged, benign feeling prostate gland. Scrotal examination found a normal feeling right testicle but a large swelling above the left testicle. This swelling felt separate to the testicle, cystic and was difficult to get above.

Abdominal ultrasonography revealed left-sided hydronephrosis and subsequent intravenous urography demonstrated a standing column of contrast in the left ureter. In order to further investigate this, the patient was taken to theatre for a cystoscopy and ascending ureteropyelography. The cystoscopy results showed a normal bladder with two normal ureteric orifices. The left retrograde ureteropyelography detected a very distorted path of the left ureter. Shortly after leaving the bladder, the left ureter descended inferiorly for several centimetres before turning superiorly and heading towards the left kidney, which again demonstrated hydronephrosis (Fig 1). A left inguinal hernia was also noted on the operating table; this was reduced and the ureteropyelography was repeated (Fig 2). The degree of ureteric descent was now far less and a diagnosis of a probable sliding hernia was therefore made.

Computed tomography (CT) of the patient showed the left ureter taking a devious course with a closely related hernia sac. The imaging report commented that this attachment

between the ureter and hernia sac was the most likely cause of the left-sided obstruction to the kidney.

The patient was referred to the general surgeons, who performed a left inguinal hernia repair. At operation, the operating surgeon was unable to identify a ureter related to the hernia sac. The surgeon's impression was also that this was a sliding hernia with peritoneal attachments to the ureter resulting in an obstructed left system.

Follow-up intravenous urography was performed some weeks later. This showed the ureter in the correct anatomical position and resolution of the hydronephrosis (Fig 3).

Discussion

In the literature, ureteric involvement has been described in both inguinal and femoral hernias. As expected, the former is more common in men and the latter in women. Pollock *et al* reported that inguinal hernias were twice as likely to involve the ureter as femoral hernias.¹ When ureters are associated with hernias, it is important to clarify whether there is any resulting obstruction as these cases are clearly more urgent to resolve owing to the risk to the kidney if left alone. There is less urgency to treat hernias associated with no upper tract obstruction. Interestingly, 1–4% of all inguinal hernias are thought to involve the bladder whereas in cases of ureteroinguinal hernias, bladder involvement rises to 25%.^{1,2}

Ureteroinguinal hernias can be divided into two groups: extraperitoneal and paraperitoneal. Extraperitoneal ureteroinguinal hernias only account for 20% of cases and are thought to be congenital in origin.³ During embryonic development, the ureteric bud does not separate from the Wolffian duct and both therefore migrate to the scrotum

Figure 1 Left retrograde ureteropyelography showing hydronephrosis

Figure 2 Repeated ureteropyelography after hernia reduction

when the testes descend. These cases can present at any age as the abnormality is there from birth. At operation, these hernias often have retroperitoneal fat but no retroperitoneum is found in the hernia sac.

Paraperitoneal hernias are acquired and usually present in adulthood. Any process that may result in adhesions forming between the ureter and the posterior peritoneum could be a risk factor for this type of hernia. If the posterior peritoneum and ureter have adhesions, any descent of the peritoneum into a hernia orifice may take the ureter with it. Other structures such as bowel may also be present.

He *et al* describe the findings at retrograde pyelography that are pathognomonic for a ureteroinguinal hernia.⁴

Figure 3 Follow-up intravenous urography showing the ureter in the correct position and resolution of the hydronephrosis

Retrograde studies reveal a redundant loop of ureter, which has been named the 'curlicue' or 'loop the loop' sign.

Although our case demonstrates herniation of a native ureter, the literature also presents cases where renal transplants have resulted in transplanted ureters finding their way to the inguinal canal, leading to complications of obstruction.

Despite being rare, ureteroinguinal hernias must not be forgotten when assessing patients with groin swellings and hydronephrosis as longstanding obstruction to the renal tract may result in loss of renal function. In patients with two functioning kidneys, this may remain undetected while the other kidney compensates. A high index of suspicion may allow diagnosis in a timely fashion and repair of the underlying hernia should stop any further renal deterioration. It is worth noting that a significant number of cases are diagnosed intraoperatively during routine hernia repairs. This is of importance to both urologists and general surgeons, who may come across this rare phenomenon.

Conclusions

Although ureteric obstruction secondary to hernias is rare, it should be considered as a differential diagnosis in all patients presenting with an inguinoscrotal swelling and hydronephrosis. The diagnosis can be confirmed by ultrasonography and retrograde studies. CT and magnetic resonance imaging can also be used. Repair of the hernia is recommended with due care to avoid injuring the ureter.

This should relieve the ureteric obstruction and ensure that impairment of renal function is minimised.

References

1. Pollack HM, Popky GL, Blumberg ML. Hernias of the ureter – an anatomic-roentgenographic study. *Radiology* 1975; **117**: 275–281.
2. Pasquale MD, Shabahang M, Evans SR. Obstructive uropathy secondary to massive inguinoscrotal bladder herniation. *J Urol* 1993; **150**: 1,906–1,908.
3. Lu A, Burstein J. Paraperitoneal inguinal hernia of ureter. *J Radiol Case Rep* 2012; **6**: 22–26.
4. He L, Herts BR, Wang W. Paraperitoneal ureteroinguinal hernia. *J Urol* 2013; **190**: 1,903–1,904.