Asymptomatic herniation of ureter in the routine inguinal hernia: A dangerous trap for general surgeons

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INTRODUCTION

Inguinoscrotal hernias of the ureter are an extremely rare phenomenon. They can pose a threat to the unprepared general surgeon performing routine herniorrhaphy.

PRESENTATION OF CASE: A 72 year old man presented with a one year history of a lump in the left groin causing occasional discomfort. On examination a partially reducible left sided inguinal hernia was found. He had no urinary symptoms and was otherwise fit and healthy. He had a right inguinal hernia similar to this repaired 20 years ago.

DISCUSSION: Intraoperatively the patient had a large sliding inguinoscrotal hernia with a bulky amount of retroperitoneal fat. A white tubular structure was found amongst the hernia contents but demonstrated peristalsis on stimulation with forceps. It was initially thought to be a duplicated vas deferens. The hernia contents were pushed back in and a Lichtenstein repair was performed. Postoperatively the patient was found to have normal renal function and a CT IVP showed mild dilatation of the left ureter amidst irregular retroperitoneal fat (reduced hernia contents). There was no evidence of a stricture or ureteral damage. The urologists managed the patient conservatively with bi-annual imaging of the renal tract.

CONCLUSION: Many ureteral inguinal hernias reported in the literature have been on renal transplant patients, while rarely on native kidneys. This case suggests no inguinal hernia repair is routine. Awareness of this anomaly is important, to avoid ureteral injury during herniorrhaphy.

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1. Introduction

Herniation of the distal aspect of the ureter into the inguinal canal or the scrotum is an extremely uncommon phenomenon. Although ureteral hernias were first described in the late 18th century, there have only been <70 cases reported in the English language literature. [1,2] It more commonly occurs in either obese patients or in those who are post renal transplantation. Fewer than 10 cases have been reported of ureteral inguinal hernias in adults with native kidneys, with most being symptomatic and diagnosed preoperatively [3] . These symptoms may include unexplained renal failure, urinary symptoms, or unilateral hydronephrosis on ultrasound scan. Many cases have reported of patients presenting with a combination of a groin lump and renal failure [1] . Subsequent investigations for their renal impairment then reveal findings suspicious of a ureteral hernia. We report on an asymptomatic, fit and healthy, non-transplant patient who was diagnosed with ureteral inguinal hernia intraoperatively. The work has been reported in line with the SCARE criteria [4].

2. Presentation of case

A 72 year old man was referred by his family physician to the General Surgeon with a one year history of a lump in the left groin causing occasional discomfort. Although most of the time he could not feel it, he recently had a few episodes of pain when it protruded and had difficulty reducing it. He was a retired farmer who spends much of his time fossicking for gold, and although smoking 20 cigarettes a day, was reasonably fit and active for his age. He described no urinary symptoms at the time and had no history of renal disease. His serum creatinine and urea were within normal ranges.

Examination revealed a weight of 75 kg with a BMI of approximately 24. The hernia was extending mildly into the left hemiscrotum and was partially reducible. Given the typical history and examination, he was booked for a routine left groin hernia repair under general anaesthesia without preoperative imaging.

Intraoperatively a huge indirect sliding hernia was found with a considerable amount of fat, initially thought to be a large lipoma of the cord. The cord structures were easily identified and preserved. Further dissection of the herniated contents revealed a deeper component of fatty tissue with a broad base extending from a large defect at the internal inguinal ring. This was then thought to possibly be greater omentum, only to find a white tubular structure amidst the herniated contents [Figs. 1 and 2].
Fig. 1. Intraoperative tubular structure noted amongst the hernial contents.

Fig. 2. Stimulation with forceps revealed peristalsis in the tubular structure.

Fig. 3. CT Intravenous Pyelogram shows dilatation of left renal pelvis with hydroureter and diffuse wall thickening.

It demonstrated visible peristalsis on stimulation with forceps and looked suspiciously like the ureter, although a duplicated vas deferens was another possibility. Given the findings, the surgeon concluded that this was actually retroperitoneal fat herniating with the ureter. The ureter was preserved throughout, and along with the retroperitoneal fat, was reduced and pushed back intra-abdominally followed by a Lichtenstein repair. Post operatively the patient was found to have normal renal function and no urinary symptoms. A CT IVP showed mild dilatation of the left ureter amidst irregular retroperitoneal fat (reduced hernia contents), a dilated renal pelvis but no evidence of hydronephrosis [Fig. 3]. There was also no evidence of a stricture or contrast extravasation. The urologists managed the patient conservatively with bi-annual imaging of the renal tract.
3. Discussion

Herniation of the ureter can occur not only through the inguinal canal, but also through the femoral ring, sciatic foramen, and even the diaphragm [5–7]. Ureteral herniation in the inguinal canal was first reported by Leroux in 1880 as an autopsy finding [8]. The first intra-operative case, discovered during hernia repair, was reported by Reichel, and preoperative diagnosis was first achieved by Dousmachkin in 1937 using intravenous pyelography [7]. When present, it is associated with inguinal hernias twice as often as with femoral hernias. They are largely indirect rather than direct (80% vs 20%) and occur more frequently on the right side than the left side. Men are more commonly affected, typically after the fifth decade of life, although some cases have been reported in newborns [9]. Obesity is a major risk factor. Many cases have also been reported in patients with a history of kidney transplantation, possibly due to the location of the transplanted ureter more anteriorly in the space of Retzius [7,10].

There are two anatomical variants of ureteral inguinal hernias: paraperitoneal and extraperitoneal. The paraperitoneal type, occurring in 80% of cases, has a peritoneal indirect sac which pulls the ureter with it forming part of the hernia wall. Less commonly, as in the case we have reported, an extraperitoneal type occurs (20%) without a peritoneal sac. In such cases there is typically a large amount of fat, which is in fact retroperitoneal fat, which slides down and pulls the ureter with it. This is a prolapse of retroperitoneal structures and a genuine sliding hernia. This rare phenomenon, which is under documented, is worth knowing about, because of the risk of damage to the ureter during hernia dissection. When encountering such huge fatty hernias, the surgeon should be cautious and avoid ligation and excision of the fat, but rather return the fatty mass into the retroperitoneum after separation from the cord [7,10].

Due to the invariably large size of the hernia, incarceration is relatively uncommon [11]. If there is presence of associated bladder herniation, symptoms of bladder outlet obstruction may occur including frequency, nocturia, dysuria, or haematuria [12]. Bladder involvement however is very rare as it is associated with direct hernias. In patients where a ureteral hernia is incidentally discovered, imaging of the renal tract is warranted as anatomical anomalies are common in these patients [13]. This highlights the importance of preoperative assessment. In this case, CT urogram is the best imaging modality however preoperative imaging for all patients who present with a hernia is not cost-effective and difficult to justify. Nonetheless imaging is warranted for selected patients, particularly in those with unexplained renal impairment or unilateral hydrenephrosis on ultrasound scan [1,3,10].

4. Conclusion

Asymptomatic inguinoscrotal herniation of the ureter is rare. The case we have reported suggests no inguinal hernia repair is routine. Awareness of such anomalies is essential to avoid ureteral injury during herniorrhaphy.

Conflict of interest

Authors have no conflict of interest to disclose.

Funding

None.