CASE REPORT

Ureteral avulsion due to lumbar disc hernia repair

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Ureteral avulsion due to lumbar disc surgery is a rare complication and to our knowledge, only a few cases have been reported in the literature. A 43-year-old woman was admitted to our clinic with right lumbar pain following spinal surgery for discopathy. Complete right ureteral avulsion was detected and successfully treated by end-to-end anastomosis of the ureter with an internal double J stent.

Key Words: ureter avulsion, lumbar disc surgery

Introduction

Ureteral avulsion is a rare complication of lumbar disc herniation surgery. To the best of our knowledge, only a few cases have been reported in the literature. We describe a case of ureteral avulsion due to lumbar disc hernia repair.[1,2]

Case report

A 43-year-old woman with severe right lumbar pain was referred to our clinic. Three days prior to her clinic visit, the patient had undergone surgery for a lumbar disc hernia (L_{3-4} left discectomy). On the first postoperative day, the patient had persistent right lumbar pain. Physical examination revealed right costovertebral tenderness. The patient had mild anemia and microscopic hematuria. Intravenous urography (IVU) of the patient on the second postoperative day revealed a normal functioning right kidney with a significant opaque extravasation through the proximal ureter without any opaque passage to the distal ureter, Figure 1. A computerized tomography (CT) scan verified extravasation at the level of the proximal ureter and retroperitoneal urinoma extending to the bony pelvis.

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Retrograde pyelography was performed in order to determine if the patient was a candidate for endoscopic or open surgery. The patient received bowel preparation for a probable urinary diversion. Retrograde pyelography did not reveal any opaque passage to the proximal segment of the ureter and renal pelvis. However, it showed extravasation from the proximal ureter to the retroperitoneal space. The images revealed the presence of a complete proximal ureteral avulsion. Therefore, we preferred to perform open surgery rather than use endoscopic instrumentation.

Exploration of the retroperitoneal space after drainage of the urinoma revealed a 2 cm defect in the proximal ureter, consistent with complete transection. A tension-free end-to-end ureteral anastomosis over a double J stent was undertaken with mobilization of the kidney and distal ureter. The postoperative period was uneventful. The double J stent was removed 6 weeks after the operation. Intravenous urography a month after the stent was removed revealed a slightly ptotic right kidney with mild hydronephrosis, Figure 2.

Discussion

Complete ureteral avulsion has been seen generally due to urological or gynecological surgery. Certain types of intra-abdominal operations or external trauma may also cause this complication, but this condition is rare following lumbar disc herniation surgery. The most probable mechanism of injury is perforation of a prevertebral ligament by the surgical

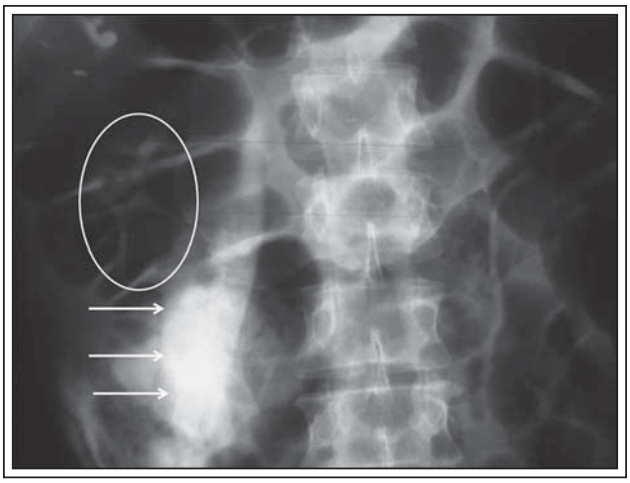

Figure 1. Normal functioning right kidney (circled) and radioopaque extravasation from the proximal ureter to the retroperitoneal area (arrows).

instruments. As seen in the present case, the injury almost invariably occurs at the contralateral side to the laminectomy. This situation is due to the damage of the contralateral retroperitoneal space by rongeur-type surgical instruments tangentially crossing the lumbar vertebrae.[2] Flank pain and, occasionally, hematuria are typical symptoms of complete ureteral avulsion, but severe infection and sepsis may be found in previously missed cases.

Diagnosis can be aided by taking a thorough patient history, obtaining IVU and CT scans. Some authors suggest that insertion of a nephrostomy tube or a retrograde catheter for drainage and delineation of the defective ureteral segment should be the first step after an incomplete ureteral injury.[3] However, retrograde catheterization should be performed gently with the guidance of retrograde pyelography in patients with partial ureteral avulsion, because incomplete avulsion might be converted to complete injury by careless catheterization, which would then require more invasive treatment.

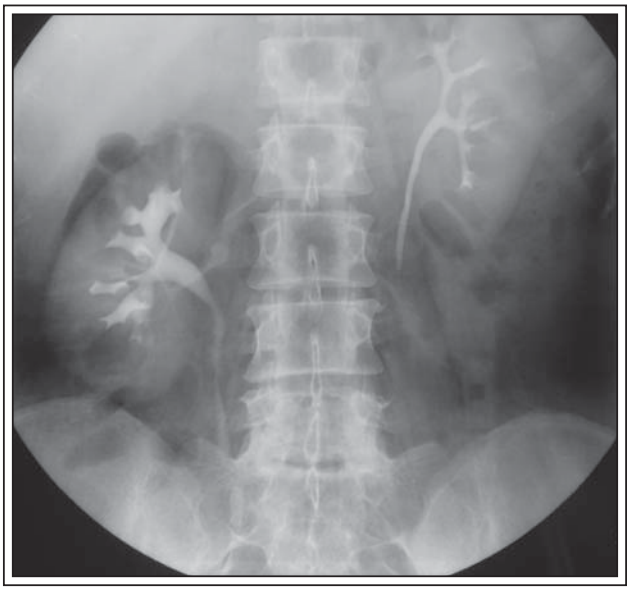

Figure 2. Postoperative intravenous urography scan. Slightly ptotic right kidney with mild hydronephrosis.

In the present case, early preparation for surgery and the absence of dilatation in the right kidney precluded insertion of a nephrostomy tube. In addition, the absence of an opaque passage to the proximal segment of the ureter and renal pelvis as well as extravasation from the proximal ureter to the retroperitoneal space revealed a complete ureteral rupture. Therefore, open surgery was preferred instead of endoscopic ureteral stent insertion.

We conclude that retrograde pyelography may play a major role in the determination of the treatment modality for ureteral injury. In cases with longer defective segments or unviable ureteral ends, reconstructive surgery may necessitate the use of bowel segments. Therefore, bowel preparation is necessary in all patients with ureteral avulsion before exploratory surgery. When primary ureteroureterostomy is not feasible, ureteral replacement surgery, renal ototransplantation,[2] and even nephrectomy[4] may be other alternative treatment modalities. Laparoscopic ureteroureterostomy might be an alternative method to open surgery for patients with ureteral avulsion in the presence of suitable equipment and an experienced surgeon, although to date there has not been any report of this in the literature.

In conclusion, urologists and vertebral surgeons should be aware of the existence of this rare condition ureteral avulsion due to lumbar disc herniation repair so that they can make an early diagnosis and begin patient treatment. □

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