Clinics in Surgery

Case Report
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An Uncommon Cause of Acute Abdominal Pain: Spontaneous Ureteral Rupture

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Abstract

Spontaneous rupture of the ureter is an uncommon etiology of acute abdominal pain. Here we report the case of a 66-year-old patient who suffered ureter rupture due to stenosis of the lower ureter after radiotherapy. Treatment included the placement of a double-J catheter by interventional radiology. The evolution was favorable.

Keywords: Spontaneous rupture; Ureter; Double-J catheter

Introduction

Non-traumatic abdominal pain is one of the most common reasons for emergency admission. Anamnesis, clinical history, and basic biological examinations often indicate an etiology, but not in cases ureter rupture, which must be diagnosed based on imaging. Ureter ruptures are treated by either interventional radiology or urological surgery.

Case Presentation

A 66-year-old patient spontaneously presented to the emergency department during the night for intense abdominal pain that had recently started. There was no analgesic position, and anamnesis suggested signs of peritoneal irritation. The patient also reported an episode of vomiting since the pain began. He had no low urinary complaint or transit disorder. His antecedents included a prostatic neoplasia diagnosed a year earlier and treated by radical prostatectomy, followed by radiotherapy and hormone therapy. He was currently still undergoing monthly treatment with degarelix. Upon admission, the patient's blood pressure was 155/75 mmHg and his heart rate was normal (63 bpm). The patient had no fever (36.3°C). Clinical examination revealed diffuse abdominal pain on palpation. Peristalsis was perceived but weak, lumbar shaking was non-contributory. Laboratory testing revealed only slight inflammatory syndrome (CRP: 20 mg/L, normal value: <5 mg/L) without associated hyperleukocytosis (white cell count: 5680/mm^3, normal value: 3700–9500/mm^3). Renal function and ionogram were normal. Urinalysis revealed 1–5 white and red cells per field. There were no signs of infection upon direct examination, and the culture came back sterile. The pain remained in the foreground and was managed using intravenous opioids. After discussions with our radiologist colleagues, the decision was made to perform computed tomography with intravenous contrast injection. This revealed a partial rupture of the left ureter at the pyelo-ureteral junction, with contrast extravasation in the abdominal cavity (Figure 1 and 2). The patient was diagnosed with a spontaneous rupture of the left ureter. A double J probe will be implanted in interventional radiology by percutaneous issue. During this one, stenosis of the lower ureter will be suspected. After the gesture, the patient will be hospitalized 24 hr for analgesic management and surveillance, which will prove to be peculiar.

This double-J catheter was urologically withdrawn after 7 weeks. At 8 weeks, additional assessments were performed using urography and tomodensitometry, which revealed additional signs of stenosis (Figure 3). There was no evidence of retro-peritoneal fibrosis.

Discussion

Ureter ruptures are relatively uncommon and are divided into two categories: post-traumatic and spontaneous. Spontaneous ureter ruptures are surprisingly infrequent, and the majorities are caused by lithiases (50% to 75%). Other less common etiologies include tumors, retroperitoneal fibrosis, pregnancy, or urinary retention. The origin is not determined in less than 10% of patients.

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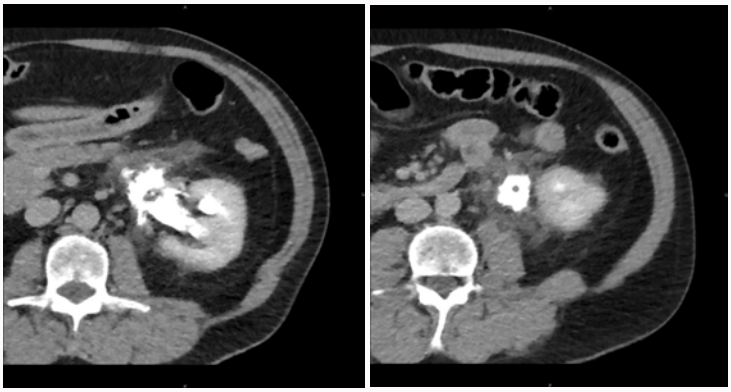

Figure 1 and 2: CT images showing initial extravasation of the contrast product (Arrows).

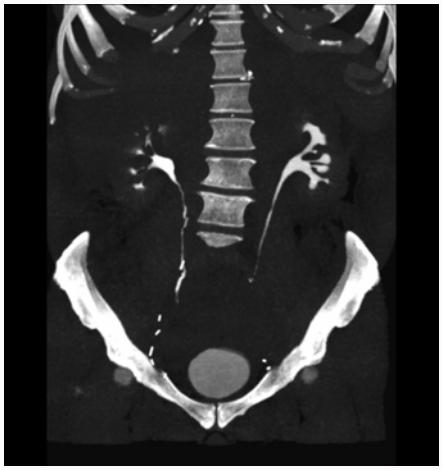

Figure 3: CT scan at 8 weeks of acute episode, without extravasation.

To our knowledge, no previously reported case describes ureter rupture with a post-radiation origin [1-3]. The clinical presentation of ureter rupture widely varies, and often mimics renal colic (pain, nausea, vomiting, etc.) or acute abdomen. There may also be signs of peritoneal irritation related to extravasation of urine. The differential diagnosis is vast, including diverticulitis, renal colic, appendicitis, cholecystitis, and others [4]. Clinical and basic biological examinations are of little use, and diagnosis often relies on imaging. Ultrasound can sometimes provide answers [5]; however, the examination of choice is computed tomography with contrast injection and late-phase images [6-8]. Given the very low frequency of spontaneous causes, there is no standardized care. Nevertheless, rapid management is necessary due to the potential for serious complications, such as urinoma, local abscessing, or sepsis [6-10]. The management currently recommended in the literature involves the establishment of a double-J catheter. This can be performed in a retrograde manner by a surgeon, or in a prograde manner (percutaneous puncture) by an interventional radiologist (as in our presently described case). Sometimes more invasive surgery is necessary (e.g., laparoscopy or open surgery) [6-10]. It is also recommended that removal of the double-J catheter be followed by imaging to ensure that there is no residual obstacle [6-10].

Conclusion

Spontaneous rupture of the ureter is a rare diagnosis with unclear pathology. Rapid management is necessary to avoid potentially serious complications. Such management can include surgery or interventional radiology, depending on the complexity of the case.

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