Case Report:
Spontaneous Intraperitoneal Rupture of an Infected Kidney in A Young Patient

ADEL A. MOALWI, M.D.
The Department of Surgery, Najran University, Najran City, Saudi Arabia

Abstract

Background: Non-traumatic or spontaneous rupture of the kidney is rare. There is usually an underlying pathology, e.g., hydronephrosis, calculi, pyonephrosis, or tumors.

Objective: To present an unusual presentation of a young man presenting with an acute abdomen and having a final diagnosis of ruptured renal pelvis.

Case Report: A 21 years old male presented with severe pain at the right iliac fossa for 2 days associated with loss of appetite, vomiting and fever. On physical examination, the patient looked sick, with tachycardia (120 beats/min), blood pressure 125/83 mmHg, febrile (38°C) with generalized abdominal tenderness and guarding. Urine dipstick revealed blood (++), but no protein, high leukocytic count, and C-reactive protein. Abdominal X-ray showed no abnormal findings. The provisional diagnosis was "perforated appendix", however, the abdominal CT scan revealed normal appendix and a distal right ureteric stone with significant perinephric pus collection extending to the pelvis. Third generation cephalosporin was started and he was taken to the operative theater. Endoscopically, a ureteral stent was fixed. Postoperatively, the patient dramatically improved, and was discharged 3 days after surgery. Six weeks later, the ureteral stent was removed. Retrograde pyelogram was done and there was no extravasation with complete healing of the renal pelvis. The stone was fragmented using Holmium: YAG laser.

Conclusions: Early diagnosis of underlying renal or ureteral stones in patients presenting with peritonitis is important. Full urological investigations in such cases are important to avoid severe complications.

Key Words: Kidney rupture – Renal calculi – Holmium: YAG laser.

Introduction

NON-TRAUMATIC or spontaneous rupture of the kidney is quite rare. This may present in two forms, extraperitoneal or intraperitoneal. Extraperitoneal rupture of the kidney is relatively more common. However, there is usually an underlying pathology, e.g., hydronephrosis, calculi, pyonephrosis, tumors, or any similar obstructive causes [1-5].

Peritoneal fistulization of a pyonephrosis is an extremely rare event which invariably leads to generalized peritonitis. The renal origin of peritonitis is more often revealed intra-operatively as the clinical condition [6-7].

The aim of this paper is to present an unusual presentation of a 21 years old man, presenting with an acute abdomen and having a final diagnosis of ruptured renal pelvis.

Case Report

In April, 2012, a 21 years old male came to the Emergency Room (ER) of Aseer Central Hospital, Abha, Saudi Arabia, with severe pain at the right iliac fossa for 2 days associated with loss of appetite, vomiting and fever. When his complaints started he went to a nearby private hospital. He received antipyretic analgesics and anti-emetics. However, his condition deteriorated.

There was no past history of urological problems or any medical comorbidities. On physical examination, the patient looked sick, with tachycardia (120 beats/min), blood pressure 125/83 mmHg, febrile (38°C) with generalized abdominal tenderness and guarding. Urine dipstick revealed blood (+), but no protein. White blood cell count was high 15,000/mcL while serum creatinine was normal (0.8 mg/dL), C-reactive protein was 200 mg/dL. Abdominal X-ray showed no abnormal findings.
The patient was seen at the ER by the general surgery team, who reached a provisional diagnosis of "perforated appendix", which necessitates urgent exploration after performing abdominal Computed Tomography (CT) scan. However, the abdominal CT scan revealed normal appendix and bowel. There was a distal right ureteric stone with significant perinephric pus collection extending to the pelvis Figs. (1-3).

Therefore, the patient was admitted to the Urology Department and third generation cephalosporin was started. Then, he was taken to the operative theater. Cystoscopy with retrograde pyelogram showed ruptured renal pelvis with extravasation of the contrast. Endoscopically, a ureteral stent was fixed. Postoperatively, the patient dramatically improved, and was discharged 3 days after surgery.

Six weeks later, the ureteral stent was removed. Retrograde pyelogram was done and there was no extravasation with complete healing of the renal pelvis. The stone was fragmented using Holmium: YAG laser.

**Discussion**

Peritonitis due to rupture of an infected kidney is a very rare condition. Review of medical literature revealed that there are 17 reported cases, of whom only 7 were derived from spontaneous rupture of pyonephrosis in patients with urolithiasis or hydronephrosis [4,7-9].

The diagnosis of our case was delayed for two days. Since the patient first sought medical advice at a nearby private hospital and the physicians could not diagnose his condition and decided to give symptomatic treatment. Moreover, at our hospital, the first provisional diagnosis was "ruptured appendix" and abdominal X-rays showed no abnormal findings. However, abdominal CT was quite conclusive. Intraoperative retrograde pyelogram showed that the ruptured site was the renal pelvis with extravasation of the contrast.

The delay in reaching a definite diagnosis for our case should have been avoided. Silen [10] emphasized that, in cases of acute abdomen, the first principle is that of the necessity of making a serious, early and thorough attempt at diagnosis.

Quaresima et al., [4] stressed that intraperitoneal rupture of a pyonephrosis needs immediate intervention. The clinical presentation is of an acute abdomen with increased inflammatory markers. The predominant abdominal symptoms mask the underlying renal cause, and the peritonitis is usually attributed to intestinal perforation or appendicitis. X-rays fail to demonstrate free air in the diaphragm, although in some cases they can highlight radiopaque stones. CT scanning is certainly the most sensitive at demonstrating the presence of underlying renal disease.

The surgical management of our case was through minimally invasive procedures. A ureteral stent was fixed endoscopically. Postoperatively,
the patient’s condition improved quickly and he was discharged after 3 days. Six weeks later, the ureteral stent was removed, there was complete healing of the renal pelvis as revealed by retrograde pyelogram and stone fragmentation done using Holmium: YAG laser.

Duchamp [11] noted that the Holmium: YAG laser has become the preferred lithotripsy method in urological applications because of its unique functional capabilities, since Holmium: YAG lithotripsy fragments stones better than other lithotripsy devices.

In conclusion, this report highlights the importance of early diagnosis of underlying renal or ureteral stones in patients presenting with peritonitis and stresses the significance in early and full urological investigation to avoid severe complication. Management depends on patient state but most cases can be managed with minimally invasive procedures and double J ureteral stent placement.

References


