

BOWEL PERFORATION DURING PERCUTANEOUS RENAL SURGERY

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Introduction: We report the case of a 74 years old patient presenting bowel lesion in a percutaneous renal surgery to extract a 2.5cm diameter stone.

Case Report: The access to percutaneous nephrostolithotomy was performed between the 11th and 12th left ribs at the posterior axillary line. An abdominal transversal pad was placed and a guide was passed down the ureter with no difficulty. Surgical time was of approximately 40 minutes. Antegrade pielography performed at the end of the procedure was normal. In the first post-operative day, the patient presented severe pain and abdominal defense. An additional descendent pielography was performed gently pulling the nephrostomy catheter, thus contrasting the bowel. The patient underwent an exploratory laparotomy where lacerations in left colon external wall and a bowel transfixing lesion were found. Non-absorbable sutures in two layers were performed. The patient presented a good progress with no occurrences during post-operative period, and was discharged in one week.

Key words: kidney; nephrostomy, percutaneous; intraoperative complications; intestinal perforation
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INTRODUCTION

Percutaneous renal surgery is an efficient and safe procedure for treating several urologic conditions. Complications are infrequent and consist of bleeding and sepsis. Intra- or extra-abdominal visceral lesions are rare, although lesions in lung, colon, duodenum, spleen, liver, and gallbladder have been described (1-3).

The aim of this work is to report a rare case of bowel lesion during a percutaneous renal surgery for pelvic stone extraction.

CASE REPORT

A.C. 74 years old, male, white, had a 2.5cm stone in left renal pelvis. He underwent 2 ESWL with double-J catheter, with no results (Figure-1). He was submitted to a left percutaneous nephrostolithotomy,

with puncture between 11th and 12th ribs at the posterior axillary line. The patient was brevilineous and, in spite of the placement of an abdominal transversal pad, there was not much working space left between the 12th rib and the superior border of the iliac bone. The surgery was performed with no adverse events in approximately 40 minutes. A guide was passed down the ureter without any difficulty. Descendent pielography at the end of the procedure was normal, contrasting only the excretory system (Figure-2). In the first post-operative day, the patient presented severe abdominal pain in the left upper quadrant and at physical exam the abdomen presented defense. The patient was submitted to a computed tomography, and the result was normal. Under fluoroscopic control, the balloon of the Foley catheter was emptied and, at the same time that contrast was injected, the catheter was pulled. An intestinal loop was thus contrasted (Figure-3). At the same day (1st PO day), the patient

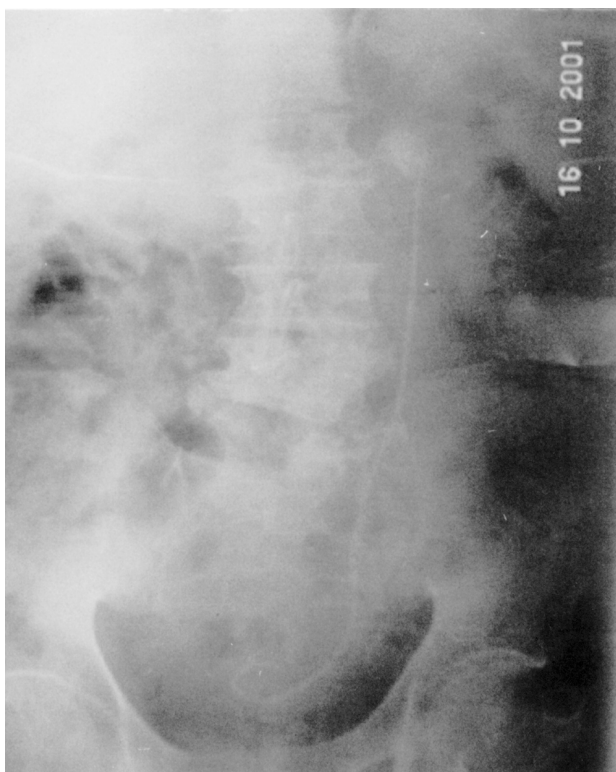


Figure 1 – Pre-operative radiogram showing a left pelvic stone 2.5cm and a double-J catheter.

underwent an exploratory laparotomy with identification of an extramucosal abrasion in the descending colon and transfixation of the Foley catheter in jejunal portion of the small bowel, with omental blockade. In colon abrasion, 2 extramucosal prolene 3-0 U-shaped sutures were applied; in the small bowel loop, the borders were revitalized and a 2 layers prolene 3-0 continuous suture was performed (total and extramucosal). The nephrostomy was replaced in the left parietocolic gutter and the abdominal cavity was washed with saline until there was no trace of intestinal residue. A Penrose drain was left through previous nephrostomy. The patient progressed well, being discharged in the 7th PO day of exploratory laparotomy.

COMMENTS

The incidence of colonic lesion during percutaneous renal procedures is approximately 0.6%

(2,3). In this review, we found only 2 works in the literature about small bowel lesion during percutaneous renal surgery, excepting the duodenal portion (1,2).

The patient in this case was brevilineous, presenting about 2cm between iliac crest and the border of 12th rib after the placement of a transversal pad in the superior part of the abdomen with ventral flexion of the table. The surgery was performed in prone position. In addition, the stone projected itself over the 12th rib at fluoroscopy. These circumstances determined the puncture between the 12th and the 11th ribs at the posterior axillary line.

The use of ventral and axillary pads (to improve ventilation), in addition to ventral flexion of the surgical table to increase working space, are procedures that we adopt in these cases. However, in this specific case, we assumed that the pad, together with the high and lateralized puncture, contributed to transfix the ileal loop.

Descendent pielo-graphy at the end of the surgery did not diagnose the lesion in the small intestine, probably due to the loop transfixation, and because the balloon of the Foley catheter was located in renal pelvis.

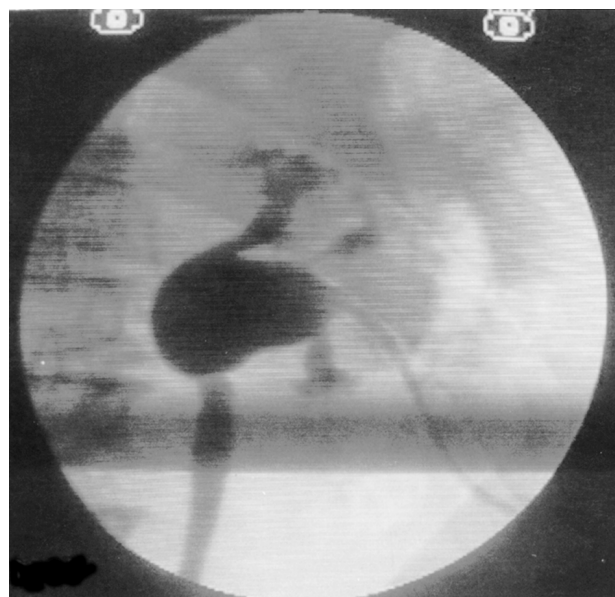


Figure 2 – Normal antegrade pielo-graphy at the end of the surgical procedure.

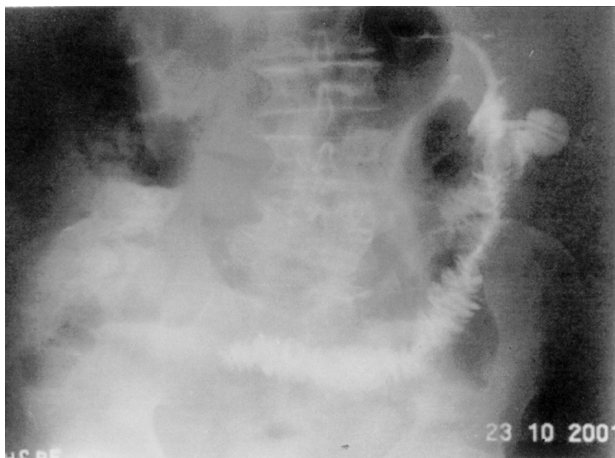


Figure 3 – Antegrade pielography in the 1st post-operative day gently pulling the Foley catheter, showing contrast in small bowel.

Injuries to duodenum and colon in percutaneous renal surgery may be conservatively treated as long as there is no alteration in general condition of

the patient, and that clinical evolution is favorable. In the case reported, it would not be possible due to the presence of 2 openings in the small bowel loop by the catheter, as observed during exploratory laparotomy.

Perhaps this complication could be avoided through punctures not lateralized, which is not always anatomically feasible in percutaneous renal surgery.

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EDITORIAL COMMENT

Despite the considerations about the patient's brevilineous biotype, the possibility of retrorenal peritoneal reflexion, that may exceptionally occur, allowing colon or small bowel interposition, between the posterior aspect of the kidney and lumbar region wall is more common in thin and longilineous patients (1).

Apparently the surgery had no adverse events. It was not explained in the paper whether the injury to the bowel happened before renal puncture or through

transfixing the kidney. In the first case, the complication seemed unpredictable and inevitable. Perhaps the anatomical variation could be known through a computed tomography, study usually not necessary before a percutaneous surgery. In the second case, if the injury of the loop occurred after transfixing the kidney, it would be a technical defect.

In supra-costal punctures, the most frequent complications are pleural.

Didactically there are 3 types of renal punctures in percutaneous surgery: posterior (vertical) puncture, oblique puncture (at the posterior axillary line) with patient in prone position, and Valdivia-Úria lateral, also at the posterior axillary line, however the patient is in supine position, slightly obliquely. I agree with the authors that the posterior vertical puncture is the one which offers less risk, however this complication is so infrequent that it does not warrant warning against one or other access. Another advantage of the posterior puncture is that it offers better

tri-dimensional notion. Generally, in oblique and lateral puncture, we work with the fluoroscope only in anteroposterior position (bi-dimensional image), making difficult depth evaluation.

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