

A Rare Complication During Percutaneous Peritoneal Dialysis Catheter Insertion: Intravesical Placement

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Peritoneal dialysis (PD) is one of the treatment options for patients with end-stage renal failure. To start PD treatment, a catheter must be placed for access to the abdominal cavity, and it can be placed using surgical, laparoscopic, or percutaneous methods. However, complications can develop during catheter placement.

In the present case report, we describe a patient in whom treatment was pursued after an unusual complication rarely mentioned in the literature: a dialysis catheter accidentally inserted percutaneously into the bladder. Under ultrasonography guidance, the catheter was pulled from the urinary bladder and pushed into the intra-abdominal cavity. No complications resulted from the procedure, and the patient proceeded to PD treatment. This case is, to our knowledge, the only such report in the literature.

Key words

Catheter placement, complications, urinary bladder

Introduction

Peritoneal dialysis (PD) is one of the current options for renal replacement therapy in patients with chronic renal failure (1,2). The methods used to place a PD catheter (3,4) include a percutaneous method (Seldinger trocar technique for the Tenckhoff catheter) and surgical methods (open surgery, laparoscopic, presteral, Moncrief–Popovich technique). Complications that can develop with catheter placement include organ perforation (colon perforation, bladder perforation), perforation of the vascular structures, and placement of the catheter in the anterior peritoneum (5). In this case report, we discuss a patient whose peritoneal

catheter, inserted by the percutaneous method, was accidentally placed into the bladder instead of the abdominal cavity. The catheter was subsequently pushed into the abdominal cavity using a percutaneous ultrasonography-guided procedure.

Case description

A 64-year-old man being followed by our services for coronary artery disease, hypertension, and hypertensive nephropathy developed a need for dialysis, and PD was chosen for his modality. A PD catheter was inserted in a percutaneous procedure.

The day after the procedure, the patient reported an urgent need for urination when his abdomen was filled with dialysate. The glucose level in his urine was then checked because of a suspicion that the catheter had been placed in the bladder, and abdominal computed tomography was performed to visualize the region. The urine test showed a glucose level of 774 g/dL, and the imaging revealed that the PD catheter had crossed the bladder wall and reached the lumen (Figure 1). Under ultrasonography guidance, the peritoneal catheter was retracted out of the bladder lumen and released into the abdomen through the sutures used in the previous procedure (Figure 1). After catheter revision, the patient's PD was restarted, and treatment proceeded without any problems.

Discussion

Complications can occur during insertion of a PD catheter, and the incidence rates of those complications vary. Infectious and mechanical complications can be observed. Mechanical complications can include catheter obstruction, peritoneal fluid leak, ventral and inguinal hernia, hemorrhage at the catheter exit site, catheter malposition, and intra-abdominal organ injury. Bladder perforation is one of the rarest complications.

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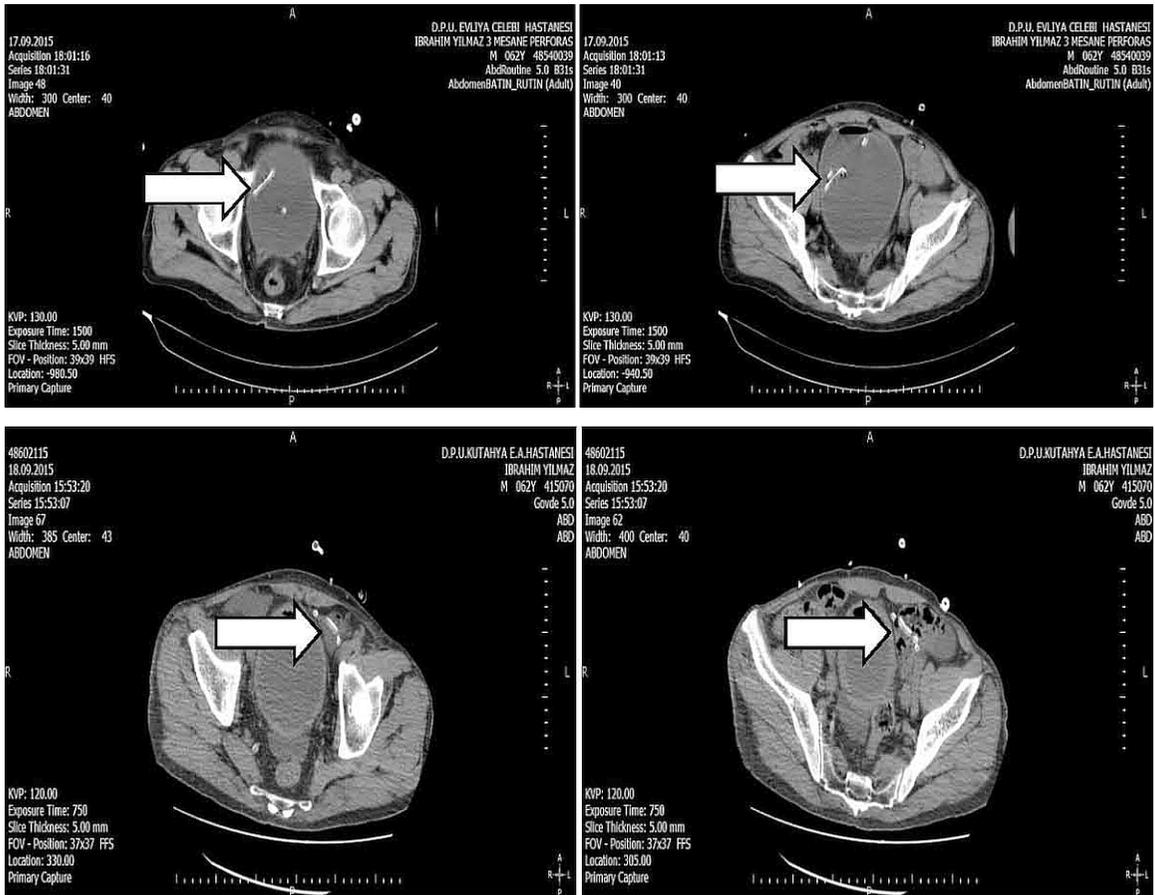


FIGURE 1 In abdominal computed tomography images, the catheter is seen within the bladder (upper panel), and outside the bladder after the revision procedure (lower panel).

Patients with bladder perforation usually present with a sudden sensation of distension when the inflow of PD solution begins (6). This complication is usually the result of the accidental insertion of the PD catheter into the bladder. The bladder is not completely emptied before the procedure in patients whose bladder sensation is not good, such as in neurogenic bladder. If the location of the catheter is not shown radiologically, a diagnosis can be delayed. In 1993, Bamberger *et al.*, Ounissi *et al.*, and Moreiras *et al.* all reported cases of bladder perforation during placement of a PD catheter (7–9); two of the cases involved a diabetic patient. An empty bladder and the presence of peritoneal adhesions in the abdomen secondary to an abdominopelvic surgical history, although not yet certain, are suggested as the predisposing factors (8,9).

In our case, no pain, hemorrhage, or hematuria developed in the patient. Upon early diagnosis, this rare complication was repaired without surgery by an ultrasonography-guided withdrawal procedure. Subsequently, the patient started PD without any problems. To our knowledge, this is the only such case report in the literature.

Disclosures

We understand that *Advances in Peritoneal Dialysis* requires disclosure of any conflicts of interest, and we declare that we have no conflicts to disclose.

References

- 1 Wasse H. Factors related to patient selection and initiation of peritoneal dialysis. *J Vasc Access* 2017;18(suppl 1):39–40.

- 2 Wearne N, Kilonzo K, Effa E, *et al.* Continuous ambulatory peritoneal dialysis: perspectives on patient selection in low- to middle-income countries. *Int J Nephrol Renovasc Dis* 2017;10:1–9.
- 3 Carpenter JL, Fallon SC, Swartz SJ, *et al.* Outcomes after peritoneal dialysis catheter placement. *J Pediatr Surg* 2016;51:730–3.
- 4 Jalandhara N, Balamuthusamy S, Shah B, Souraty P. Percutaneous peritoneal dialysis catheter placement in patients with complex abdomen. *Semin Dial* 2015;28:680–6.
- 5 Bargman JM. Noninfectious complications of peritoneal dialysis. In: Khanna R, Krediet RT, eds. *Nolph and Gokal's textbook of peritoneal dialysis*. 3rd ed. New York, NY: Springer Science and Business Media; 2009: 571–609.
- 6 Ekart R, Horvat M, Hojs R, Pecovnik-Balon B. An accident with Tenckhoff catheter placement: urinary bladder perforation. *Nephrol Dial Transplant* 2006;21:1738–9.
- 7 Bamberger MH, Sullivan B, Padberg FT Jr, Yudd M. Iatrogenic placement of a Tenckhoff catheter in the bladder of a diabetic patient after penectomy. *J Urol* 1993;150:1238–40.
- 8 Ounissi M, Sfaxi M, Fayala H, *et al.* Bladder perforation in a peritoneal dialysis patient. *Saudi J Kidney Dis Transpl* 2012;23:552–5.
- 9 Moreiras M, Cuiña L, Rguez Goyanes G, Sobrado JA, Gil P. Inadvertent placement of a Tenckhoff catheter into the urinary bladder. *Nephrol Dial Transplant* 1997;12:818–20.

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