Intestinal Obstruction—An Unusual Complication of Peritoneoscopic Tenckhoff Catheter Insertion

Editor:

Continuous ambulatory peritoneal dialysis (CAPD) is a widely accepted and effective method of renal replacement therapy (RRT) in end-stage renal disease. The Tenckhoff catheter can be inserted by various means. In our center, we use the peritoneoscopic method, performed by the physician.

There are a number of well-recognized complications of Tenckhoff catheter insertion—namely, peritonitis, catheter migration, hemoperitoneum, and rarely, intestinal obstruction (1). Here, we share our experience of an instance of acute intestinal obstruction after Tenckhoff catheter insertion.

A 54-year-old man had presented with stage 5 chronic kidney disease (estimated glomerular filtration rate: 6 mL/min) secondary to diabetic nephropathy. He opted

for CAPD and underwent peritoneoscopic insertion of a Tenckhoff catheter (double-cuffed, coiled) using the Y-Tec peritoneoscope (CardioMed, Lindsay, ON, Canada) with the use of the VP-210 STD Disposable Pac (CardioMed). The placement site for the Tenckhoff catheter was well visualized using the peritoneoscopic method. Intraoperatively, no complications were encountered, and good inflow and outflow of dialysate was achieved.

The patient experienced a short period of leakage from the exit site in the immediate postoperative period that settled after 3 days. He was given a week's course of oral cephalosporin to prevent peritonitis. However, he became unwell 2 days after catheter insertion, experiencing abdominal discomfort beginning on the 2nd postoperative day. The frequency of bowel opening declined, but he refused stool softeners and enemas. He also experienced vomiting.

On examination, the patient's vital signs were stable, with no abdominal tenderness and audible bowel sounds. A rectal examination revealed an empty rectum. On the 3rd postoperative day, abdominal radiography (Figure 1) showed the Tenckhoff catheter *in situ*, with no gross features of intestinal obstruction save for a short loop of prominent small bowel.

Figure 1 — Initial abdominal radiograph on the 3rd postoperative day shows a small loop of dilated small bowel (arrow).

The patient continued to have excessive upper gastrointestinal fluid loss. A nasogastric tube was inserted, draining 1000 mL on the 3rd postoperative day. He was reviewed by the surgical team and kept under observation. He was regularly hemodialyzed using an internal jugular catheter.

Against medical advice, the patient opted to be discharged on the 8th postoperative day. Unfortunately, he returned 2 days after discharge, with florid features of intestinal obstruction. He had had no bowel opening, and he was vomiting profusely and experiencing abdominal pain and distention. Abdominal radiography revealed gross dilation of the small bowel (Figure 2). The catheter was *in situ*. Subsequent abdominal computed tomography revealed small-bowel obstruction secondary to coiling of the Tenckhoff catheter in the lower abdomen (Figure 3).

Laparotomy was performed on the 14th postoperative day. Intraoperatively, the proximal small bowel was noted to be grossly dilated, with the transition zone found at 100 cm from the duodenojejunal junction because of internal herniation through the mesosigmoid colon defect. The Tenckhoff catheter was looping around a

Figure 2 — Repeat abdominal radiograph on the 10th postoperative day shows features of small-bowel obstruction.

Figure 3 — Computed tomography shows the Tenckhoff catheter (white arrow) entwining the small bowel, with dilated small bowel proximal to the obstruction (large black arrow) and collapsed small bowel distal (small black arrow).

section of strangulated small bowel. The affected bowel appeared dusky. A serosal tear was also noted in the small bowel 95 cm from the duodenojejunal junction. The internal herniation was released, and the obstructed small bowel decompressed. On assessment, the small bowel was deemed viable. The mesosigmoid defect and serosal tear were repaired, and the Tenckhoff catheter was removed.

The patient recovered well postoperatively. He was no longer vomiting, and he was tolerating oral intake and experiencing normal bowel openings. He was discharged well on the 2nd post-laparotomy day, and he continued performing regular hemodialysis using his internal jugular catheter. On follow-up at the nephrology clinic, the patient opted to perform hemodialysis as long-term renal replacement therapy.

Complications after Tenckhoff catheter implantation can be categorized as early or late. Early complications are those that occur within 30 days after implantation, and they include peritonitis, catheter malfunction, leak,

and perforated viscus (2). Late complications (more than 30 days after implantation) include infections, catheter migration, and hernias (2). Acute intestinal obstruction after Tenckhoff insertion is by no means a common complication. Reported causes include severe peritoneal adhesions (3) and occasionally an incisional hernia at the site of catheter insertion (4,5). The mechanism described in this case, with the Tenckhoff catheter entwining the small bowel, has thus far not been extensively reported. Intestinal obstruction after insertion of an Oreopoulos catheter by the open method has previously been reported (6), but that complication occurred after a year on CAPD. We believe that the present case is the first reported of acute obstruction after peritoneoscopic insertion of a double-cuffed coiled catheter.

This case is presented for its rarity and to highlight the need to keep all potential complications in mind and to take necessary precautions to prevent them, even though peritoneoscopic catheter insertion is safe. Despite the rarity of intestinal obstruction as a complication, our case illustrates that, after initial conservative measures have been unsuccessful, surgical intervention can prevent untoward incidents.

DISCLOSURES

The authors have no financial conflicts of interest to declare.

S. Sivathasan*
L. Mushahar
W.S. Yusuf

Department of Nephrology
Hospital Tuanku Ja'afar Seremban
Seremban, Malaysia

*email: sudha123@hotmail.com

REFERENCES

1. Shenouda AN, Puckett W, Burns R, Miller FJ. Acute intestinal obstruction complicating CAPD. *Perit Dial Int* 1982; 1:49.
2. Asif A. Peritoneal dialysis access-related procedures by nephrologists. *Semin Dial* 2004; 17:398–406.
3. Cooles P, Power DA, Krukowski ZH. Small bowel obstruction secondary to recurrent peritonitis. A fatal complication of chronic ambulatory peritoneal dialysis. *J R Coll Surg Edinb* 1985; 30:206–7.
4. Madden MA, Beirne GJ, Zimmerman SW, Sollinger H. Acute bowel obstruction: an unusual complication of chronic peritoneal dialysis. *Am J Kidney Dis* 1982; 1:219–21.

5. Jorkasky D, Goldfarb S. Abdominal wall hernia complicating chronic ambulatory peritoneal dialysis. *Am J Nephrol* 1982; 2:323–4.
6. Kanagasundaram NS, Fletcher S, Gupta S, Davison AM.

Acute small bowel obstruction following mesenteric perforation by CAPD catheter. *Nephrol Dial Transplant* 1997; 12:599–600.

doi:10.3747/pdi.2012.00332