A Rare Complication of Peritoneal Dialysis Catheter Placement in Child: Urinary Bladder Perforation

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Abstract

Continuous ambulatory peritoneal dialysis (CAPD) placement is not free from complications. The most common are infectious, however mechanical and technical problems must be considered. Here we report a rare case of perforation of the urinary bladder after PDC placement, which occurred in an 8-year-old girl with previous abdominal surgeries and repaired by laparoscopic approach.

Keywords: Peritoneal Dialysis; Catheter; Complication; Bladder Perforation

Introduction

Continuous ambulatory peritoneal dialysis (CAPD) is one of the most widely used end-stage renal failure therapies [1]. Since the introduction of CAPD, 4 methods have been advocated for the placement of peritoneal dialysis catheters (PDC): open, percutaneous, peritoneoscopic, and laparoscopic placement surgery [2]. These techniques are associated with multiple complications such as peritonitis, tunnel infections, catheter migration, malposition, etc. An important group of these complications is related to the insertion of the catheter [3] and are more common in patients with past abdominal surgery compared to those without [4]. Here we report a rare case of perforation of the urinary bladder after PDC placement.

Case Report

An 8-year-old girl had end-stage renal disease due to a reflux nephropathy treated by peritoneal dialysis since 2014. Three years later she was operated for appendicular peritonitis and the catheter was removed. One month later, a second catheter was implanted by left transverse incision. At 3rd day post-operative she presented hematuria and abdominal pain. An abdominal ultrasound was performed showing an intravesical dialysis catheter with intra peritoneal effusion (Figure 1). The girl had undergone a laparoscopic approach which confirmed the bladder perforation (Figure 2). The defect was repaired with verification of the bladder tightness. The catheter was positioned at the pouch of Douglas and its permeability was verified. The postoperative course was uneventful.

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**Discussion**

Peritoneal dialysis is a suitable modality of renal replacement therapy in the setting of end-stage kidney disease. The use of this modality became widespread, following the introduction of continuous ambulatory peritoneal dialysis [5]. Its insertion is associated with significant surgical morbidity [3]. The most common are infectious, however mechanical and technical problems must be considered [6]. Complications can be classified into early (occurring within 30 days from insertion) and late (occurring after 30 days from insertion) [7].

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Using the laparotomy, these early complications are more common in patient with past abdominal surgery (41.9% versus 26.4%) [4]. Perforation of bladder is an early complication. To the best of our knowledge, only 4 cases have described a bladder perforation related to PDC placement in children [8]. Although the clinical presentation was variable [3]. The occurrence of abdominal pain, dysfunction of the catheter with the appearance of urinary signs should indicate a bladder perforation like in our experience. The abdominal ultrasound can show an intravesical dialysis catheter in our cases.

The surgical management is urgent either by laparoscopic approach or laparotomy. The laparoscopic approach to peritoneal dialysis is becoming more popular because of its advantage [4]. The major advantage is facilitating a partial omentectomy or adhesiolysis during the initial catheter placement. Approximately 80% of patients who have had previous abdominal operations have adhesions between the omentum and abdominal wall, with 20% having involvement of the small intestine [7].

In our case to reach an open area we have selected the other side of the abdomen and the placement of the CPD was by left transverse incision.

The surgical treatment consisted of closing the defect and repositioning of the catheter. It must keep the bladder probe for the bladder healing and PD remains possible. As in the case presented above we can explain this complication by previous abdominal surgery, past history of peritonitis, neurogenic bladder, narrowness of the abdominal cavity in children and full bladder on the insertion of the PD catheter [9].

Conclusion

Bladder perforation is a rare complication of placing a peritoneal dialysis catheter and the diagnosis must be suspected in the presence of urinary signs. The placement of a bladder probe, the laparoscopic approach can be helpful to avoid these complications even among patient with past abdominal surgery.

Bibliography


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