Abdominal Pseudocyst Development in a Peritoneal Dialysis Patient With a Ventriculoperitoneal Shunt: An Indication for Switch to Hemodialysis?

Editor:

A ventriculoperitoneal shunt (VPS) is one of the therapeutic approaches in patients with hydrocephalus. Patients may rarely require a VPS and renal replacement therapy concurrently (1). Although some concerns may arise about the safety of peritoneal dialysis (PD), it is not accepted as a contraindication in patients with a VPS (2,3). An abdominal pseudocyst is a rarely observed but potentially serious complication of a VPS. The exact pathogenesis is unknown but thought to be secondary to infection or inflammatory response (4–6). We report a PD patient with a VPS complicated by an abdominal pseudocyst which was not previously reported in PD patients.

A 22-year old female patient was admitted to the hospital with nausea, vomiting and abdominal distension. Her past medical history revealed that a VPS had been

implanted when she was 2 months old; she had been followed without any complication such as central nervous system infection or shunt malfunction afterwards and no shunt revision had been required. She also had chronic kidney disease secondary to a neurogenic bladder and started PD at the age of 17. This modality had probably been chosen because of the absence of optimum vascular access due to severe physical developmental retardation. She had been under PD treatment for 5 years. She had 3 peritonitis episodes that were treated with intravenous and intraperitoneal antibiotics. None of the peritonitis episodes were complicated with central nervous system infection. The patient had been switched to hemodialysis 3 months before presentation because of multiple peritonitis and poor drainage, which was probably related to post-peritonitic adhesions. On current admission, the patient's general condition was good and she was afebrile. Severe physical developmental delay was evident. There were severe abdominal distention and decreased bowel sounds without abdominal defense or rebound. The patient's blood urea was 111 mg/dL, creatinine 6.8 mg/dL, hemoglobin 8.6 g/dL, white blood cell 4300/mm³, albumin 2.9 g/dL and c-reactive protein 18.3 mg/L. Abdominal ultrasonography revealed massive intra-abdominal fluid with septations. Abdominal computerized tomography confirmed this lesion as an approximately 20 x 30 cm pseudocyst with internal septae and a thick wall (Figure 1). There were no white or red blood cells in the microscopic examination of the fluid and no pathogenic microorganism was grown in the fluid culture. The patient was treated with a drainage catheter and 5.5 liters of xanthochromatic fluid was drained. The patient was discharged from the hospital in an extremely good general condition.

This patient with a VPS did not require shunt revision for 22 years. However, complications arose from an abdominal pseudocyst after initiation of PD, probably

Figure 1 — Abdominal computerized tomography imaging demonstrating a pseudocyst of approximately 20×30 cm with septae and a thick wall.

due to multiple peritonitis episodes. One of the most common complications of a VPS is shunt infection (7). According to the report of the International Pediatric Peritoneal Network (IPPN), 1 in 153 (0.6%) patients under PD had a simultaneous VPS (2). Peritoneal dialysis is not strictly contraindicated in patients with a VPS. In the IPPN report, a single patient had developed both a VPS infection and an episode of peritonitis but these had been reported temporally unrelated (2). In another review of the literature, no relation between a VPS infection and peritonitis was reported (3). Similarly, we did not observe simultaneous shunt infection or shunt insufficiency although the patient suffered peritonitis 3 times. The etiology of abdominal pseudocyst may be peritonitis episodes, inflammatory response, previous shunt infections and shunt revisions which may result in peritoneal adhesions and/or scarring, subclinical, sterile peritonitis secondary to the proteinaceous content of the cerebrospinal fluid, or delayed immunological reaction to the shunt material (4–6). Recurrent peritonitis episodes might have contributed to abdominal pseudocyst formation in this patient. Although a single peritonitis episode may not necessitate conversion to hemodialysis, closer monitoring of catheter functions and consideration of abdominal ultrasonography 6 – 12 months following an episode of peritonitis may be appropriate to detect an abdominal pseudocyst at an early stage. In conclusion, PD may be an option in patients with a VPS; however, they should be closely monitored for complications.

DISCLOSURES

The authors have no financial conflicts of interest to declare.

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doi: 10.3747/pdi.2013.00069