Acute Pneumoperitoneum in a Patient on Nocturnal Intermittent Peritoneal Dialysis

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Dear Sir,

Acute complications related to the use of cycler-assisted peritoneal dialysis techniques have been rarely reported [1]. We present the case of a patient on nocturnal intermittent peritoneal dialysis (NIPD) who acutely developed pneumoperitoneum. The patient is a 33-year-old woman who has been in chronic dialysis for 17 years. In 1994, she switched to NIPD with the cycler PCS 2000 (Fresenius, Oberwursel, Germany). After being properly trained, she had an uneventful 1st week with this technique. On the night of the 8th day on NIPD, when the cycler was dwelling the third exchange, she was suddenly awakened by acute abdominal pain and dyspnea. She did not complain of nausea or vomiting. The dialysis was interrupted due to the machine sensing high intra-abdominal pressure. She disconnected the system from the cycler and drained a peritoneal fluid with no macroscopic abnormalities. However, her condition did not improve and she went to the hospital. At her arrival, blood pressure was 140/70 and temperature 36.5°C. The lungs and the heart were normal, but the abdomen was bloated, tympanic, and showed diffuse tenderness on deep compression. Bowel sounds were present. The peritoneal catheter was closed, without signs of exit-site inflammation. The complete blood count and serum electrolytes and pH were normal. An X-ray film of the chest disclosed an air shadow of more than 10 cm in height. At this time, the peritoneal catheter was connected to sterile empty bags, draining spontaneously 5 liters of air, with immediate relief of the symptoms. No abnormalities were found in the cycler. However, on further questioning, the patient realized that she had failed to connect the line of the last bag to its assigned clamp. As the patient remained free of peritoneal fluid during the day (NIPD dry), the last bag line remained opened to the air, which entered into the abdominal cavity favored by the negative pressure created by the dialysis system. Four hours later, the cycler detected an increased indwelling pressure, and automatically stopped the procedure.

The finding of moderate radiologic pneumoperitoneum is relatively frequent in peritoneal dialysis patients after catheter placement or, rarely, related to peritonitis. Kiefer et al. [2] describe the existence of minimal, asymptomatic pneumoperitoneum in 33.4% of 101 patients. Suresh and Port [3] communicate 2 cases of patients on CAPD with severe pneumoperitoneum, due in one case to colonic perforation and in the other to a faulty technique that introduced air into the

abdomen. The development of acute pneumoperitoneum related to an incorrect use of cycler-assisted peritoneal dialysis has not been reported before.

The present report therefore communicates a complication related to NIPD that can potentially occur in other patients, whenever errors in the management of the cycler connections are made. According to our observation, acute pneumoperitoneum should be included in the differential diagnosis of abdominal pain in NIPD patients. Moreover, we think it would be interesting to consider the possibility of including a controlling device in the automatic cyclers that prevents the beginning of the dialysis procedure until all connections have been properly made.

References

Bargman JM, Oreopoulos DG: Complications other than peritonitis or those related to the catheter and the fate of uremic organ dysfunction in patients receiving peritoneal dialysis; in Nolph KD (ed): Peritoneal Dialysis. Dordrecht, Kluwer, 1989;pp 289-318. Kiefer T, Schenk U, Weber J, Hubel E, Kulhmann U: Incidence and significance of pneumoperitoneum in continuous ambulatory peritoneal dialysis. Am J Kidney Dis 1993;22:30-35.
Suresh KR, Port FK: Air under the diaphragm in patients undergoing continuous ambulatory peritoneal dialysis (CAPD). Perit Dial Int 1989;9:309-311.

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