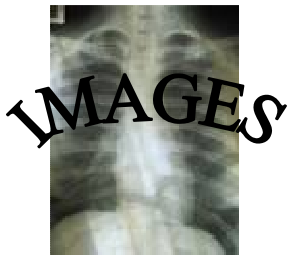
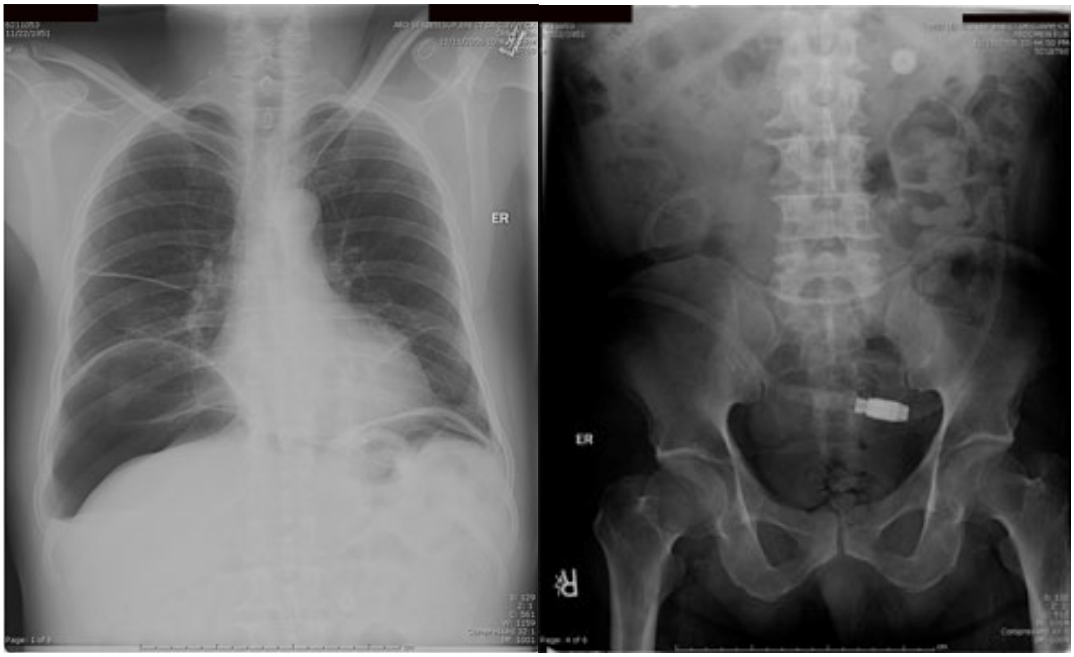


Pneumoperitoneum Complicating Peritoneal Dialysis Catheter

Bassem M. Chehab, M.D.
William J. Salyers, M.D.
University of Kansas School of Medicine-Wichita
Department of Internal Medicine



A 55-year-old male presented with progressively worsening nausea over a one-year period. It began when he started peritoneal dialysis for end-stage renal disease. His nausea progressed to the point that he could not tolerate oral intake. He also had difficulty with exchanges, but the exchange fluid was clear. He denied any fever, chills, abdominal pain, change in bowel movements, hematochezia, or hematemesis.

The physical exam was unremarkable except for mild discomfort in the right lower quadrant. The peritoneal dialysis catheter was intact and appeared to be clean. The laboratory exam showed a normal white cell count and a negative peritoneal fluid culture. A KUB showed a large amount of free intra-peritoneal air. Further questioning of the patient revealed improper use of the peritoneal dialysis system as a cause of the pneumoperitoneum.

The prevalence and clinical significance of pneumoperitoneum in peritoneal dialysis (PD) patients is not defined fully in the current literature. Some reports suggested that, unlike in non-PD patients, it rarely is caused by gastrointestinal perforation.[1] Intestinal perforation can be ruled out by rapid clinical improvement with standard therapy, growth of Staphylococcus epidermidis in the peritoneal effluent culture, reduction of pneumoperitoneum after correction of the technical fault, and in contrast to the Gram-negatives and/or anaerobes usually found during bowel perforation.[2-3]

Computed tomography is more sensitive than x-ray film in detecting sub-diaphragmatic free air. No agreement exists whether the amount of sub-diaphragmatic air can differentiate bowel perforation from other causes of pneumoperitoneum. Opening the outflow tube and manual

compression of the abdominal wall might release air from the peritoneal cavity. The Trendelenburg position might facilitate air movement towards the intraperitoneal tip of the catheter and increase the effectiveness of abdominal compression.[1-2]

In conclusion, pneumoperitoneum occurs with a variable prevalence in PD patients, but rarely is related to bowel perforation. However, an aggressive examination is necessary for visceral perforation. Examination of the peritoneal effluent, the medical history, and the clinical picture help to avoid delay and unnecessary laparotomy. Once bowel perforation has been excluded, efforts must be made to find the cause of pneumoperitoneum and avoid its recurrence.

References

[1] Hussain S, Piraino B. Peritonitis associated with massive pneumoperitoneum from failure to flush. Perit Dial Int 1998; 18:80-82.

[2] Cancarini GC, Manili L, Cristinelli MR, Bracchi M, Carli O, Maiorca R. Pneumoperitoneum and pneumomediastinum in a CAPD patient with peritonitis. Perit Dial Int 1997; 17:389-391.

[3] Chang JJ, Yeun JY, Hasbargen JA. Pneumoperitoneum in peritoneal dialysis patients. Am J Kidney Dis 1995; 25:297-301.

Keywords: pneumoperitoneum, cutaneous, peritoneal dialysis, case report