Abdominal Wall Leakage on CAPD: Usefulness of Ultrasonography

J.	José	Portoles ^a
F.	Francisco	Coronel ^a
T.	Tomás	Ganado ^b

^aNephrology Service and ^bRadiology Department, Hospital Universitario San Carlos, Madrid, Spain

Dr. Francisco Coronel, Servicio de Nefrología, Hospital Universitario San Carlos, Plaza de Cristo Rey s/n, E-28040 Madrid (Spain)

Dear Sir,

Extraperitoneal leakage of dialysate fluid is a common problem in patients undergoing CAPD [1]. Previous studies report the usefulness of CT peritoneography [1, 2] in the diagnosis of these problems. We present here a case to demonstrate the risk of complications due to peritoneography and the role of ultra-sonographic techniques.

A 69-year-old woman with end-stage renal disease due to interstitial damage was put on CAPD in October 1990. In July 1992, the catheter was removed after exit site infection resistant to antibiotic treatment. Six months later, a Staphylococcus aureus peritonitis was treated with an uncomplicated course. One month later, dialysis balance was progressively decreasing, with acceptable biochemical values. Body weight increased, and an abdominal wall edema appeared, no pericatheter leakage could be demonstrated. Ultrasonography was performed to detect the leakage. Ultrasonography showed abdominal wall fluid collection (near the site of catheter insertion) probably due to peritoneal leakage (fig. 1a). With this finding, a CT scan was performed with 50 ml of nonionic contrast media (Omnitrac-Schering) infused together with one liter of dialysate through the peritoneal catheter; contrast media was observed to pass into the anterior abdominal wall around the albus lineae, entering a big abdominal hernia (fig. 1b). Once the leakage had been demonstrated, surgical correction was decided, and the patient was included temporarily in the hemo-dialysis program. Forty eight hours after peritoneography, the patient was admitted into hospital with fever and abdominal pain. Peritonitis was established. Peritoneal drainage

Fig. 1. a Abdominal wall ultrasonography (longitudinal image): abdominal wall fluid collection near the site of catheter insertion, probably due to peritoneal leakage; b CT peritoneography: After contrast injection through the peritoneal catheter, contrast could be observed in the anterior abdominal wall around the albus lineae.

©1995 S. Karger AG, Basel 0028-2766/95/0693-0348 \$8.00/0

showed 900 cells/mm³ and gram stain showed no germs. Conservative management with antibiotics and frequent drainage was started. A bad clinical course led us to perform urgent surgery with presumptive diagnosis of chemical peritonitis. Correction of the abdominal wall and removal of the catheter was performed. Bacterial and fungal infection was excluded because of

negative cultures. Patient preference led us to maintain her on hemodialysis. Today (5 months later) she is still in a hemodialysis program with an acceptable clinical course and without any abdominal problems.

Extraperitoneal leakage of dialysate is a common problem in CAPD patients [1,2], inappropriate balance, frequent infection, and other clinical evidence could lead us to suspect it. Previous reports in the literature postulate CT peritoneography with contrast injection into the peritoneal cavity through a

catheter [1,2] as the only diagnostic measurement in leakage problems. Anyway, ultrasonography seems to be forgotten in the routine diagnostic procedure [3]. In this case, ultrasound images were very demonstrative and led us to the right diagnosis. CT peritoneography was performed as suggested by our protocol (like others), with strict aseptic measures, and using a low-osmolar nonionic contrast medium. Other authors report no complications with this procedure [1]. CT scan images confirm the diagnosis and give us useful data for surgery, but at the cost of an important complication such as chemical peritonitis. The use of ultrasound techniques on leakage problems is quick, safe, and appreciably more economic than CT scan [4]. Carefully guided ultrasonography must be used in all cases prior to invasive techniques with higher costs, and a risk of serious complications.

References

Hollett MD, Mann CHS, Ellis JH, Francis IR, Swartz RD: Complication of CAPD: Evaluation with CT peritoneography. *Am J Radiol* 1992; 154:983-989.

Renzo S, Beatrice D, Giuliano R, Francesco C: Peritoneal X-ray and computerized tomography in evaluation of abdominal complications in CAPD. *Adv Periton Dial* 1990;6:62-63.

Litherland J, Gibson M, Sambrook P, Lipton E, Beaman M, Ackrill P: Investigation and treatment of poor drains of dialysate fluid associated with anterior abdominal wall leaks in patients on CAPD. *Nephrol Dial Transplant* 1992;7: 1030-1034.

Holley JL, Foulk CJ, Moss AH, Willard D: Ultrasound as a tool in the dialysis and management of exit-site infection in patients undergoing CAPD. *Am J Kidney Dis* 1989; 14:211-216.