Green dialysate: asymptomatic perforated cholecystitis without peritonitis

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Case

In peritoneal dialysis, the effluent dialysate is the window of the peritoneal cavity and usually allows for a rapid diagnosis of peritonitis and abdominal drama [1]. To our knowledge, there is only one reported case of perforation of the gallbladder in a patient on peritoneal dialysis with gram negative peritonitis [2]. We describe a case of asymptomatic perforated cholecystitis without peritonitis in a patient on continuous ambulatory peritoneal dialysis.

A 53-year-old male patient with type 1 diabetes, on peritoneal dialysis for 8 years, came to the dialysis clinic because of green dialysate. During the previous month, he had noticed black particles in his dialysate. He denied any abdominal pain, nausea, vomiting or anorexia. A cellular count and culture of the dialysis fluid were normal the week prior. The patient looked well, had normal blood pressure and normal temperature; the abdominal exam was unremarkable. Upon examination, the bag of dialysate was indeed dark green (Figure 1). Blood chemistry showed a white cell count of $12.5 \times 10^9/l$, a total bilirubin level of $27 \mu mol/l$ ($N = 3–17$) (indirect 23), a GGT level of $82 U/l$ ($N = 7–32$), an alkaline phosphatase activity of $431 U/l$ ($N = 32–120$) and normal AST, ALT, amylase and lipase levels. The peritoneal fluid showed $46 \times 10^9/l$ nucleated cells and a total bilirubin level of $10 \mu mol/l$. Peritoneal fluid culture was again negative. A Tc99m-disofenin (IDA) cholecysto-scintigram did not show any direct biliary leak but the bag of dialysate did reveal a significant level of radioactivity, suggesting the passage of bile into the peritoneal cavity (Figure 2). An abdominal computed tomography scan revealed a gallbladder with thickened walls without free air but no signs of bowel perforation.
The patient had a surgical consultation and immediate exploratory surgery was recommended. He initially refused the procedure, but changed his mind 2 days later. During these 2 days, he still had no abdominal pain or fever and he kept eating normally. The effluent was still green with total bilirubin level of 16 μmol/l and a white cell count of 96 × 10⁹/l (54% neutrophils). An endoscopic retrograde cholecystopancreatography was done prior to surgery but the biliary tree could not be visualized. An exploratory laparoscopy revealed a perforated necrotizing cholecystitis and an open cholecystectomy was performed. The patient did well following the surgery except for a prolonged ileus and nosocomial pneumonia. He was switched to haemodialysis for 1 month before uneventfully resuming peritoneal dialysis.

Discussion

In peritoneal dialysis, an abnormal effluent dialysate is often the first sign of peritonitis and is an efficient tool for early diagnosis. In the context of peritoneal dialysis, it has been reported that anatomically documented visceral injury has an incidence rate of 0.1048 per patient-year [3]. Although multiorganism peritonitis is highly suggestive of an enteric origin, culture results can take up to 48 h to obtain. Peritonitis caused by visceral perforation has a much worse prognosis [3,4] and requires immediate surgical treatment. In a recent case report by Scarborough et al., the authors proposed using peritoneal fluid bilirubin levels as a bedside tool for diagnosis of visceral perforation [5]. Their patient, however, had a classical presentation of peritonitis with abdominal pain and elevated white cell counts in the peritoneal fluid. In our report, the patient denied any symptoms and his physical exam was normal. Most importantly, he had green dialysate effluent for nearly one week with two negative cultures of the peritoneal fluid. Left untreated, the patient would have developed peritonitis. The colour of the dialysate was almost the only clue to a diagnosis of perforated cholecystitis in an otherwise asymptomatic patient.

We conclude that green dialysate, even in an asymptomatic patient without peritonitis, warrants immediate investigation in order to prevent more serious and life-threatening complications.

Conflict of interest statement. None declared.

References


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