

Unexpected FDG-PET Scan Finding in an ESKD Patient with Weight Loss

Eléonore Ponlot¹ and Eric Goffin²

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Case Description

A 58-year-old man with HIV infection, chronic heavy alcohol consumption, ESKD secondary to tenofovir toxicity, and who was on continuous ambulatory peritoneal dialysis (PD) for 5 years was prescribed an elective fluorodeoxyglucose–positron emission tomography (FDG-PET) scan because of a 6-month history of significant weight loss in a context of acute alcoholic hepatitis.

At admission for the scan, the patient mentioned a 5-day history of a PD drainage problem: he could easily infuse high volumes of dialysate through the PD catheter but could not drain anything despite multiple daily attempts, a finding confirmed in the unit. At clinical examination, the patient was afebrile with asymptomatic abdominal tenderness, and no rebound. The PD catheter exit site and tunnel had no erythema, tenderness, or purulent drainage. Plain abdominal X-ray indicated that the PD catheter had migrated into the right upper abdominal area. The FDG-PET scan disclosed increased and diffuse metabolic activity in both the parietal and visceral peritoneum (Figure 1A), but no other significant abnormality. Forceful syringe aspiration through the catheter and mobilization of the patient resulted in successfully obtaining a 5-ml sample of cloudy dialysate effluent (white cell count, $54 \times 10^6/\mu\text{l}$; 75% polymorphonuclear neutrophilic cells) consistent with acute infectious peritonitis (Figure 1B). Because we were unable to mobilize the PD catheter, it was removed surgically. Dialysate effluent and catheter culture grew *Staphylococcus aureus*; treatment with vancomycin led to subsequent good clinical and biologic evolution.

Peritonitis is the main complication of PD and is associated with increased morbidity and mortality. It may also lead to functional and structural peritoneal membrane alterations (1–2). Adequate management with prompt prescription of broad-spectrum antibiotics followed by targeted antibiotics after culture results should lead to rapid resolution of the inflammation and preservation of the functioning of the peritoneal membrane. Patients with PD peritonitis usually present with cloudy effluent and/or abdominal pain. Diagnosis is made by PD fluid analysis showing a white blood cell count of $>100/\mu\text{l}$ with at least 50% polymorphonuclear neutrophilic cells, and microbe identification within the dialysate effluent culture (1). In the

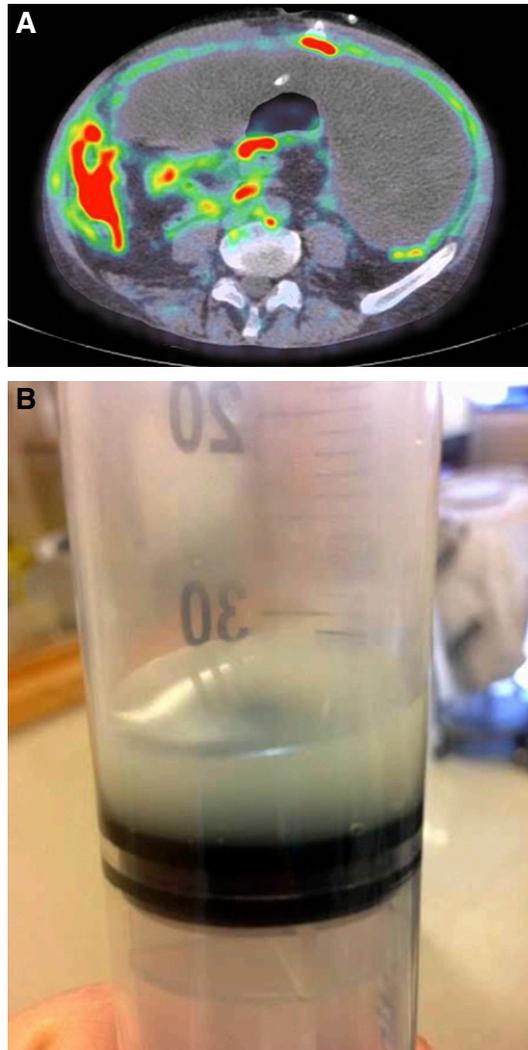


Figure 1. | PET scan findings and Peritoneal Dialysis effluent aspect. (A) Fluorodeoxyglucose–positron emission tomography scan discloses increased and diffuse metabolic activity in both parietal and visceral peritoneum. No other significant abnormality can be seen. (B) Cloudy dialysate effluent (white cell count, $54 \times 10^6/\mu\text{l}$; 75% polymorphonuclear neutrophilic cells) from a patient with peritoneal dialysis consistent with acute infectious peritonitis.

¹Grand Charleroi Hospital, Brussels, Belgium

²St Luc University Hospital, Brussels, Belgium

Correspondence: Prof. Eric Goffin, St. Luc Clinic University, Av Hippocrate 10, St Luc, Brussels, Belgium. Email: eric.goffin@uclouvain.be

case of catheter migration with the patient's repeated attempts to drain the peritoneal cavity, touch contamination and subsequent intraluminal dissemination of the microbe within the PD catheter is likely to be the source of the infection (1).

In this case we took advantage of an FDG-PET scan performed for another reason (checkup for weight loss in the context of acute alcoholic hepatitis) to observe severe inflammation and thickening of the peritoneal membrane, suggestive of acute peritonitis in a patient who had PD drainage problems.

Obviously, our message is not to recommend FDG-PET scanning as a diagnosis tool for PD peritonitis but rather to illustrate how acute peritonitis presents at PET scan imaging.

Teaching Points

- Acute infectious peritonitis is the main complication of PD.
- PD catheter migration may be associated with an increased risk of infectious peritonitis, mainly after repeated inadequate attempts to drain the peritoneal cavity are performed.
- FDG-PET scan disclosed increased and diffuse metabolic activity in both parietal and visceral sheets of the peritoneum in a patient with acute bacterial peritonitis and a nondraining catheter.

Disclosures

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Author Contributions

E. Goffin reviewed and edited the manuscript; E. Ponlot wrote the original draft; and E. Ponlot and E. Goffin took care of the patient.

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