Sterile Peritonitis Because of Splenic Infarction in a Patient on Peritoneal Dialysis: An Unusual Presentation

Editor:

Peritonitis is a known and serious complication encountered by patients on peritoneal dialysis (PD). Patients usually present with fever, abdominal pain, and cloudy effluent (1). Most cases are infective in origin, but in 5% – 20% of cases, no micro-organisms can be identified. Such cases are referred to as “culture-negative” or “sterile” peritonitis (2). In rare instances, noninfective causes such as inflammation of intraperitoneal and juxtaperitoneal organs—for example, the pancreas and spleen—can produce a clinical picture mimicking bacterial peritonitis, leading to a delay in diagnosis and unnecessary exposure of patients to antibiotics.

CASE DESCRIPTION

A 66-year-old white man with end-stage renal disease on PD was admitted with a 2-day history of gradual-onset diffuse abdominal pain accompanied by nausea, vomiting, and cloudy PD effluent. He also had a history of paroxysmal atrial fibrillation and ischemic cardiomyopathy with an ejection fraction of 15%. On admission, the patient’s electrocardiogram revealed atrial fibrillation, with a heart rate of 110 bpm. Despite the high risk of thromboembolism, he had refused anticoagulation in the past.

The PD effluent was cloudy, and effluent analysis revealed $1332 \times 10^6/\text{L}$ nucleated cells, with 90% neutrophils, consistent with peritonitis. Gram stain and effluent culture did not reveal any micro-organisms.

The patient was started on empiric intraperitoneal antibiotics for suspected infective peritonitis. During his hospitalization, the abdominal pain localized to the left upper quadrant, worsening with deep inspiration. In view of the persistent abdominal pain, computed tomography imaging of the abdomen and pelvis without contrast was performed to rule out intra-abdominal abscess.

The imaging study revealed a wedge-shaped hypodensity in the spleen, concerning for infarction rather than abscess (Figure 1). Subsequent ultrasonography showed sonographic features consistent with splenic infarction. Considering the patient’s atrial fibrillation and lack of anticoagulation, the infarction was considered to be cardioembolic in origin.

After a discussion of the results, antibiotics were discontinued, and the patient agreed to be initiated on anticoagulant therapy with warfarin.

DISCUSSION

Cloudy peritoneal effluent should always raise concern for infection, but as in our case, it can be secondary to noninfectious causes as well. The approach suggested by Teitelbaum (3) to classify effluent as cellular or non-cellular can aid in differentiating infectious and sterile episodes. Cloudy noncellular effluent is usually related to fibrin strands or elevated triglycerides. Cloudy cellular effluent can be either infectious or (rarely) noninfectious secondary to inflammation of various intraperitoneal or retroperitoneal organs such as the spleen, pancreas, or bowel. Contrast-enhanced computed tomography of the abdomen is the preferred imaging modality to evaluate

Figure 1 — Computed tomography image demonstrating a wedge-shaped hypodensity in the spleen, suggestive of splenic infarct.

for splenic infarction. We avoided contrast in our patient to preserve residual renal function. Although ultrasonography is considered inferior to contrast computed tomography imaging, it was helpful in distinguishing an infarct from an underlying abscess, as in our case.

CONCLUSIONS

Physicians need to be cognizant that noninfectious causes such as splenic infarction can clinically mimic infective peritonitis so that unnecessary exposure of patients to antibiotics can be avoided.

DISCLOSURES

The authors have no financial conflicts of interest to declare.

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doi:10.3747/pdi.2012.00139