

# A patient with acute myeloid leukemia who presented with peritonitis while on continuous ambulatory peritoneal dialysis

Yasemin Usul Soyoral<sup>a,\*</sup>, Huseyin Begenik<sup>a</sup>, Ramazan Esen<sup>b</sup>, Imdat Dilek<sup>b</sup>, Ahmet Cumhuri Dulger<sup>c</sup>, Levent Demirtas<sup>c</sup>, Reha Erkoc<sup>a</sup>

<sup>a</sup>Department of Nephrology, Medical Faculty, University of Yuzuncu Yil University, Van

<sup>b</sup>Department of Hematology, Medical Faculty, University of Yuzuncu Yil University, Van

<sup>c</sup>Department of Internal Medicine, University of Yuzuncu Yil University, Van

**Abstract.** Peritonitis is a common complication in patients on continuous ambulatory peritoneal dialysis. In some cases peritoneal fluid is unremarkable. In these instances, one must evaluate for other causes of gastrointestinal pathology or a myriad of other causes. We report an unusual case of acute myeloid leukemia who presented with peritonitis in a continuous ambulatory peritoneal dialysis patient.

Key words: Acute myeloid leukemia, continuous ambulatory peritoneal dialysis, peritonitis clinic

## 1. Introduction

Peritonitis is a common complication in patients on continuous ambulatory peritoneal dialysis (CAPD) (1). Symptoms and signs of peritonitis in peritoneal dialysis patients may include abdominal pain, cloudy abdominal fluid, fever, nausea, diarrhea, abdominal tenderness, rebound tenderness, and occasionally systemic signs, including hypotension (2). In some cases, the patient may have abdominal pain and physical examination findings localized to the abdomen, but the peritoneal fluid is unremarkable. In these instances, one must evaluate for other causes of gastrointestinal pathology such as constipation, irritable bowel, and ischemic bowel (3). A hematological disease such as acute promyelocytic leukemia (M3 AML) may cause fever and abdominal pain in CAPD patients due to lactic acidosis (4).

We report an unusual case of acute myeloid leukemia who presented with peritonitis in a CAPD patient.

## 2. Case report

A 59 year-old woman was admitted to the hospital because of abdominal pain, anorexia, generalized weakness and diffuse muscle pain. She had a history of chronic renal failure with unknown etiology and she had been treated with CAPD for five years.

On physical examination; the blood pressure was 130/80 mmHg and her temperature was 39.2 °C and the examination of abdomen revealed rebound tenderness. Neurological examination revealed anisocoria. Other physical findings were unremarkable. Due to fever and abdominal tenderness, peritoneal fluid was investigated in addition to diagnostic maneuvers. Two hours later; the patient died in our emergency unit.

Approximately one month before this admission, all laboratory examinations were normal except the signs of the renal failure. Examination of the obtained peritoneal fluid revealed no abnormality such as white blood cells. Blood gas results were consistent with lactic acidosis (pH:7.08, anion gap: 37mmol/L, lactat:7.8 mmol/L). Biochemical parameters were

\*Correspondance: Yasemin Usul Soyoral M.D  
Yuzuncu Yil University, Medical Faculty,  
Department of Nephrology, Van, TURKEY  
E-mail: yaseminsoyoral@yahoo.com  
Tel: +90 432 215 04 74-6739  
Received: 26.06.2011  
Accepted: 05.01.2012

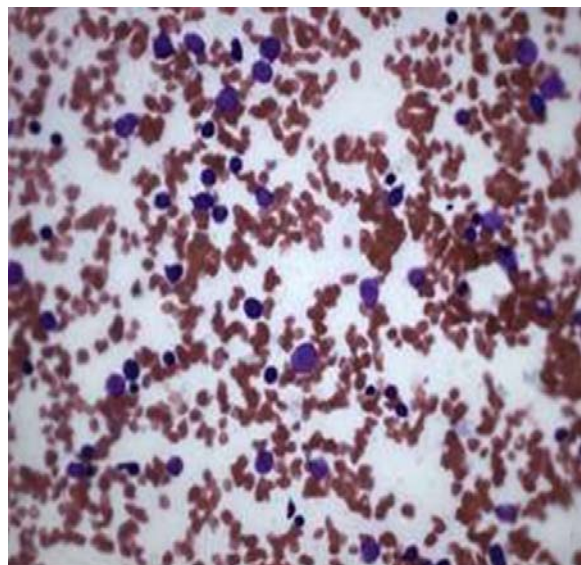
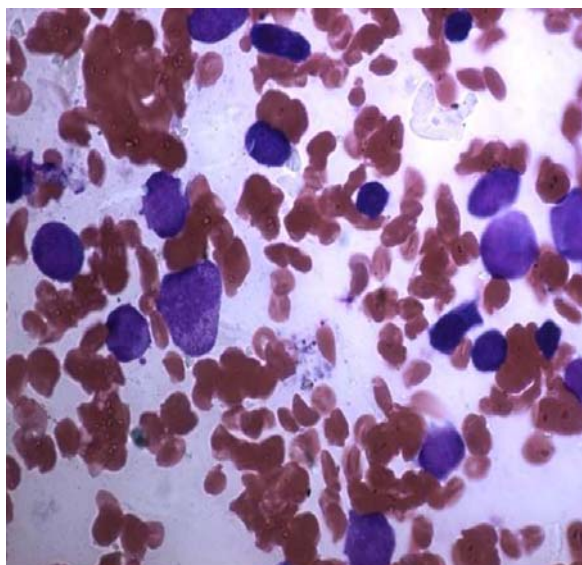


Fig. 1, 2. Peripheral blood smear of the case (x400 HE).

normal without creatinine levels (5.7 mg/dL). Hematological parameters of peripheral blood were: hemoglobin 9.0 g/dL, white blood cell count  $72.8 \times 10^9/L$  and platelet count  $100 \times 10^9/L$ . Peripheral smear showed marked myeloblasts and the diagnosis of promyelocytic acute myeloid leukemia (M3 AML) was established by the morphology (Figure 1, 2).

### 3. Discussion

The diagnostic criteria of peritonitis in patients with CAPD are classified as below; i. appropriate clinical findings; ii. effluent peritoneal fluid; iii. elevated white cell counts (above  $100 \text{ cells/mm}^3$  [usually greater than 50 percent neutrophils]) in peritoneal fluid (1, 2). For diagnosis, two of these three criteria should be present in a patient. But in our patient only abdominal pain was present, the remaining criteria were absent. Therefore, we excluded the diagnosis of peritonitis and other reasons which cause the abdominal pain and peritonitis symptoms were examined. With this report, we tried to emphasize that in patients with CAPD, in the presence of appropriate clinical findings with peritonitis and leukocytosis in blood but absence of white blood cell elevation in peritoneal fluid, AML can be thought and should be excluded during the diagnosis and treatment procedures.

Acute promyelocytic leukemia (APL), formerly known as AML-M3, is a biologically and clinically distinct variant of AML, characterized by the clonal expansion of hematopoietic precursors blocked at the promyelocyte stage of differentiation (5).

APL constitutes less than 10 % of all AML. Bleeding and pancytopenia is the most common presenting sign. The most severe form of bleeding is central nervous system bleeding, which can be a presenting factor. Significant intracranial hemorrhages associated with disseminated intravascular coagulation may occur in early stages of M3 AML (6). A number of neurologic abnormalities can occur in patients with disseminated intravascular coagulation. These include coma, delirium, and transient focal neurologic symptoms. Microthrombi, hemorrhage, and hypoperfusion may also contribute (7).

Lactic acidosis is the most common cause of metabolic acidosis in hospitalized patients. It is associated with an elevated anion gap and a plasma lactate concentration above 4 meq/L. Impaired tissue oxygenation, leading to increased anaerobic metabolism, is usually responsible for the rise in lactate production (8). Abdominal pain may be the possible cause of lactic acidosis in our patient. We could not find a similar presentation of AML in CAPD patients in English literature i.e. abdominal pain, fever and neurologic findings.

In conclusion, a hematological disease such as M3 AML may cause fever and abdominal pain in CAPD patients and may mimic peritonitis.

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