

Teaching Point
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Cloudy dialysate—reconsidering initial empiric therapy

Jeanette Normann and Vedat Schwenger

Department of Nephrology, University Hospital Heidelberg, Heidelberg, Germany

Correspondence and offprint requests to: Jeanette Normann; E-mail: Jeanette.Normann@med.uni-heidelberg.de

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Introduction

Peritoneal fluid eosinophilia can be caused by many factors. It has been noted in helminthic infection or allergic diseases and can occur especially at the initiation of continuous ambulatory peritoneal dialysis (CAPD).

We show the case of a 53-year-old woman undergoing CAPD who was initially treated for bacterial peritonitis with antibiotics. Finally, she revealed an eosinophilic peritonitis most probably due to an allergic reaction to the antibiotics.

The importance of reconsidering your diagnosis and therapy in managing your patients is demonstrated by this case, which follows.

Case

A 53-year-old woman who had been treated with peritoneal dialysis (PD) for 3 years presented with diffuse abdominal pain.

Her diagnosis was polycystic kidney and liver disease. In addition, she had a penicillin allergy.

One large liver cyst had been causing a duodenal passage obstacle. For this reason, a laparoscopic deroofting of the cyst had been recently performed.

After the surgical intervention, PD had been stopped for several days and was then restarted. The laboratory testing revealed a leucocytosis in the blood ($11.4 \times 10^3/\mu\text{L}$) and in the dialysate (92 000/mL). C-reactive protein (CRP) was 186 mg/dL (normal <5 mg/dL).

With the diagnosis of peritonitis, antibiotic treatment with cefazolin and ceftazidim was initiated intraperitoneally.

In the days that followed, the leucocytes in the blood came down to $10.9 \times 10^3/\mu\text{L}$; CRP was 44.7 mg/dL. The leucocytes in the dialysate dropped to 38 000/mL.

A few days later, the CRP was normal but laboratory studies of the blood showed again an elevation of the leucocyte count to $18 \times 10^3/\mu\text{L}$ and an increase of the leucocytes in the

dialysate to 77 000/mL. In the differential white blood count (WBC), an eosinophilia of 13% could be seen. The dialysate became cloudy and showed $>55\%$ of eosinophils in the WBC (Figure 1). The triglyceride concentration in the dialysate was 38 mg/dL. Peritoneal effluent cultures were all negative.

On physical examination, there was epigastric pain but no tenderness. The bowel sounds were normal. No erythema was visible.

Suspecting an eosinophilic peritonitis caused by an allergic reaction to the antibiotics, oral antihistamines were started.

In the following days, the peritoneal fluid became clear again. The concentration of eosinophils in the dialysate dropped to 15% and in the WBC it went down to 3%.

Discussion

The definition of peritoneal eosinophilia is an eosinophil count $>10\%$ of the total WBC count, an absolute number of eosinophils $>40/\text{mm}^3$ or the presence of >100 eosinophils/ mm^3 . The incidence of eosinophilic peritonitis has been observed as 60% in the CAPD population; in the intermittent PD group, it is reported at 16–30% [1, 2].

As mentioned above, peritoneal fluid eosinophilia has been noted in helminthic infection and allergic diseases. It occurs especially at the initiation of PD [2–4]. Apart from drugs as offending agents, sterilants or plasticizers from the dialysis bag or tubing, constituents in the PD catheter or air introduced during surgery have been reported.

Clinically, it presents as a cloudy peritoneal fluid. Cultures for microorganisms are negative.

In most cases, there is no abdominal pain, tenderness, nausea, vomiting, fever or chills. Apart from the eosinophils in the dialysate, in $>50\%$, there can be a peripheral blood eosinophilia.

Usually, peritoneal fluid eosinophilia is no reason for concern. Although it can persist for a long time, it seems to be self-limiting. A short course of low-dose oral or intraperitoneally administered steroids is reported as therapy. Also, antihistamines may be used [1]. In our case, we chose an antihistamine of the second generation for the

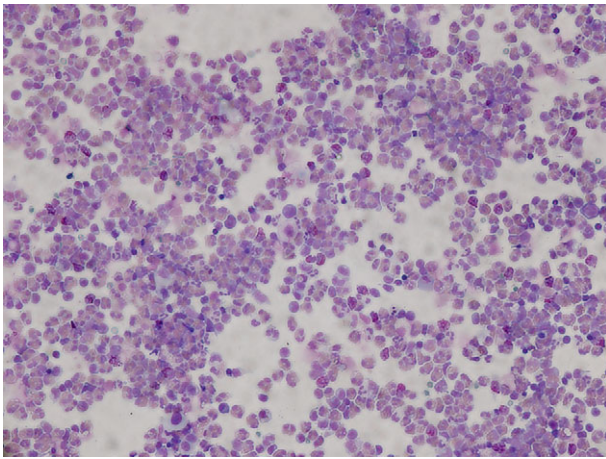


Fig. 1. Eosinophilia in peritoneal dialysate effluent.

side effects of diphenhydramin. The patient responded well to this treatment and recovered within a few days.

Conflict of interest statement. None declared.

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