Cloudy Dialysate as the Initial Presentation for Lymphoma

Sriram Sriperumbuduri and Deborah Zimmerman

1 Division of Nephrology, Department of Medicine, Ottawa Hospital, Ottawa, ON, Canada
2 University of Ottawa, Kidney Research Centre of the Ottawa Hospital Research Institute, Ottawa, ON, Canada

Correspondence should be addressed to Deborah Zimmerman; dzimmerman@toh.on.ca

Received 28 August 2018; Accepted 20 September 2018; Published 9 October 2018

Turbid dialysate in a patient on peritoneal dialysis is usually due to peritonitis and almost all these patients are started on empirical antibiotics pending cultures. However, in few of them with culture negative fluid, this could represent other etiologies like chyle, which requires more intensive investigations, and analysis of fluid itself reveals some rare diagnosis. We present one such report of chylous ascites with prompt investigation leading to a diagnosis of malignancy in a peritoneal dialysis patient.

1. Introduction

The most common cause of cloudy dialysate in patients on peritoneal dialysis (PD) is bacterial peritonitis such that the home dialysis unit policies and procedures include protocols for specimen collection and initial antibiotic therapy algorithms to avoid delays in diagnosis and treatment. However, turbid dialysate may be secondary to other etiologies including increased neutrophils due to intra- or juxtaperitoneal inflammation, red blood cells, malignant cells, and an elevated triglyceride content. Chylous ascites is a rare cause of turbid dialysate and has been associated with lymphoma, pancreatitis, and superior vena cava syndrome.

2. Case Report

86-year-old man with a history of hypertension and type 2 diabetes mellitus had been treated for end stage kidney disease with continuous cycling peritoneal dialysis since February 2017. He presented to the home dialysis unit complaining of difficulties with initial drain alarms on his cycler for the last 2 nights and “whitish” dialysate. He denied abdominal pain or constitutional symptoms aside from weight loss associated with resolution of peripheral edema. He did not have any previous episodes of peritonitis or history of TB contact. His examination was unremarkable including normal vital signs and lack of abdominal tenderness.

As per out unit peritonitis protocol, 1L of 2.5% Dianeal was allowed to dwell for 2 hours and the effluent was sent for analysis including cell count, differential, bacterial, and mycobacterial cultures. Given the “milky” appearance of the fluid, triglycerides were also ordered. He received empiric intraperitoneal antibiotics including ceftazidime and vancomycin. Total nucleated cell count was 354 \( \times \) 10^6/L with 87% lymphocytes, 8% monocytes, and 3% neutrophils. Cultures were negative. Triglyceride (TG) concentration was 6.3 mmol/L (557 mg/dl). Based on the elevated TG concentration he underwent a CT scan with contrast of the abdomen and a second dialysate sample was sent for cell count, TG, cytology, and flow cytometry (the dialysate was no longer cloudy). He was found to have a mildly enlarged spleen and multiple enlarged lymph nodes in the mesentery, retroperitoneum, and inguinal regions including a cluster of enlarged nodes forming a conglomerate retroperitoneal mass suggestive of lymphoma. There was a moderate increase in density of the mesentery, possibly on the basis of lymphatic obstruction. His total nucleated cell count remained elevated at 420 with 96% lymphocytes; TG concentration was only 0.21 mmol/L. Cytology was negative for malignant cells. Flow cytometry of the dialysate showed predominately monotypic B cells with lambda light chain restriction that coexpressed CD20 and CD19 but lacked CD5 and CD10 suggestive of a monoclonal lymphoid process. An inguinal lymph node biopsy revealed predominant diffuse to nodular pattern of
was less than 5%. Final diagnosis was monoclonal B cell
and lambda stains were nonspecific. Ki67 proliferation index
was less than 5%. It was negative for CD3, CD5, CD10, CD23, and C43. Kappa
and lambda stains were nonspecific. CD3, CD5, CD10, CD23, and C43.

3. Discussion

Chylous ascites is rare but is associated with several potentially
life-threatening diagnoses including tuberculosis, pancreatitis [1], and malignancy [2]. The use of calcium channel
blockers (CCBs), surgical trauma, and superior vena cava
obstruction [3, 4] has also presented with chylous ascites
in peritoneal dialysis patients. In PD patients, the cloudy
dialysate may lead to initiation of unnecessary antibiotics and
delayed investigations. Negative cultures and a differential
count that is predominately lymphocytes should prompt
further investigation. In our patient’s case, the atypical
appearance of the cloudy dialysate led immediately to further
investigation but he continued to receive antibiotics.

Case series of lymphoma presenting with chylous ascites
have been published in patients without ESKD [5, 6]. Earlier
reports suggested a poor prognosis with this complication in
patients with lymphoma [7], but more recent studies show
improved outcomes with the advent of newer chemotherapy
regimens [8]. Very few case reports exist about lymphoma
leading to chylous ascites in PD patients [9, 10]. Daily lavage
of peritoneum actually facilitates diagnosis of this condition
at a potentially earlier stage in these patients, as in our case
where the high triglyceride level was detected at the first
appearance of cloudy effluent. After a few days, the cloudiness
disappeared with a decrease in triglyceride levels. This may
be due to intermittent lymphatic obstruction leading to
leak of chyle into peritoneal cavity as the patient’s diet
was never modified. Flow cytometry facilitated the diagnosis
of a monoclonal lymphoid process confirmed by lymph node
biopsy suggestive of low grade non-Hodgkin lymphoma.

Management options in chylous ascites include discon-
tinuing offending medications (CCBs), altering the diet to
predominantly medium chain triglycerides (MCT), somato-
statin analogues (they increase splanchnic arteriolar resist-
ance and decrease lymph flow) [11], and instituting total
parenteral nutrition (TPN). The median time to resolution of
chylous ascites was 28 days with a low-fat diet supplemented
with MCT and 10 days with TPN [12].

In conclusion, a single episode of cloudy dialysate with
a lipid consistency in PD patients should prompt further
evaluation.

Conflicts of Interest

The authors declare that there are no conflicts of interest
regarding the publication of this article.

Acknowledgments

We would like to thank the Home Dialysis Unit nurses of the
Ottawa Hospital for their excellent patient care.

References

[1] M. P. Fontan, F. Pombo, A. Soto, F. J. P. Fontan, and A.
Rodriguez-Carmona, “Chylous ascites associated with acute
pancreatitis in a patient undergoing continuous ambulatory
peritoneal dialysis,” *Nephron*, vol. 63, no. 4, pp. 458–461, 1993.
[2] N. L. Browse, N. M. Wilson, F. Russo, H. Al-Hassan, and D.
R. Allen, “Aetiology and treatment of chylous ascites,” *British
Journal of Surgery*, vol. 79, no. 11, pp. 1145–1150, 1992.
[3] R. Ram, G. Swarnalatha, B. H. Santosh Pai, C. Shyam Sun-
der Rao, and K. V. Dakshinamurti, “Cloudy peritoneal fluid
attributable to non-dihydropriidine calcium channel blocker,”
*Peritoneal Dialysis International*, vol. 32, no. 1, pp. 110–111, 2012.
[4] M. A. Rocklin, M. J. Quinn, and I. Teitelbaum, “Cloudy dialysate
as a presenting feature of superior vena cava syndrome,”
*Nephrology Dialysis Transplantation*, vol. 15, no. 9, pp. 1455–
1457, 2000.
[5] T. Almamoudi, S. Massoud, and G. Makhdi, “Lymphomas and
chylous ascites: review of the literature,” *The Oncologist*, vol. 10,
no. 8, pp. 632–635, 2005.
[6] M. Jagosky, B. Taylor, and S. P. Taylor, “A Case of Chyloperi-
toneum Secondary to Follicular Lymphoma and a Review of
Prognostic Implications,” *Case Reports in Hematology*, vol. 2016,
Article ID 4625819, 4 pages, 2016.
[7] O. W. Press, N. O. Press, and S. D. Kaufman, “Evaluation and
management of chylous ascites,” *Annals of Internal Medicine*,
v. 96, no. 3, pp. 358–364, 1982.
[8] J. M. Poux, D. Bénévent, J. Guisieris, Y. Le Meur, C. Lagarde et al.,
“Chylous ascites in 12 patients undergoing peritoneal dialysis,”
*Nephrology*, vol. 15, no. 3, pp. 201–205, 1994.
[9] J. M. Bargman, R. Zent, P. Ellis, M. Auger, and S. Wilson, “Diag-
osis of Lymphoma in a Continuous Ambulatory Peritoneal
Dialysis Patient by Peritoneal Fluid Cytology,” *American Journal of
Kidney Diseases*, vol. 23, no. 5, pp. 747–750, 1994.
[10] C. K. Cheung and A. Khawaja, “Chylous ascites: an unusual
complication of peritoneal dialysis. A case report and literature
review,” *Peritoneal Dialysis International*, vol. 28, pp. 229–231,
2008.
[11] A. Berzigotti, D. Magalotti, C. Cocci, L. Angeloni, L. Pironi,
and M. Zoli, “Octreotide in the outpatient therapy of cirrhotic
chylous ascites: A case report,” *Digestive and Liver Disease*, vol.
38, no. 2, pp. 138–142, 2006.
[12] G. Tulunay, I. Ureyen, T. Turan et al., “Chylous ascites: Analysis
of 24 patients,” *Gynecologic Oncology*, vol. 127, no. 1, pp. 191–197,
2012.