Hodgkin's Lymphoma Diagnosed from Peritoneal Effluent

In infective cases of peritoneal dialysis (PD) peritonitis, examination of the effluent fluid usually shows a predominance of neutrophils, and a bacterial organism is frequently isolated by culture. Where no organisms are identified, cases are often referred to as culture-negative 'peritonitis,' but non-infective causes for cloudy effluent are rare. We report the unusual finding of cloudy effluent as a presenting sign of recurrent lymphoma, diagnosed by cytological examination of the peritoneal effluent.

Perit Dial Int 2016; 36(3):350-351

www.PDIConnect.com

<http://dx.doi.org/10.3747/pdi.2015.00119>

KEY WORDS: Hodgkin's; cloudy effluent; lymphoma.

In infective cases of peritoneal dialysis (PD) peritonitis, examination of the effluent fluid usually shows a predominance of neutrophils, and a bacterial organism is frequently isolated by culture (1). Where no organisms are identified, cases are often referred to as culture-negative 'peritonitis,' but non-infective causes for cloudy effluent are rare (2). A 48-year-old man presented with back pain and inguinal lymphadenopathy. Lymph node biopsy showed Hodgkin's lymphoma. Positron emission tomography (PET) showed

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stage IV disease with extensive subdiaphragmatic lymph node involvement, diffuse splenic infiltration, and extensive marrow disease. He was treated with bleomycin, etoposide, adriamycin, cyclophosphamide, vincristine and prednisolone (BEACOPP). Despite a follow-up PET showing a complete metabolic response, he relapsed within 18 months confirmed on nodal biopsy. He underwent salvage chemotherapy with ifosfamide, carboplatin, and etoposide (ICE), and remission was induced on repeat PET scanning. However, this chemotherapy was associated with progressive renal dysfunction, and renal biopsy showed severe tubular injury and tubulointerstitial inflammation and fibrosis, thought to be secondary to carboplatin, and he was commenced on PD. Eleven months later he presented with cloudy dialysate but without fever or abdominal pain and feeling otherwise well. Blood results revealed mild anemia (Hb 91 g/L), but normal white blood cell and platelet counts. Peritoneal dialysis fluid gram stain and culture (including for fungal and atypical organisms) was negative, and the cell count showed 2×10^9 erythrocytes/L and 450×10^9 other unidentified cells/L. The latter were subsequently cytologically typed as atypical multi-nucleated lymphoid-like cells (Figure 1) pathognomonic of cells from Hodgkin's lymphoma. Computed tomography (CT) scanning showed diffuse soft tissue thickening throughout the greater omentum and thrombus in the inferior vena cava extending into the right renal vein. Positron emission tomography confirmed peritoneal, omental, and abdominal wall involvement and widespread new bony lesions. The patient switched to hemodialysis and received further salvage therapy (gemcitabine and vinorelbine) and once more achieved a complete remission on PET scanning before embarking on an autologous bone marrow transplantation.

Figure 1 — Peritoneal fluid cytology (Papanicolaou X600) showing large atypical lymphoid cells (black arrows) with enlarged nuclei, prominent nucleoli, irregular nuclear outlines, and scanty cytoplasm. The background contains mesothelial cells, lymphocytes, and increased numbers of eosinophils.

Cloudy dialysis effluent is usually caused by infection, but non-infective causes include chylous leak, triglycerides, atypical and malignant cells or sometimes drugs (3). In this patient, the lack of systemic features of peritonitis and the cellular atypia on cytological examination negated the need for further evaluation. Making a diagnosis of malignancy by examining peritoneal effluent is rare, but cytology can be easily obtained by simply sending 20 – 100 mL of PD effluent directly to the laboratory, and this should be performed if presentation is atypical. If a significant delay is expected, cooling to 4°C is recommended, taking care that the sample does not freeze and the addition of other preservatives or fixatives is not recommended. Samples of PD fluid often exhibit atypia of mesothelial cells (4), but giant multi-nucleated cells are always abnormal. There is little evidence as to whether it is safe to continue PD in malignancy when there is lymphomatous abdominal involvement (5), but in our case it seemed prudent to withdraw PD to facilitate chemotherapy drug dosing schedules given after hemodialysis. Although non-Hodgkin lymphoma (1) has been reported to present in this way, we can find no previous cases of Hodgkin's diagnosed on peritoneal fluid cytology.

ACKNOWLEDGMENTS

We gratefully acknowledge Drs Alpha Tsui and Moira Finlay (consultant histopathologists) for their help with the preparation of the figure.

DISCLOSURES

The authors have no conflict of interest to declare.

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