Diagnostic Dilemma of Ultrafiltration Failure in a Continuous Ambulatory Peritoneal Dialysis Patient

A 42-year-old male with chronic kidney disease (CKD), stage 5 on continuous ambulatory peritoneal dialysis (CAPD) using a swan-neck double-cuff Tenckhoff catheter presented with abdominal pain, vomiting, nausea and reduced appetite for 1 month, along with a poor dialysate outflow and ultrafiltration failure ($< 400\text{ mL/day}$) for 20 days. As stated by the patient, dialysate effluent was clear. Abdominal examination was unremarkable. After a 6-hour dwell, the dialysate showed a leucocyte count of $0.17 \times 10^9/\text{L}$ (170 cells) with 0.75 (75%) neutrophils and 0.24 (24%) lymphocytes, Gram stain negative, acid-fast bacilli (AFB) smear negative and no growth on Lowenstein and Jensen culture medium. The Mantoux test done was unremarkable. Blood urea nitrogen was 12 mmol/L (33 mg/dL), serum creatinine $954\text{ }\mu\text{mol/L}$ (10.8 mg/dL), hemoglobin (Hb) 88 g/L (8.8 g/dL), erythrocyte sedimentation rate (ESR) 140 mm/hr , serum albumin 24 g/L (2.4 g/dL), electrolytes were normal. As the outflow was slow, an erect X-ray of the abdomen showed migration of the catheter (Figure 1), and a laproscopic examination showed intraperitoneal catheter with fibrinous exudates and adhesions (Figure 2), which were released. A peritoneal biopsy was done that showed granuloma with Langhans' type giant cell suggestive of tuberculosis (Figure 3), and the biopsy specimen stained with Ziehl Neelsen stain showed acid-fast tubercle bacillus (Figure 4). A computed tomography (CT) of the chest showed left basal pulmonary scarring, small calcified right apical nodule, and calcified mediastinal nodules suggestive of pulmonary tuberculosis sequelae. The patient was initiated on rifampicin 450 mg OD , pyrazinamide 750 mg BID , ciprofloxacin 500 mg BID , isoniazid 150 mg OD , along

with vitamin B6. Dialysate flow and ultrafiltration improved 7 days after starting the medication and the dialysate cell count returned to normal.

DISCUSSION

In developing countries, when patients on CAPD show signs or symptoms of peritoneal inflammation, with a routine microbiology test showing negative results, a laproscopic examination with peritoneal biopsy is superior for diagnosing mycobacterial peritonitis, as illustrated in our patient. Institution of appropriate treatment improved ultrafiltration within a period of 7 days without the need for catheter removal.

Figure 2 — Intraperitoneal catheter with fibrinous exudates and adhesions.

Figure 1 — Upward migration of the catheter (arrow).

Figure 3 — Granuloma with Langhans' type giant cell (arrow).

Figure 4 — Biopsy specimen stained with Ziehl Neelsen stain, with acid-fast tubercle bacillus (arrow).

DISCLOSURES

The authors have no financial conflicts of interest to declare.

Anand Yuvaraj¹
Priyanka Joseph Koshy²
Anusha Rohit³
P Nagarajan⁴
Sanjeev Nair¹
Lakshmi Revathi¹
Georgi Abraham^{1*}

Department of Nephrology¹
Department of Pathology²
Department of Microbiology³
Department of Surgery⁴
Madras Medical Mission, Chennai

*email: abraham_georgi@yahoo.com

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