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**Mycobacterium tuberculosis** as a Cause of Peritonitis in a Patient Undergoing Continuous Ambulatory Peritoneal Dialysis

Dear Sir,

Tuberculosis is an infection with a higher incidence in uremic patients undergoing dialysis [1-3]. Nevertheless, tuberculous peritonitis in uremic patients undergoing continuous ambulatory peritoneal dialysis (CAPD) therapy occurs infrequently [4, 5], with an incidence of about 1-2% of all cases of peritonitis [6, 7]. A case of peritoneal infection by Mycobacterium tuberculosis in a patient receiving CAPD is reported. Initially the dialysate had a large number of neutrophils, but later lymphocytes predominated. This is a new feature and the literature is reviewed. Diagnostic pitfalls are also commented upon.

In December 1993, a 75-year-old woman with tubulointerstitial nephropathy, treated with CAPD, was admitted to hospital with abdominal pain. She was afebrile, the abdomen was tender, and the remainder of the examination was negative. Peritoneal fluid was cloudy with 157 WBC/mm³ (63% neutrophils and 37% mononuclear cells). Empirical intraperitoneal therapy with Tobramycin and Vancomycin was started. 24 h later she developed fever (38°C) and severe abdominal pain, and ascitic fluid cloudiness persisted with 48 WBC/mm³ (30% neutrophils and 70% mononuclear cells). Empirical intraperitoneal therapy with Tobramycin and Vancomycin was started. 24 h later she developed fever (38°C) and severe abdominal pain, and ascitic fluid cloudiness persisted with 48 WBC/mm³ (30% neutrophils and 70% mononuclear cells). Peritoneal fluid and bacterial and fungal cultures were negative. Complete blood count was: Hgb 8.4 g/dl, Hct 25.3%, and WBC 9,200 with 7% lymphocytes. Blood chemistry was: urea 113 mg/dl (18 mmol/l), and creatinine 7.3 mg/dl (646 µmol/l). Amylase in peritoneal fluid and chest X-ray were normal. On the 5th day of therapy without improvement, the intraperitoneal catheter was withdrawn and hemodialysis started. Peritoneal sampling showed hyalinized fibrous tissue with foreign body inflammatory changes. AFB smear and cultures in Löwenstein medium were negative. Abdominal ultrasound and CAT scan only demonstrated free peritoneal fluid. The patient’s clinical course deteriorated with persistent fever and increasing left upper quadrant abdominal pain, tenderness and fullness. Repeat CAT scan demonstrated loculated ascites in this region. Exploratory laparotomy was undertaken with the finding of free peritoneal fluid, adherent intestinal loops and multiple small omental white nodules. Samples were obtained
from these areas as well as the right Fallopian tube, and uniformly demonstrated caseating
granulomata with abundant acid fast bacilli. Culture of the peritoneal fluid was positive for MTB
tuberculosis. Therapy with rifampicin (600 mg/day), isoniazid (300 mg/day), and ethambutol
(1,200 mg every 48 h) was started. Ten days later, the fever and abdominal pain disappeared
and the general condition of the patient improved.
In most cases of tuberculous peritonitis in CAPD the peritoneal fluid is nonspecific, with a
predominance of neutrophils, as already described [8-11]. A predominance of mononuclear
cells has been also observed

In this case, the dialysate initially presented large numbers of neutrophils and later a
predominance of lymphocytes. Peritonitis without clinical improvement and repeated
negative cultures raised the concern of tuberculous etiology, even with a negative
biopsy of the parietal peritoneum. In these cases, laparoscope-aided removal of the catheter
would be the preferred choice for proper inspection of the peritoneal cavity and multiple
guided biopsies. In our case a laparotomy was performed and the gross appearance of the omentum was typical of a granulomatous process. Treatment of tuberculous
peritonitis follows the same guidelines as pulmonary tuberculosis [14]. Dosages were
prescribed as recently recommended [15].

References
Papadimitriou M, Memmos D, Metaxas P: Tuberculosis in patients on regular haemodialysis.
Nephron 1979;24:53-57.
Sasaki S, Akiba T, Suenaga M, Tomura S, Yoshiyama N, Nakagawa S, Shoji T, Saraoka T,
Andrew OT, Schoenfeld PY, Hopewell PC, Humphreys MH: Tuberculosis in patients with
pp 193-194.
Vas SI: Microbiologic aspects of chronic ambulatory peritoneal dialysis. Kidney Int 1983;23:
83-92.
Vas SI: Renaissance of tuberculosis in the 1990s: Lessons for the nephrologist. Perit Dial Int
Ahijado F, Luño J, Soto I, Gallego E, Junco E, Polo JR, Galan A, Valderrabano F:
Tuberculous peritonitis in patients on CAPD; in La Greca G, Olivares J, Feriani M, Passick-
89, pp 79-86.
Ludlam H, Jayne D, Phillips I: Mycobacterium tuberculosis as a cause of peritonitis in a
10 Morford DW: High index of suspicion for tuberculous peritonitis in CAPD. Perit Dial Bull

Tuberculous Peritonitis in CAPD
Nephron 1996;73:318-319
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