Spontaneous Resolution of Hydrothorax in Continuous Ambulatory Peritoneal Dialysis

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Dear Sir,

A 41-year-old Indian female with chronic renal failure secondary to analgesic nephro-pathy and vesico-ureteric reflux presented for commencement of continuous ambulatory peritoneal dialysis (CAPD) in April 1985. She had been on haemodialysis since January 1984, but was finding this symptomatically intolerable. Admission respiratory examination and chest x-ray were normal. A Tenck-hoff peritoneal dialysis catheter was inserted under general anaesthesia after which hourly cycles of 1 litre of 1.5% dialysate solution were commenced.

Five hours later, the patient complained of increasing dyspnoea and tachypnoea. Physical examination revealed a large right pleural effusion extending to the right upper zone which was confirmed by chest x-ray. The left lung field was clear; there was no evidence of cardiac failure. A diagnostic pleural aspiration revealed pleural fluid glucose to be 42.6 mmol/l, at which time blood glucose was 5.8 mmol/l. This suggested that the pleural fluid was of peritoneal dialysate origin and that communication existed between the peritoneal and right pleural cavities. A total of 1,750 ml of clear pleural fluid was aspirated. Cytological examination for malignant cells and microbiological cultures were negative.

Following pleural aspiration, there was immediate symptomatic relief, and the remainder of the effusion resolved spontaneously after cessation of peritoneal dialysis. Haemodialysis was recommenced via a left forearm arteriovenous fistula, and she was discharged home. Within 2 months, she had become so intolerant of haemodialysis, which she disliked intensely, that she decided to cease dialysis and to accept the consequences rather than to continue. Because of this, she was readmitted for a trial of CAPD, with plans to manage the anticipated hydrothorax with intercostal tube drainage and intrapleural instillation of tetracycline following reports of successful chemical pleurodesis in hydrothorax complicating CAPD [1]. Despite full explanation of the risks involved and the possibility of failure of this procedure, she remained adamant that unless she could have CAPD, she would have no dialysis at all.

A hard peritoneal dialysis catheter was inserted under local anaesthesia in July 1985, and peritoneal dialysis was commenced with hourly cycles of 1.5% dialysate solution. She was dialysed with the head dependent in an attempt to induce hydrothorax, so that it could be drained by an intercostal catheter prior to tetracycline instillation. After 48 h, there was no evidence clinically or radiologically of hydrothorax. A more permanent Tenckhoff peritoneal catheter

was then inserted, and CAPD commenced with 1 litre 1.5% dialysate solution 4 times a day. Within 48 h, dialysis was made with 2 litres 1.5% dialysate solution 4 times a day. Chest x-ray, 4 days after CAPD had been commenced, revealed a small right pleural effusion, with loss of the right costophrenic angle only. This was not detected clinically. The effusion resolved subsequently when the dialysate volume was reduced to 1.5-litre bags, and the concentration increased to 2.5%, thereby reducing hydrostatic pressure but increasing osmotic pressure within the peritoneal cavity. CAPD was continued for 4 years with no recurrence of hydrothorax. At the time of this report, the patient was well and was being prepared for a living related renal transplant. Hydrothorax complicating CAPD is a well-recognized complication, first described by Edwards and Unger [1-8] in 1967. For many years, this was considered as a contraindication to further CAPD because of inevitable recurrence [8, 9]. Our patient did not develop significant further hydrothorax despite continued CAPD. The underlying mechanism is unclear, but we postulate that the diaphragmatic communications between the pleural and peritoneal cavities closed, either spontaneously or as a result of an unrecognized subclinical infection (serositis). It is unlikely that peritoneal dialysate in the pleural cavity would induce sclerosis without doing the same in the peritoneal cavity. Intrapleural tetracycline has been used successfully to induce pleurodesis in patients who have hydrothorax complicating CAPD and for whom long-term maintenance haemodialysis is unacceptable [1]. This procedure has risks. We suggest that in such patients, CAPD should be attempted at a later date before proceeding to a more definitive management such as instillation of intrapleural tetracycline.

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References

- Benz RL, Schleifer CR: Hydrothorax in continuous ambulatory peritoneal dialysis: Successful treatment with intrapleural tetracycline and a review of the literature. *Am J Kidney Dis* 1985;5:136-140.
- Edwards SR, Unger AM: Acute hydrothorax -A new complication of peritoneal dialysis. *JAMA* 1967;199:853-855. Boeschoten EW, Krediet RT, Roos CM, et al: Leakage of dialysate across the diaphragm: An important complication of continuous ambulatory peritoneal dialysis. *Neth J Med* 1986;29/ 8:242-246.
- Parmosthy M, Chua CT, Keogh B: Unilateral hydrothorax complicating continuous ambulatory peritoneal dialysis: Demonstration by 99m-technetium-tin-colloid scintigraphy. *Australas Radiol* 1985;29:311-314. Singh S, Vaidya P, Dale A, Morgan B: Massive hydrothorax complicating continuous ambulatory peritoneal dialysis. *Nephron* 1983; 34/ 3:168-172.
- Grefberg N, Danielson BG, Benson L, Pitt-An-en P: Right-sided hydrothorax complicating peritoneal dialysis. Report of 2 cases. *Nephron* 1983;34:130-134.
- Townsend R, Fragola JA: Hydrothorax in a patient receiving continuous ambulatory peritoneal dialysis: Successful treatment with intermittent peritoneal dialysis. *Arch Intern Med* 1982;142/8:1571-1572.
- Rudnick MR, Coyle JF, Beck LH, et al: Acute massive hydrothorax complicating peritoneal dialysis: Report of two cases and a review of the literature. *Clin Nephrol* 1979;12:38-44. Khanna R: *Periton Dial Bull* 1980;1:17-18.

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Erratum

In the article by Laupacis et al., entitled 'A Disease-Specific Questionnaire for Assessing Quality of Life in Patients on Hemodialysis', published in Vol. 60, No. 3, pp. 302-306, 1992, the intraclass correlation coefficients for the five dimensions of the kidney disease questionnaire that were reported in the paragraph on 'Reproducibility' (p. 304) are incorrect. The correct intraclass correlation coefficients are: 0.75 (physical), 0.74 (fatigue), 0.92 (relationships with others), 0.95 (depression), and 0.92 (frustration). The different numbers do not change the conclusion that the results of the kidney disease questionnaire are reproducible in stable patients.