Treatment of Hydrothorax Complicating Continuous Ambulatory Peritoneal Dialysis

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Dear Sir,

Peritoneal dialysis has become more widely known and used in Slovakia since 1991 and its use continues to grow. Some complications including hydrothorax may limit successful use of continuous ambulatory peritoneal dialysis (CAPD) [1]. Long-term management of this complication remains controversial, although surgeons experienced with surgical correction of hydrothorax in patients on CAPD recommend starting with conservative treatment. Following is a report of hydrothorax and its management in our patient, which reflects a conservative approach.

The patient was a 45-year-old female with a history of urinary bladder surgery by age 1, EPH gestosis during her second pregnancy (1969), reflux nephropathy with secondary chronic pyelonephritis and surgery for vesicoureteral reflux (1983 – reimplantation of the left ureter into the urinary bladder).

From August 1992 to June 1993 she was treated for progressive uremia using hemodialysis twice weekly, 4 h/session. Due to severe renal anemia, erythropoietin was administered prior to each dialysis session. By April 1993, the function of the A-V fistula deteriorated and by May 9 it had become completely nonfunctional. On the recommendation of the patient's gynecologist, norethisterone was administered for 6 days prior to the complete closing of the A-V fistula. The patient's thrombotic status (most probably in conjunction with erythropoietin treatment and the adverse estrogen effect of norethisterone) led to repeated thrombosis at the new A-V fistula. The patient was temporarily dialyzed using a subclavial catheter due to the unsatisfactory vessel status of the extremities. CAPD was started on June 2 immediately following surgical implantation of a Tenckhoff peritoneal catheter. The postoperative course and the exchanges of peritoneal dialysate were without complications. No serious changes of cardiopulmonary clinical status were found.

At the end of June the patient was treated for a respiratory tract infection with a tenacious irritable cough. During an examination of July 22 the patient complained of occasional nausea and vomiting over a 3-week period, a prickling sensation in the right hip and noted a moderate worsening of breathing, and a need to cough especially in a supine position. She had gained approximately 3 kg, but did not feel bloated. Further examination showed an absence of alveolar breathing and a weakened percussion response of the right thorax up to the inferior margin of the right scapula. The chest X-ray showed right pleural effusion up to the fourth intercostal space (fig. 1). The pleural effusion obtained by pleural puncture was a

transparent, transudate fluid with a high glucose level and with a low albumin level.

Cytologically it was without malignant changes.

Computed tomography with contrast medium failed to prove our assumption of leakage between peritoneal and pleural cavities. Leakage was subsequently confirmed via static scintigraphy of the abdomen and thorax. Radioisotope Tc^{99m}-Sn colloid was instilled through a Tenckhoff peritoneal catheter (fig. 2).

We repeated pleural punctures to facilitate breathing. In early September we decided on conservative treatment, i.e. temporary suspension of CAPD with hemodialysis support. Hemodialysis was accomplished through a new A-V fistula. After 2 weeks the hydrothorax was completely resolved. During this period the Tenckhoff peritoneal catheter was flushed daily with 200-300 ml of peritoneal dialysate and the peritoneal catheter was always closed with heparin (5,000 IU in saline solution).

On September 22, CAPD was restarted with 500 ml of 1.5% peritoneal dialysate every 6 h. Dialysate was increased by 250 ml every 2 weeks for an 8-week period until total volume reached 1,500 ml (with continued support of hemodialysis once weekly). By November 1, 1993, we discontinued hemodialysis support. During the 8-week period we found no clinical and/or X-ray evidence of hydrothorax recurrence.

At this writing the patient continues on CAPD without complications (excluding one episode of mild dialysed peritonitis in December 1993). She is in a good clinical condition, with functional A-V fistula and without symptoms of hydrothorax relapse. If hydrothorax does recur, pleurodesis with talc, tetracycline, fibrin, and autologous blood or surgical repair [2] may be successful.

Fig. 1. Chest X-ray showing the hydrothorax of the patient. **Fig. 2.** Scintigraphy of the abdomen and thorax.

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Although peritoneal dialysis had been used for two decades, only 77 (7.8%) of 984 patients (dialyzed as of December 31, 1993 in Slovak Republic) received CAPD in the year 1993. Peritonitis is a worrisome complication of peritoneal dialysis; it is not as rare as hydrothorax which arises in 2-10% of patients. This is the first report of hydrothorax in Slovakia as well as in the region of the former Czech and Slovak Federal Republic.

Our experience confirms that leakage of dialysate into the pleural cavity in patients on CAPD can be managed conservatively.

Acknowledgement

We thank M. Goldberg for her help and discussions.

References

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