Clinical picture

Acute hydrothorax after commencing continuous ambulatory peritoneal dialysis

A 53-year-old woman with end-stage renal disease developed dyspnea soon after commencing continuous ambulatory peritoneal dialysis (CAPD) for 1 day. Low drainage volume of dialysate (infusion 1500 ml and drainage 1100 ml) was also noted. The chest radiograph taken at emergency department showed massive right-sided pleural effusion (Figure 1), which was transudative in character with high glucose level. The diagnosis of pleuropertitoneal communication was confirmed by scintigraphic study using technetium-99-labeled macroaggregated albumin (99mTc MAA). Radiotracer accumulated over the right side of thorax since 5 min after tracer injection into the peritoneal cavity (Figure 2). During the video-assisted thoracoscopic surgery (VATS), totally nine tiny defects on the central tendon of diaphragm were repaired by wedge resection (Figure 3). The postoperative course was smooth and CAPD was resumed 10 days later uneventfully. There was no recurrence of hydrothorax after operation.

Hydrothorax as a result of pleuropertitoneal communication occurs in ~2% of CAPD patients.1 CAPD-related hydrothorax, 88% in right side, is characterized by transudative pleural fluid with high glucose content (pleural fluid glucose concentration of over 300–400 mg/dl or pleural fluid to serum glucose concentration gradient >50 mg/dl).2 ‘Sweet’ hydrothorax, unexplained low drainage volume of dialysate and early onset after commencement of CAPD should be born in mind in the differential diagnosis of acute hydrothorax. First-line treatment of pleuropertitoneal communication is conservative approach with temporary discontinuation of peritoneal dialysis. Spontaneous resolution of the complication with subsequent resumption of CAPD has been reported in half of the cases. In refractory cases, VATS is a safe and reliable treatment of choice that allows sustained continuation of CAPD with low recurrence rate.

Photographs and text form: C.-C. Wang, Division of Nephrology, Department of Internal Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei and Division of Nephrology, Department of Internal Medicine, Kaohsiung Armed Forces General Hospital, Kaohsiung, Taiwan, R.O.C.; J.-C. Chen, Division of Thoracic Surgery, Department of Surgery, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan, R.O.C.; P. Chu, Division of Nephrology, Department of Internal Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan, R.O.C. email: pchu@seed.net.tw

Figure 1. Chest radiograph showing massive right-side pleural effusion.
References


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**Figure 2.** Tc-99m peritoneal scintigraphy showing increased radioactivity over the right hemithorax since 5 min after Tc-99m intra-peritoneal injection.

**Figure 3.** Total nine tiny defects, marked by methyl blue, on the central tendon of diaphragm were identified during the VATS.