Letters and Replies

Acute hydrothorax in peritoneal dialysis patients: diagnosis and treatment options

Sir,

Following the recent clinical report by Tang et al. [1], we would like to comment on the diagnostic methods and the treatment indications and limitations mentioned for this rare and serious peritoneal dialysis complication.

Hydrothorax in this situation is rightfully called ‘sweet hydrothorax’ [2] as hypertonic glucose peritoneal solution fills the pleura [3]. Efforts to treat what is frequently wrongly diagnosed as fluid overload with more hypertonic solutions, lead to massive pleural accumulation of this solution together with ultrafiltrate. Consequently, the pleura glucose concentration and gradient to serum glucose is variable, depending on contact time, renewal rate and volume of diluting trapped ultrafiltrate. Only in pleuroperitoneal leak, is this always-positive gradient a simple, safe and reliable diagnostic test and, in our opinion, should not have a diagnostic low-limit value, because of large fluctuations due to the above-mentioned reasons [3]. Any degree of glucose concentration in pleural fluid higher than in the blood in CAPD patients could only result from a pleuroperitoneal leak. All other diagnostic tests are time consuming, costly and not fully reliable [3]. Low protein concentrations are usual in pleural transudates also, but not in all CAPD hydrothoraxes [4].

In the work published by Tang et al., there is no mention of whether, after time, an effort to return to peritoneal dialysis has taken place, before the decision to proceed to a major, for these patients, painful cardiothoracic operation [5,6]. Spontaneous remissions are reported after temporary haemodialysis, while the peritoneum is kept ‘dry’. Peritoneal dialysis can then be resumed, under various techniques (small volumes or tidal APD), with no recurrence in up to 38% of the affected patients [5]. If this strategy fails, a permanent shift to haemodialysis is another safe and popular alternative [5].

We describe a case of late recurrent massive hydrothorax in a 42-year-old male hypertensive APKD, with residual renal function of 4 ml/min, started electively on CAPD after laparoscopic catheter insertion and a 3-week healing period. Gradually, in 2 weeks, he reached 8 l of peritoneal solution volume exchanges per day.

Three months later, on his control visit, he complained of mild dyspnoea of gradual onset and right costal discomfort. Electrocardiogram and blood tests were unchanged. Clinical examination and X-rays showed a right-side pleural effusion that persisted after complete abdominal drain and was attributed to fluid overload. Body weight reducing measures were taken (hypertonic solutions, furosemide, as well as limiting water intake).

One month later, he returned with severe pleural pain and gradually increasing dyspnoea. On physical examination, he was cyanotic, with complete absence of respiratory sounds on the right hemithorax. On X-rays, a massive right-side hydrothorax was found. Thoracentesis for diagnosis and relief from respiratory distress aspirated 1.5 l of pleural fluid, clear and sterile, with <20 cells per optical field, protein 166 mg/100 ml and glucose 202 mg/100 ml, while simultaneous serum glucose was 102 mg/100 ml, a gradient diagnostic of pleuroperitoneal leak [3]. He was treated by continuous O₂ administration and preventive antibiotics, as a residual middle- and lower-lobe atelectasia was shown in post-drain X-rays.

The patient was haemodialysed for 2 weeks. An attempt to restart CAPD was followed by recurrence of pleural leak. The PD catheter was removed and he was started on regular haemodialysis.

There is a high probability for leakage recurrence when APKD is present, as higher intra-abdominal pressure is common in these cases and peritoneal dialysis fluid introduction further raises pressure [4,7]. In this case, even a talc pleurodesis would not prevent recurrences in APKD patients, in our view, which leaves haemodialysis, if available, as the only safe alternative.

In conclusion, pleuroperitoneal leak diagnosis is easy using a pleural fluid–serum glucose gradient, in a non-oedematous patient. Temporary peritoneal dialysis interruption and return to the method later is advisable according to data from the literature. In the case of recurrence, permanent haemodialysis, if possible, is the next step, especially in APKD patients; otherwise a video-assisted talc pleurodesis can be tried.

Conflict of interest statement. None declared.


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