Pleuroperitoneal leak in a peritoneal dialysis patient

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DESCRIPTION

An abnormal communication between peritoneum and pleural space might exist as a result of congenital or acquired defect in the diaphragmatic muscle fibres/connective tissue.¹ In the presence of such a communication in a patient on continuous ambulatory peritoneal dialysis (CAPD), any undue increase in intra-abdominal pressure secondary to high dwell volumes, chronic cough or straining can lead to a higher pleuroperitoneal pressure gradient and thus facilitate translocation of dialysate into the pleural space.

A patient with end-stage-renal-disease on CAPD presented with exertional dyspnoea. Physical examination and a chest X-ray (CXR) confirmed left pleural effusion. Aspirated pleural fluid was classified as a transudate based on its alkaline pH, low protein content and low lactic dehydrogenase level. A striking feature of the pleural fluid was its very high glucose concentration as compared with blood glucose. This was due to the presence of dextrose containing dialysate that had translocated from the peritoneal cavity into the pleural space via an anatomical defect in the diaphragm. Isotopic peritoneography (figure 1) using Tc-99 DTPA demonstrated prompt reflux of the tracer in the left pleural space substantiating the presence of a pleuroperitoneal communication.

The peritoneal fluid was drained out, CAPD was discontinued and the patient was switched to haemodialysis. A follow-up CXR 2 weeks later showed complete resolution of pleural effusion. The patient preferred to stay on haemodialysis and therefore reintroduction of CAPD/intervention for pleuroperitoneal defect was not pursued.

Learning points

- ▶ Pleuroperitoneal leak should always be considered in the differential diagnosis of a pleural effusion developing in a patient on continuous ambulatory peritoneal dialysis.
- ▶ Isotopic peritoneography can demonstrate radioisotope tracer refluxing into the pleural space.
- ▶ Measurement of pleural fluid glucose is a simple and reliable means for diagnosing pleuroperitoneal leak.²

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Figure 1 Isotopic peritoneography (posterior views): serial scintigraphic views obtained after instillation of Tc-99 DTPA mixed dialysate into the peritoneal cavity via the peritoneal catheter. Initially, diffuse activity is seen only in the abdominal cavity (0 min frame) but later on, progressive increase in radiotracer activity is demonstrated in left pleural space (black arrows) signifying reflux of tracer material via the pleuroperitoneal communication.

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