

Q3 WHICH IS THE FOLLOWING IS NOT APPROPRIATE IN THE DIAGNOSIS AND MANAGEMENT?

- A. Thoracentesis
- B. Surgical referral for pleurodesis
- C. Low volume, supine PD
- D. Peritoneal scintigraphy

The correct and is B.

This patient likely has a hydrothorax associated with peritoneal dialysis. It is an infrequent but well-described complication of PD. Hydrothorax is estimated to occur in 1.6% of patients on PD. Majority of cases occur within 30 days of commencing PD, and up to 25% are asymptomatic. The proposed cause of hydrothorax is hypothesized from embryological diaphragmatic defects on right hemidiaphragm leading to peritoneal fluid leaking into the pleural space. It is also thought the liver acts like a piston to propel fluid up the right side. In addition, the heart and pericardium cover the left side and act to tamponade any defects on the left hemidiaphragm. For these reasons 88% of the time they appear on the right side, and they are transudative fluids.

Once a pleural effusion has been identified on a chest radiograph, a thoracentesis can be performed to evaluate the glucose content of the pleural effusion. The glucose concentration in dialysate and peritoneal fluid is higher than the serum glucose concentration. Although there is no consensus agreement on a diagnostic pleural glucose level, it is generally accepted that the pleural fluid glucose concentration is higher than the serum concentration. Nevertheless, differential diagnosis of pleural effusion is not too different based on the presence of PD. The confirmation of a transudative fluid or exclusion of an exudative fluid can provide clinical utility.

Various imaging studies can be helpful in identifying pleuroperitoneal communication such as CT or MRI. The most informative is peritoneal scintigraphy that has a sensitivity of approximately 50%. A technetium 99m radioisotope is instilled into the PD fluid. Tracer uptake detected in the thoracic cavity confirms a communication between the peritoneum and the pleural space.

There are no current guidelines or standards of care for hydrothorax in PD patients. In general, however, most authorities suggest beginning with a conservative approach. PD should first be withheld to permit spontaneous resolution of the hydrothorax and diaphragmatic connection. During this time, patients may require conversion to temporary hemodialysis. After approximately one month, they may then be reintroduced to PD gradually with low-volume exchanges in a semi-upright position. Ultimately however, the success of this approach is suboptimal, and many patients experience hydrothorax recurrence.

Surgical referral for pleurodesis is indicated with conservative measures have failed.

Further reading:

<https://pubmed.ncbi.nlm.nih.gov/9527025/>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5349625/pdf/i1524-5012-17-1-124.pdf>

<https://cmj.ac.kr/search.php?where=aview&id=10.4068/cmj.2011.47.1.43&code=1057CMJ&vmode=PUBREADER>

<https://pubmed.ncbi.nlm.nih.gov/12118762/>