00282 Pleural manometry: A forgotten tool in need of resurrection

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PURPOSE: A 65 year old female presented with non-bilious emesis, epigastric pain and dyspnea and was found to have a large right pleural effusion. A chest CT confirmed this finding with passive atelectasis of right middle and lower lobes with no pleural thickening, pneumothorax, parenchymal lesions or mediastinal adenopathy. Her medical history included metabolic syndrome, hypothyroidism, bipolar disease and endometriosis. Basic labs including TFTs, Connective tissue disease panel and echocardiogram was normal.

METHODS: A CT guided thoracentesis was done with removal of 1300 cc of fluid with partial expansion of the right lower lobe and an ex vacuo pneumothorax was identified on chest x-ray post procedure. Patient reported an improvement of her dyspnea. Subsequent chest x-rays showed a recurrence of the effusion.

RESULTS: A right thoracentesis with manometry was performed. The opening pressure was minus 2 cm of water. Pleural fluid was removed in 50 mL aliquots to a total of 800 mL at which point, the pleural pressure fell dramatically to minus 25. The elastance was calculated at 27, consistent with a trapped lung. Labs revealed a lymphocyte predominant transudate culture negative with no malignant cells and no evidence of an atypical lymphoid population. Chest x-ray showed a persistent elevation of the right hemi diaphragm with minimal fluid. Follow up chest rays five months out have shown a persistent small right effusion. Patient remains asymptomatic

CONCLUSIONS:

At our hospital a multidisciplinary team built a simple, man-made water manometer out of readily available items that allows for measuring pleural elastance while performing a thoracentesis (Modeled after the ‘pneumothorax machine” used in 1911 to surgically treat tuberculosis). For over six years we have kept staff educated on its correct use and maintenance.

CLINICAL IMPLICATIONS:

Measuring the pleural elastance provides invaluable information that streamlines a patient's care. Determining whether a patient has a trapped or entrapped lung allows us to save them from treatments of no benefit (pleurodesis / decortication).