Treatment of catamenial pneumothorax with absorbable mesh, pleurectomy and pleural abrasion

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We read with interest the paper by Ikeda et al. [1] regarding the treatment of catamenial pneumothoraces. We agree with the authors that the pathology of true catamenial pneumothorax is not clear. However, in most cases, diaphragmatic fenestrations play a role. On the left, the fenestrations are frequently plugged by the omentum. On the right, however, the liver prevents such plugging, which accounts for the right-sided prevalence of the catamenial pneumothorax.

We too have used an absorbable mesh in the treatment of catamenial pneumothoraces for a number of years with good results; however, our practice differs from the one described by the authors. We have satisfactory results fixing the patch to the diaphragm without applying a patch to the lung tissue [2]. Our ability to inspect the diaphragm has improved, and our technique has evolved with the introduction of thoracoscopy. Whereas previously, via a muscle-sparing thoracotomy, we would have sutured a polygalactin mesh over the defects in the diaphragmatic surface, we now use an endoscopic tacker (The ProTack™ 5-mm Fixation Device, Covidien, UK) to fix the patch at thoracoscopy. This can be added to the standard pleurectomy and abrasion technique using three thoracoscopic ports. We would recommend that any surgeon operating on a female patient for pneumothorax should examine the diaphragm and treat any defects appropriately.

REFERENCES


Reply to Rychlik and McManus

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We thank Dr Rychlik and Dr McManus for their attention to our work and for giving us this opportunity to participate in this worthwhile discussion.

We have previously reported a method involving absorbable mesh for the prevention of catamenial pneumothorax (CPX) [1]. The letter by Rychlik and McManus questions whether
manipulation of not only the diaphragm but also of the lung is necessary [2].

We agree that it seems that, in most cases of CPX, diaphragmatic fenestration plays an important role, because there are some good reports referring to the importance of fenestration of the diaphragm for secondary prevention [3]. However, unfortunately, recurrent cases have been reported after manipulation of the diaphragm despite complete symphysis of the lung base to the diaphragm after resection of the diaphragm [4]. In these cases, the mechanism of recurrent pneumothorax does not seem to be the classically described transgenital-transdiaphragmatic passage of air.

The cause of the high recurrence rate of CPX is attributed to its complicated aetiology, which makes it difficult to determine the appropriate treatment strategy for each patient, because each case may have its own different aetiology, and the pathogenic mechanisms may involve multiple pathways.

The hypotheses of the aetiology of CPX are roughly divided into two groups: air leakages from a pleural origin [5] and air influxes to the intrathoracic cavity through the diaphragm [6].

To interrupt all possible aetiological pathways, it is our opinion that manipulation of the lung should also be performed, particularly for treatment-resistant cases. In our study, multiple fenestrations of the diaphragm were detected in all 4 cases. We also detected pathological lesions that involved abnormal pleural changes or adhesions of the apex of the lung in all cases.

The pathological lesion at the apex (S1) of the lung is resected, and the polyglactin mesh is sewn onto the lung concurrently by an endoscopic linear cutter. Suturing of the mesh onto the S6 of the lung is also performed. In fact, this method is a typical method for pleurodesis when using absorbable mesh in our institution. Lastly, the polyglycolate felt is inserted to cover the diaphragm.

In this way, resection of the lung lesion site, covering of the diaphragm and pleurodesis of three intrathoracic parts are performed under video-assisted thoracoscopic surgery. Performing pleurodesis of three regions (apex, lateral and basal side of the lung) seems to increase the likelihood of preventing recurrent pneumothorax.

The method adopted is only for recurrent and treatment-resistant cases. If functional, it does not matter what kind of mesh or method is used to fix it. The most important thing is to apply the necessary and sufficient treatment for each case of CPX with the least invasive procedure. Thus, precise examination of the clinical history, intraoperative investigation and careful consideration are needed to select the appropriate operative method. We believe that our method makes a great contribution as an effective treatment for treatment-resistant, recurrent CPX.

REFERENCES