of 1 to 3 expandable prostheses, 8 reoperations were required due to luxation, malpositioning, herniation, or leakage of the expanders.⁵ In our patient, it was apparent that simple bronchial sleeve resection could not be chosen as a treatment option for several reasons, such as the long bronchial resection and evaluation of the atelectatic lobes; however, we considered the possibility that the remaining right lung could be used for mediastinal repositioning, which would eliminate the risk for the potential complications listed above.

CONCLUSIONS

We have presented the first patient with postpneumonectomy-like syndrome who was successfully treated with lung lobar autotransplantation. This novel surgical technique has the advantages of preserving pulmonary function without requiring implantation of a prosthesis into the chest.

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EDITORIAL COMMENTARY

Autotransplantation: A novel solution for postpneumonectomy-like syndrome

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Postpneumonectomy-like syndrome (PPLS) is a rare but life-threatening condition. Its pathogenic mechanism and treatment are similar to those for postpneumonectomy syndrome (PPS) but without the actual resection of one side of the entire lung. Here both PPLS and PPS will be discussed together. For some unclear reason, in these patients, the heart and mediastinum excessively shift toward one side and also rotate significantly. The remaining distal trachea and main bronchus can become compressed against the vertebral column or aorta by the pulmonary artery. Excessive mediastinal shift results in progressive dyspnea and stridor, which is followed by respiratory failure or tracheomalacia if ignored. Under more unusual conditions, PPS may also result in dysphagia as a result of esophageal compression.

Without treatment, PPS can be lethal. A variety of methods to correct PPS or PPLS have been reported, but

most consist of single case reports with small numbers of patients. Early attempts include bronchial stent, suture fixation of pericardium to the back of the sternum, surgical and chemical phrenectomy, and placement of prostheses

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Central Message

Autotransplantation represents a novel solution for postpneumonectomy-like syndrome.

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to fill the empty hemithorax. Lucite plastic balls, silastic implants, injections of sulfur hexafluoride into the pneumonectomy space, and saline-filled breast prostheses have been used prophylactically and therapeutically.¹ Stenting could help to alleviate the symptoms in some cases²; however, it is not always possible to appropriately place a stent. Moreover, the mediastinal shift is not corrected by stenting, and long-term granulation hyperplasia is also a concern. Stents should therefore only be considered for patients with PPS or PPLS who are not candidates for surgical intervention.

Surgical repositioning provides immediate and lasting symptom relief to patients. PPS and PPLS are rare conditions, and currently most doctors tend to utilize a saline-filled breast prosthesis to treat them; however, this is still far from being a perfect solution. In a study by Macaré van Maurik,³ 6 of 20 patients needed reoperation because of hernia (n = 2), luxation (n = 1), inadequate positioning (n = 2), or leakage of the tissue expander (n = 4). Overcorrection of the mediastinal position is possible in this scenario, resulting in symptoms related to the compression of the remaining lung parenchyma.⁴

Another option is lung autotransplantation for certain conditions. Some single case reports indicate that lung autotransplantation can be regarded as an alternative technique for pulmonary preservation for patients with centrally placed lung cancer whose cardiopulmonary function is too poor to allow them to undergo pneumonectomy.⁵

The article by Chen and colleagues⁶ from the Kyoto University Graduate School of Medicine in this issue of the *Journal* is very impressive and unique in that it provides a novel solution for PPLS. Chen and colleagues⁶ describe the story of a 70-year-old woman with a history of 2 previous lung cancers and multiple therapies who was referred to the hospital with severe dyspnea and hemodynamic instability that occurred during exercise. Typical PPLS was therefore diagnosed. The strategy of Chen and colleagues⁶ was to reposition the mediastinal shift surgically and spare the atelectatic lung with autotransplantation, if possible. The surgery was successful, and the patient did well after the operation. As far as I know, this is the first time that lung autotransplantation has been used to solve the problem of PPLS.

In addition, there are a few issues regarding this article that warrant comment.

First, the background of the treated patient should be made more clear and precise. She had a long medical history including multiple treatments such as surgery and radiation therapy for 2 lung cancers. Chen and colleagues⁶ could not provide more details about these therapies, because the patient saw doctors at different institutions

within a long time span. The article mentions that the right lower lung had been collapsed for almost 1 year, and bronchoscopic examination revealed an occlusion of the truncus intermedius; however, we are not sure whether the lower lung could be expanded again. Chen and colleagues⁶ explained that the reviewed data include several chest radiographs and computed tomographic images in which the right lower lobe had expanded without atelectasis during the last year but did not supply further details.

Another question of concern for reviewers was which tissue was resected. Unfortunately, there was not a precise pathology report available that could have helped to clarify the intricate local anatomic relationships and perhaps explain why the patient had PPLS develop. As for a backup plan, Chen and colleagues⁶ did try some alternative solutions, such as sleeve resection, during the operation but found these impossible to accomplish. They then switched to lung autotransplantation. Chen and colleagues⁶ also planned for plombage in the thorax cavity with some prostheses in case the autotransplantation did not work.

With respect to some details of the techniques used, including preoperative evaluation, operative approaches to lung transplantation, and perioperatively used support instruments (eg, extracorporeal membrane oxygenation), I believe that these choices depend on personal experience.

Although this is only a case report, it may change our clinical practice in the future. At least this information provides another therapeutic option for PPLS, for which we still do not have a perfect solution in all cases. The patient underwent the operation several months ago, and we do not know what will happen in the long term. We cannot preclude the possibility of bronchial anastomotic stenosis, which could induce PPLS once again.

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