Thoracoscopic Pneumonectomy in Management of Histoplasmosis and Fibrosing Mediastinitis
H. Volkan Kara, MD, Jeffrey Javidfar, MD, Sameer A. Hirji, MS, Stafford S. Balderson, PA-C, and Thomas A. D’Amico, MD

Department of Surgery, Division of Thoracic Surgery, Duke University Medical Center, Durham, North Carolina

Pulmonary histoplasmosis is generally a self-limited respiratory illness in endemic areas. Fibrosing mediastinitis is a severe chronic complication of pulmonary histoplasmosis in which pulmonary vessels and airways can be compressed with the potential for life-threatening implications. We present a 50-year-old male patient who presented with a total occlusion of the left pulmonary artery due to fibrosing mediastinitis.

Histoplasma capsulatum is an endemic fungal organism found in some parts of the United States [1]. The infection generally has a benign course as a self-limiting respiratory illness. People living in endemic areas may have signs of previous infection, including immunologic tests (skin tests or serology) or radiological examinations (calcified lung and splenic granulomas), without any history of a significant disease [2]. However, histoplasmosis has the potential to produce a severe inflammatory or fibrotic reaction resulting in mediastinal granuloma or fibrosing mediastinitis [3]. We present a case of a totally occluded left pulmonary artery and pleural thickening.

A 50-year-old man presented with progressive shortness of breath during physical activity. Thirteen years ago he was diagnosed with pulmonary histoplasmosis during evaluation of a nodule in his left lung. All diagnostic workup, including fiberoptic bronchoscopy, showed no evidence of malignancy or other disease. He was medically treated and the nodule disappeared. During his follow-up he developed progressive shortness of breath and chest tightness. Physical examination was unremarkable. Computerized tomography (CT) with contrast demonstrated nearly complete obstruction of the left main pulmonary artery and left pleural thickening (Fig 1). Quantitative ventilation-perfusion scan was notable for decreased ventilation and nearly absent perfusion to the left lung without an evidence of pulmonary embolism (Fig 2).

Although the CT suggested extrinsic compression of the left bronchus, bronchoscopic examination was anatomically normal. Due to his progressive symptoms it was decided to proceed with a left pneumonectomy, which was performed thoracoscopically. The procedure was notable for dense adhesions throughout the left hemithorax and significant calcification in the hilum, most severe at the bifurcation of the pulmonary veins, requiring intrapericardial access (Fig 3).

Postoperatively he did well, with the exception of left vocal cord palsy treated with medialization on postoperative day 3. He was discharged on the postoperative day 5 and his postoperative follow-up has been uneventful. Histopathologic examination of the resected material showed dense fibrosis surrounding hilar structures with calcified lymph nodes, consistent with “sclerosing mediastinitis.”

Comment
Pulmonary histoplasmosis is endemic in the great river valleys of the eastern central United States [4]. Many cases are silent and it is a self-limiting respiratory illness [2]. The diagnosed cases can be treated medically. Our patient was diagnosed as histoplasmosis during evaluation of a pulmonary nodule on his left lung. He was living in a possible endemic area of the country. He was treated medically and his nodule disappeared.

Fibrosing mediastinitis represents the most severe chronic complication of histoplasmosis in which pulmonary vessels and airways can be compressed and may have life-threatening implications. Medical treatment methods have no effect at this stage and steroids are ineffective in reversing the fibrosing process [2]; thus, in some cases surgery may be needed. Overall intraoperative mortality is notably high [1].

Accepted for publication June 24, 2014.
Address correspondence to Dr Kara, Department of Surgery, Division of Thoracic Surgery, Duke University Medical Center, Durham, NC 27710; e-mail: volkan_kara@yahoo.com.

© 2014 by The Society of Thoracic Surgeons
Published by Elsevier
We performed a thoracoscopic intrapericardial left pneumonectomy without incident, other than hoarseness, which improved after medialization of the vocal cord.

Fibrosing mediastinitis as a complication of pulmonary histoplasmosis is a rare benign condition and may require surgery for treatment. The procedure might be challenging due to dense fibrosis. Timing and surgical options should be evaluated carefully. Minimally invasive surgery can safely be used in selective cases.

Fig 2. Quantitative ventilation-perfusion scan showing decreased ventilation and nearly totally absent perfusion to the left lung. (A) Posterior. (B) Anterior.

Fig 3. Intraoperative views of left hilar structures. (A) Left main pulmonary artery dissected and exposed, left superior pulmonary vein divided (arrow). (B) Left main pulmonary artery divided (arrow) and left main bronchus dissected and exposed.

References