Case Report
Giant bullous emphysema in the right middle lobe

Hao Chen, Wenli Wang, Jing Feng, Yunqing Mei

Department of Cardiothoracic Surgery, Tongji Hospital, Tongji University, Shanghai, China

Received August 15, 2015; Accepted October 6, 2015; Epub October 15, 2015; Published October 30, 2015

Abstract: Giant bullous emphysema, or vanishing lung syndrome, typically occurs in young, thin male smokers with large bullae in one or more upper lobes occupying at least one-third of the hemithorax. We present here a rare case of giant bullous emphysema in a mid-age nonsmoking female who was seen for progressive shortness of breath and cough. Chest computed tomography found a giant bulla in the middle lobe of right lung. The patient underwent successful thoracoscopic bullectomy and is currently without residual symptoms.

Keywords: Giant bullous emphysema, vanishing lung syndrome, pneumothorax, bullectomy

Introduction
Giant bullous emphysema (GBE), also known as vanishing lung syndrome, is a rare entity typically occurs in young, thin heavy smoking men with giant bullae in one or both upper lobes occupying at least one-third of the hemithorax and compressing surrounding lung parenchyma [1]. Here we report a case of GBE involves the middle lobe of right lung in a nonsmoker woman.

Clinical record
A 56-year-old Chinese female was admitted to our department with progressive shortness of breath and cough for 7 days. Upon admission, she was in sinus rhythm (rate, 70 beats per minute), blood pressure was 120/80 mmHg, and oxygen saturation was 100% on ambient air. Laboratory studies were unremarkable including serum level of alpha 1 antitrypsin. Physical examination revealed decreased breath sounds and hyper-resonance to percussion in the right lung. Chest radiograph and computed tomography (CT) showed a giant bulla in the middle lobe occupying more than half of the hemithorax, compressing the residual lung (Figure 1). The patient was a retired middle school teacher with no history of smoking or significant medical history, and her family history was noncontributory.

A video-assisted thoracic surgery with bullectomy was performed without incident, allowing re-expansion of the surrounding parenchyma (Figure 2). Upon exploration, the giant bulla was originated from the middle lobe, with compression of the right upper and lower lobe. Postoperative gross pathology showed the bulla to be measured 13 × 8 × 8 cm in size with thin wall. Microscopical examination showed enlarged airspace with paraseptal emphysema on the margin and infiltration of inflammatory cells, thus confirmed the diagnosis of GBE.

Postoperative course was uneventful and satisfactory. The patient was discharged home5 days after the surgery, and is currently asymptomatic and doing well after 6 months of follow-up.

Discussion
Giant bullous emphysema, also referred to as vanishing lung syndrome, is a progressive bul- lous disease typically affecting young male cigarette smokers, characterized by large bullae that involve at least one-third of one or both hemithorax. The bullae are mostly unilateral or asymmetrical and limited to the upper lobes [1]. However the present case is somewhat unusual for its middle lobe involvement of a nonsmoking female. Clinical presentations of GBE usually include dyspnea, hemoptysis, chest pain, or spontaneous pneumothorax. GBE needs to be differentiated from pneumothorax [2, 3] and bullous emphysema. On standard chest radiography, a pneumothorax usually causes the lung parenchyma to collapse into a clump toward the
Giant bullous emphysema

hilum. In GBE, the compressed lung usually falls away from the hilum. Bullous emphysema is associated with more diffusely abnormal lung tissue (in the context of chronic obstructive pulmonary disease) whereas GBE has bullae with structural normal intervening lung parenchyma.

Surgical bullectomy (either by thoracotomy or thoracoscopy) is indicated to relieve pulmonary compression and eliminate the risk of pneumothorax for selected patients after assessment of pulmonary function and exercise capacity [4, 5]. The operative mortality is reported to be low, and the morbidity is primarily related to prolonged air leak (53%), atrial fibrillation (12%), postoperative ventilation (9%), pneumonia (5%) and incisional pain [6].

Conclusion

We report a rare case of giant bullous emphysema unusually occurred in the right middle lobe of a nonsmoking female. The giant bulla was resected via a thoracoscopic bullectomy safely and satisfactorily. Although not sufficiently evidence-based or controlled studies validated, surgical excision is a valid therapy with an overall good prognosis.

Disclosure of conflict of interest

None.

Address correspondence to: Drs. Hao Chen and Yunqing Mei, Department of Cardiothoracic Surgery, Tongji Hospital, Tongji University, 389 Xincun Rd, Shanghai 200065, China. Tel: +86-21-66111070; Fax: +86-21-66111070; E-mail: h.chen@fudan.edu.cn (HC); drmeiyq2004@tongji.edu.cn (YQM)

References


Giant bullous emphysema


