Intern Emerg Med (2017) 12:1069–1070
DOI 10.1007/s11739-016-1601-9

CE - MEDICAL ILLUSTRATION

Tuberculosis-related giant bullae mimicking tension pneumothorax

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Received: 18 November 2016 / Accepted: 27 December 2016 / Published online: 30 December 2016

A 54-year-old man presented to the emergency department (ED) with a 2-day history of worsening dyspnea on exertion. He had experienced chronic cough for the prior 2 years. Physical examination revealed hyper-resonance and decreased breath sounds in the right thorax. Chest radiography (Fig. 1a) showed a large lucent area over the right upper thorax with marked deviation of the trachea and patchy opacities of the left apical area. The chest radiography report indicated a right tension pneumothorax; however, this was not consistent with the patient's clinical presentation. Chest computed tomography was subsequently performed (Fig. 1b), and it showed giant bullae occupying the right thorax and multiple opacities over the left upper lung. He underwent antituberculous therapy after pulmonary tuberculosis (TB) was confirmed with acid-fast bacilli analysis and TB polymerase chain reaction. He was diagnosed with TB-related giant pulmonary bullae, and bullectomy was scheduled.

Bullae are defined as air spaces in the lungs, measuring more than 1 cm in diameter when distended, while giant bullae occupy at least 30% of the hemithorax [1]. Bullae can be idiopathic or associated with chronic obstructive pulmonary disease or pulmonary infection. Clinical manifestations of giant bullae include cough, dyspnea, and chest pain, and in some cases, the condition may be asymptomatic. Bullectomy can greatly improve symptoms and respiratory function in patients with giant bullae [2]. It can be difficult to distinguish between pneumothorax and giant bullae. Hence, history taking, physical examination, and radiological studies are important. If a patient's clinical condition is unsuitable for a computed tomography scan, then bedside sonography is a useful and rapid tool that can aid in distinguishing bullae from pneumothorax. The typical "comet tail" phenomenon of the movement of the lung tissue against the pleura during respiration, and the pleural sliding sign can be present in bullae but are absent in pneumothorax [3]. If the patient's clinical condition requires prompt thoracostomy, the incision in the chest

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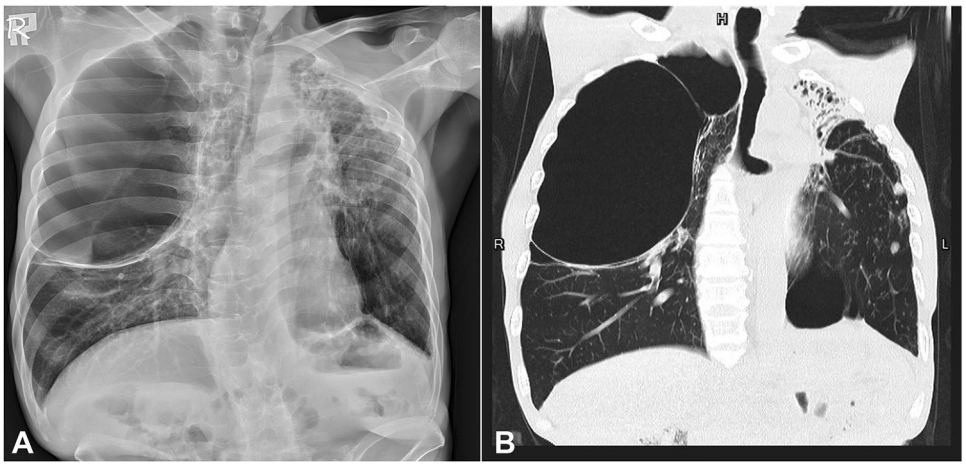

Fig. 1 **a** The chest radiography image shows a large lucency occupying the right upper thorax with mediastinal shift and patchy opacities of the left apical area. **b** The coronal computed tomography image shows giant bullae occupying the right thorax and multiple opacities over the left upper lung

should be sufficiently large to enable a clinician to introduce a finger into the incision before placing a chest tube. The smallest possible tube should, then, be used for drainage. This procedure is an important technical consideration because if the patient has a bulla rather than pneumothorax, this technique will prevent rupturing the bulla with the resultant catastrophic pulmonary fistula.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Statement of human and animal rights All procedures performed in human participants in this study were in accordance with the ethical standards of the institutional committee and with the 1964 Helsinki Declaration and its later amendments. This article does not contain any studies on animals performed by any author.

Informed consent Informed consent was obtained from the patient included in this report.

References

1. Sharma N, Justaniah AM, Kanne JP, Gurney JW, Mohammed TL (2009) Vanishing lung syndrome (giant bullous emphysema): CT findings in 7 patients and a literature review. J Thorac Imaging 24:227–230
2. Palla A, Desideri M, Rossi G, Bardi G, Mazzantini D, Mussi A, Giuntini C (2005) Elective surgery for giant bullous emphysema: a 5-year clinical and functional follow-up. Chest 128:2043–2050
3. Simon BC, Paolinetti L (2005) Two cases where bedside ultrasound was able to distinguish pulmonary bleb from pneumothorax. J Emerg Med 29:201–205