Scabbard trachea
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Scabbard trachea is a rare clinical observation, though commonly present in patients with chronic obstructive pulmonary disease. There is coronal narrowing of the intrathoracic part of the trachea resembling a saber sheath. We herein describe a case of scabbard trachea as a sequel of severe chronic obstructive pulmonary disease with the classical computed tomography and bronchoscopy findings.

Keywords: saber-sheath trachea, scabbard trachea, tracheal deformity

Introduction
Scabbard trachea is an intrathoracic tracheal deformity where the coronal diameter is less than or equal to one-half of its sagittal diameter. Usually the patient is asymptomatic, unless there is greater than 50% reduction in coronal diameter. The diagnosis is made on radiographic and bronchoscopy study. We present a patient who had an acute exacerbation of chronic obstructive pulmonary disease (COPD) with lower respiratory tract infection, incidentally diagnosed to have scabbard tracheal deformity.

Case report
A 70-year-old man, with a significant smoking history for 40 years, with acute exacerbations twice a year not requiring hospitalization, presented with fever for 15 days associated with dry cough. He complained of chronic cough with expectoration and seasonal exacerbation for the last few years. As the symptoms persisted after taking antibiotics, a computed tomography (CT) thorax was done which showed left lower lobe centrilobular nodules suggesting probable infection. A fiber-optic bronchoscopy was performed, which showed a peculiar appearance of the trachea (Fig. 1). There was diffuse coronal narrowing of the intrathoracic part of the trachea with simultaneous widening of the sagittal diameter. A review of CT images also showed saber-sheath (scabbard) trachea (Fig. 2), which is seen in patients with COPD. Bronchoalveolar lavage grew *Pseudomonas aeruginosa* sensitive to Piperacillin/Tazobactam, which was initiated, with prompt resolution of symptoms. A postbronchodilator spirometry confirmed severe COPD. Bronchoscopic and CT images showed characteristic appearance of scabbard or saber-sheath trachea [1,2], which is considered to be pathognomonic of COPD.

Discussion
Scabbard tracheal deformity is commonly seen in patients with COPD. Greene [2] compared 60 men with marked coronal narrowing of intrathoracic trachea with 60 controls and established a strong correlation between scabbard trachea and clinical COPD.

The intrathoracic part of the trachea develops coronal narrowing and sagittal elongation, leading to resemblance to a scabbard or saber. Tracheal index [3], which refers to the ratio of the coronal and sagittal
diameter of trachea at the same level, is markedly
decreased in saber-sheath trachea. Tracheal index of
less than two-thirds is said to have a specificity of
92.9% and sensitivity of 39.1% to diagnose severe
obstructive lung disease. Elevated intrathoracic
pressure coupled with repeated injury to cartilage
inflicted by coughing leads to remodeling of the
cartilaginous rings resulting in characteristic shape of
the trachea [4]. No essential tracheal weakness is
present in patients with COPD, as observed in Rayl
[5] in his study on abnormal airway collapse during
cough using cine-fluoroscopy. In a study conducted by
Ciccarese and colleagues, it was linked to the functional
severity of airway obstruction, but not to other
radiological signs of COPD [6]. Thus, evaluation of
the trachea at chest radiography in COPD patients is
strongly recommended.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

Reference
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