

Tracheal Diverticulosis Presenting as Chronic Cough

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Clinical Images

Tracheal diverticulosis presenting as chronic cough

A 62 year old female patient with mild intermittent asthma was seen in the pulmonary clinic with a history of a productive cough for two years. She had required multiple courses of antibiotics over the past year. She underwent a CT scan of the chest which showed central bronchiectasis and multiple discrete diverticula projecting posteriorly from the membranous trachea measuring up to 2.3 x 1.7 x 1.7 cm. The diverticula involved nearly the entire course of the trachea (Figure 1). A bronchoscopy was performed which showed tracheal pouches and indentations (Figure 2). There were no prior scans and therefore it is unclear for how long she had the diverticula. Her symptoms improved with antibiotics and she remains relatively well with chest physiotherapy and bronchial hygiene.

Several anatomic variations of tracheobronchial tree have been described which can be congenital or acquired. It is estimated that the incidence of trachea-bronchial anomalies range from 1 and 12% [1,2]. In general these variations are a rare clinical entity owing to their asymptomatic nature. Tracheal diverticulum was first described by Rokitsansky in 1838 as air-containing cysts of the mucous gland in the paratracheal region specifically in the posterior tracheal wall. According to an autopsy series the overall prevalence of tracheal diverticula is estimated at about 1%. As with many rare clinical entities, numerous terms have been used to describe these lesions over the years including paratracheal air cyst, tracheal diverticulum, tracheal diverticulosis, intratracheal diverticulum, bronchogenic cyst, aerocoele, bronchocoele and air-goiter [1,2]. Recent sources describe a tracheal diverticulum as a benign entity characterized by single or multiple out pouchings of the tracheal wall. Congenital tracheal diverticulum arises from a defect in endodermal differentiation during development of the membranous posterior tracheal wall. On the other hand acquired tracheal diverticula may appear at any level, though they are more common in the poster lateral region [4].

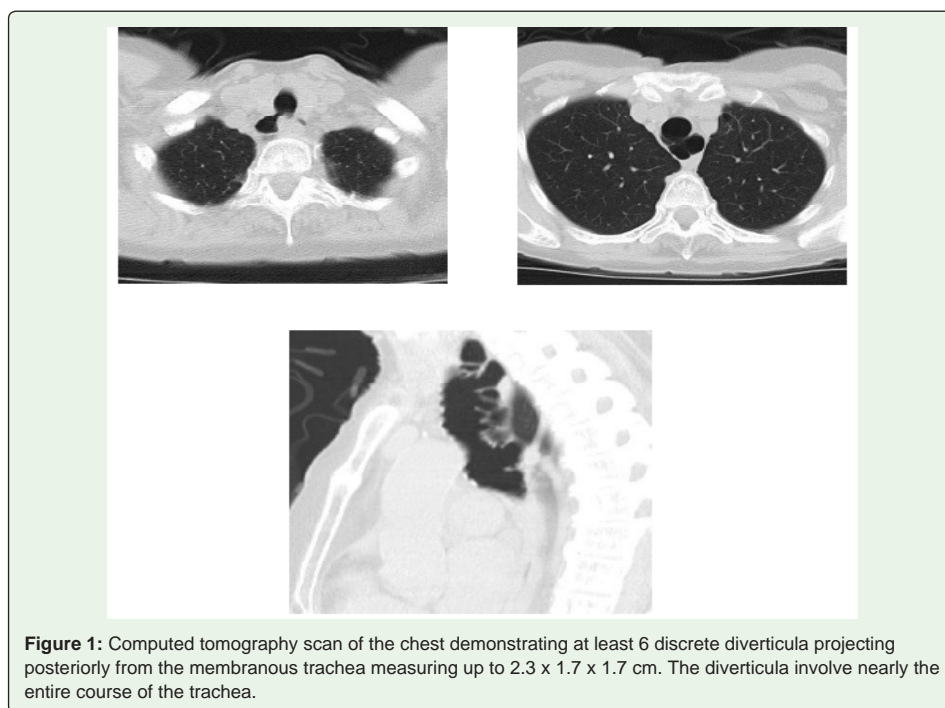


Figure 1: Computed tomography scan of the chest demonstrating at least 6 discrete diverticula projecting posteriorly from the membranous trachea measuring up to 2.3 x 1.7 x 1.7 cm. The diverticula involve nearly the entire course of the trachea.

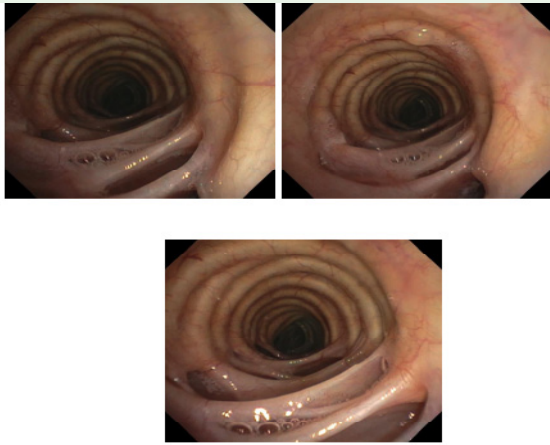


Figure 2: Bronchoscopy demonstrating multiple tracheal pouches.

Acquired tracheal diverticula are typically larger than those of the congenital type. Histologically, the wall in acquired tracheal diverticula is formed solely of respiratory epithelia and lacks smooth muscle and cartilage. Acquired diverticula can occur as a complication of surgical procedures or may be a result of tracheomalacia. Infection is the most common complication although rarely they may rupture causing mediastinitis and sepsis [3,4]. The diverticulum may act as a barrier to the lower airway clearance mechanism thus facilitating pooling of secretions from the proximal airways, leading to an increased risk for recurrent pneumonias and atelectasis.

In recent years, cases of tracheal diverticulum have been reported to be gradually increasing because of wide use of CT scanning. The characteristics of tracheal diverticulum for CT thin layer scanning include gas or liquid lumen of the trachea usually 2 cm in diameter. Most cases of tracheal diverticula are asymptomatic however rarely they may be a cause of acquired bronchiectasis, chronic cough and recurrent infection as in the case described. Symptomatic patients are treated conservatively with antibiotics, mucolytic agents and physiotherapy. Recognition of tracheobronchial variations is important for diagnosing symptomatic patients, as well as performing procedures, such as bronchoscopy, endotracheal intubation [5], and proper positioning of lung isolation devices.

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