Medical Image of the Week: Dynamic Collapse of the Trachea

Figures 1A (Inspiratory) and 1B (Expiratory). CTs showing greater than 50% reduction of the anterior-posterior diameter of the trachea (double-headed arrow in Panel A compared to single-headed arrow in Panel B) during expiration consistent with dynamic airway collapse.

A 61 year old man with a history of chronic obstructive pulmonary disease (COPD) requiring multiple intubations over the past 2 years as well as obstructive sleep apnea (OSA) presented with acute dyspnea, cough and difficulty expectorating sputum over the last 24 hours. His physical exam was notable for expiratory and inspiratory wheezing. ABG revealed a pH of 7.24, P_aCO_2 of 71, P_aO_2 of 103, and HCO_3 of 29 mMol consistent with an acute on chronic respiratory acidosis. In the Emergency Department, the patient was given multiple bronchodilators and eventually placed on BiPAP with gradual improvement. CT of the chest revealed the caliber of the trachea was narrowed greater than 50% during expiration (Figure 1B) consistent with dynamic airway collapse of tracheobronchomalacia. This often overlooked condition may be related to past intubations or COPD with chronic bronchitis and is often misdiagnosed as COPD or treatment resistant asthma. Stents are often entertained in these patients but are fraught with complications and when used a removable stent is chosen.

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