A 50-year-old lady who is a known case of scleroderma presented with worsening shortness of breath on exertion and dry cough for 6 months. She also had mild difficulty in swallowing liquids. General examination was significant for pallor, increased pigmentation, and tightness of skin. Examination of respiratory system showed end-inspiratory crackles and Velcro rales symmetrically in basal regions. Chest skiagram revealed coarse reticular opacities in both lung fields with a mid and lower zone predominance. High-resolution computed tomography of lung showed basal and subpleural predominant ground-glass densities and reticulations with areas of traction bronchiectasis and small areas of honeycombing. The findings suggested a non-specific interstitial pneumonia pattern. Visualized mediastinum was unremarkable except for grossly dilated esophagus with a left anterolateral outpouching from the middle third of thoracic esophagus [Figures 1a and b]. A barium study of esophagus was done which revealed dilated middle and lower third of esophagus with diminished peristaltic activity. A small diverticulum was noted in the middle third of esophagus between the aortic knuckle and the upper margin of the left mainstem bronchus which was most evident on right anterior oblique (RAO) and lateral projections [Figures 2a and 2b].

**QUESTION**

**Q1:** What is the nature of the diverticulum? How can you explain its formation?

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**Figure 1:** High-resolution computed tomography lung, (a) axial section in mediastinal window and (b) coronal reformat, shows small left anterolateral diverticulum from esophagus (arrowhead). Note background lung shows changes of non-specific interstitial pneumonia in B (see the text)

**Figure 2:** Right anterior oblique (a) and lateral (b) views of barium esophagogram showing mid-esophageal diverticulum (arrowhead) with contrast level between aortic knuckle and left mainstem bronchus (solid arrow). Note middle and lower third of esophagus is dilated with contrast hold-up
ANSWER

Interaorticobronchial diverticulum. This is a pulsion type of mid-esophageal diverticulum. The presence of barium in the diverticulum even after the rest of esophagus is cleared of contrast suggested that the diverticulum is of pulsion type, rather than traction type. This diverticulum usually forms due to abnormal esophageal motility which in our case is secondary to scleroderma.

According to classical teaching, mid-esophageal diverticula are more commonly traction type containing all layers of the esophageal wall and empties with the rest of the esophagus in a barium study. These are usually located opposite the tracheal bifurcation and are most well seen in left anterior oblique (LAO) view of barium esophagogram. These are often secondary to fibrosis following mediastinal lymphadenitis which is usually evident on imaging studies. Pulsion diverticulum of mid-esophagus are commonly found secondary to esophageal dysmotility.[2] These interaorticobronchial diverticula arise in a relatively weak area on the left anterolateral wall of the esophagus between the inferior border of the aortic arch and the upper external margin of the left mainstem bronchus. An interaorticobronchial diverticulum can be seen best in the RAO projection.[3] These diverticula lack the muscular coat and retain contrast even after the rest of the esophagus is cleared of contrast.[3] More recently, it is suggested that most esophageal diverticula are of pulsion type and are associated with some form of abnormal esophageal motility.[2,4] Mid-esophageal diverticulum without significant dysphagia usually require no treatment except for attention to the accompanying esophageal dysmotility.[5] However, even when these diverticula demand surgical resection, a prophylactic esophageal myotomy is not always needed and preoperative esophageal manometry should be considered for surgical decision making.[6]

Learning points:
- Mid-esophageal diverticula are more commonly pulsion type and the presence of such diverticulum should prompt search for abnormal esophageal motility.
- Small mid-esophageal diverticulum may be left alone. An esophageal manometry should be considered before resection of a larger one.

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