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Case Report

Tracheal diverticulum: a rare entity

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ABSTRACT

Tracheal diverticulum is a rare entity usually found incidentally on CT thorax or post-mortem. We are here describing an interesting case of a 28 year old male who presented to us with hemoptysis and symptoms of lower respiratory tract infection and was found to have tracheal diverticulum on further evaluation by CT thorax and fibreoptic bronchoscopy.

Keywords: Tracheal diverticulum, Paratracheal air cyst, Hemoptysis

INTRODUCTION

Tracheal diverticulum is an outpouching from the tracheal lumen. It is usually detected as an incidental finding as majority of these patients are asymptomatic. Here, we are describing an interesting case with multiple tracheal diverticulum presenting to us with hemoptysis.

CASE REPORT

A 28 year old male presented to us with complaints of fever, dry cough, breathlessness (MMRC grade 3) for one month and hemoptysis for seven days. Patient was a non-smoker with no other co-morbidity. The patient had not received any anti-tubercular treatment previously. However, the patient had recurrent respiratory tract infection since the last fifteen years. On respiratory system examination the patient had bilateral harsh vesicular breath sounds with fine crepts in left infrascapular area. The systemic examination was normal including the ENT (ear, nose, throat) examination.

Investigations

Blood investigations showed Hb% -11.8gm/dl, TLC-13,400/mm^3, Platelets- 2.1x105 /mm^3. Liver function tests and kidney function tests were normal. Chest X-ray showed heterogenous opacities in the lower zone of the left lung. CT thorax revealed multiple paratracheal air cysts (Figure 1) with consolidation in left lower lobe.

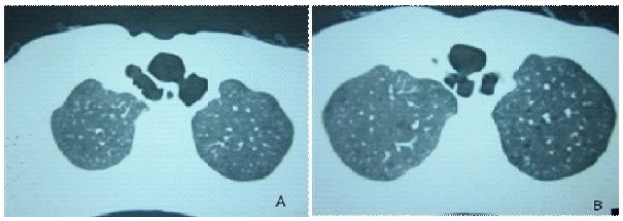

Figure 1: Tracheal Diverticula presenting as paratracheal air cysts and having connections with the main trachea.

After about a week's treatment with empirical antibiotic orally (Amoxicillin clavulanate, 625mg TDS) and cough

suppressant, patient's hemoptysis was controlled. Fibreoptic bronchoscopy was then done which revealed multiple openings along the posterolateral wall of the trachea which led to blind shallow outpouchings (diverticula) (Figure 2).

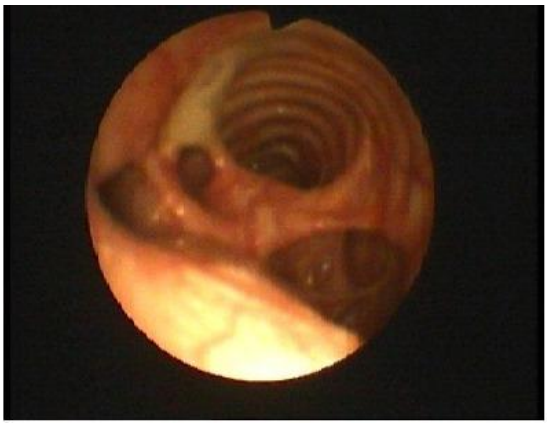

Figure 2: Bronchoscopic image of tracheal diverticulum along posterolateral wall of trachea.

Some of the openings were wide mouthed while others were narrow mouthed. The walls of the out pouching were lined by cartilaginous rings. Multiple small pits like openings were seen on either side of the main carina and along the right and left main bronchi probably due to dilated bronchial gland openings (Figure 3).

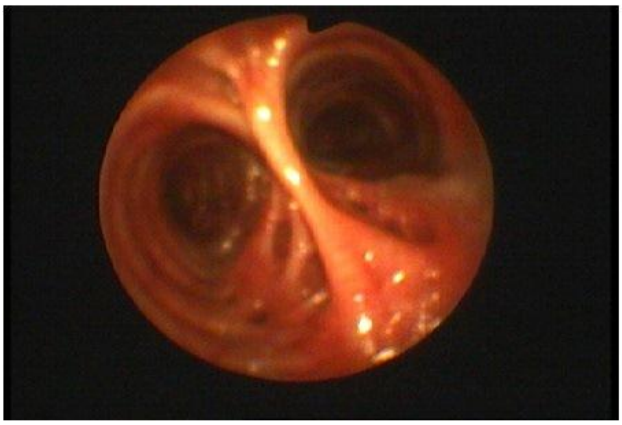

Figure 3: Bronchoscopic image of pit like openings on both sides of carina.

The bronchial walls were hyperemic with prominent cartilaginous rings. Bronchoalveolar lavage was taken from left lower lobe (superior basal segmental opening) which was negative for acid fast bacilli smear and culture (pyogenic) yielded growth of *Pseudomonas aeruginosa*. Barium swallow in the patient was normal.

Treatment

Patient was treated with antipseudomonal antibiotics (piperacillin-tazobactam 4.5gm i.v. TDS and amikacin 500mg i.v. OD) as per the sensitivity report for ten days along with bronchodilators. Patient was relieved his symptoms including hemoptysis and was discharged in a stable condition.

Differential diagnosis

Mounier-Kuhn syndrome
Bronchogenic cyst
Pneumo mediastinum
Laryngocele
Pharyngocele
Zenker's diverticulum
Apical blebs/bullae of lung
Apical herniation of lung

DISCUSSION

Tracheal diverticulum is a rare entity with some being detected post-mortem. Tracheal diverticulum may be seen as paratracheal air cyst on CT Thorax. Paratracheal air cysts are seen in about (3-4) % of the general population.[1] Tracheal diverticulum may be congenital or acquired. Congenital variety is due to abnormal budding of the primary lung bud which does not undergo further development. Congenital tracheal diverticulum has cartilaginous rings in its wall similar to the trachea and is narrow mouthed in comparison to the acquired type. The acquired variety is devoid of cartilaginous rings and is often caused by increased intraluminal pressure (example: due to chronic cough) leading to outpouchings in the weaker parts of the airway wall. Acquired diverticulum is usually seen in smokers and in patients with chronic obstructive pulmonary disease.

The most common site for tracheal diverticula is the right posterolateral tracheal wall although in our case the tracheal diverticula were present on both sides of the posterolateral tracheal wall. Tracheal diverticulum may remain asymptomatic or may present as recurrent lower respiratory tract infection.[2] The tracheal diverticula caused left lower lobe pneumonia in our case with Pseudomonas aeruginosa as the etiological agent. Tracheal diverticulum may also lead to hoarseness of voice[3], dysphagia[4], difficult orotracheal intubation[5] or may present as a FDG-avid malignant mediastinal lesion on getting infected.[6] Tracheal diverticulum may be seen in association with Mounier-Kuhn syndrome.[7]

The tracheal diverticula are usually diagnosed by bronchography, CT scan thorax or by fibreoptic bronchoscopy. The diagnosis in our case was also mainly based on CT thorax and fibreoptic bronchoscopy. These patients are usually treated conservatively with antibiotics, bronchodilators and chest physiotherapy and only in severely symptomatic patients is surgical treatment required in the form of resection and reinforcement of the airway wall.

Learning points

a) Tracheal diverticulum although a rare entity should be considered in the differential diagnosis of patients with hemoptysis and in the differential diagnosis of patients with paratracheal air cyst.
b) CT thorax and fibreoptic bronchoscopy although a little expensive but are indispensable tools for the detection of airway anomalies.
c) Majority of these patients with tracheal diverticulum can be treated conservatively and surgical intervention is required in a few cases only.

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