# Tracheo-bronchial diverticulosis and bronchiectasis

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## Abstract

A 65-year-old male patient, ex-smoker, presented to pulmonary medicine OPD with complaints of cough with expectoration for 15 days. Patient was having similar complaints for past 10 years and was treated as a case of left lower lobe bronchiectasis. General examination– patient's vitals were stable. On auscultation– coarse biphasic crepitations was heard in left mammary area and infra-axillary area. Chest X-ray was taken which showed cystic changes in left lower zone. In view of chest X-ray findings, CT scan was taken which showed features of tracheo -bronchial diverticulosis, with tracheal diameter of about 32mm X 28mm at widest point with chain of beads air collection seen posterior to the trachea and left main bronchi. Multiple cysts of varying size were seen in left lingular segment and lower lobe suggestive of bronchiectasis. Thus, presence of narrow stalks connecting the lesion with the posterior wall of the trachea and bronchi was helpful in our diagnosis. Bronchoscopy was performed which also showed multiple diverticulosis on posterior wall of trachea, left main bronchi and right middle lobe.

**Keywords:** Bronchiectasis; Bronchoscopy; Computed tomography; Tracheal diverticulum

## Introduction

Tracheal diverticulosis is a rare entity and is a benign condition usually characterized by either single or multiple tracheal wall invaginations. These are usually found incidentally on computed tomography (CT) scans. The condition is usually asymptomatic. Since it is a rare entity, the incidence in a series of autopsies may reach 1% [1]. Tracheal diverticulosis has two forms-congenital and acquired [2,3]. Approximately 60% of the reported cases are congenital [2-4]. Management is usually conservative in asymptomatic patients. Surgical removal of diverticulae may be required in symptomatic patients.

## Case Report

A 65-year-old male presented with a history of cough for past two weeks. Cough was associated with mucoid expectoration. Symptoms are more during early morning hours. Patient had similar complaints for past ten years, for which he used to get treatment (no medical records available) from a local hospital, but still symptoms persisted. There was no history of wheeze, breathlessness, chest pain, loss of appetite, loss of weight or any nasal symptoms. No history of previous tuberculosis infection. He was a smoker and used to smoke 5-6 beed is per day for last 30-years. There were no other significant comorbidities. General examination was unremarkable and vitals were stable. Examination of respiratory system revealed coarse biphasic crepitations over left mammary area and left infra- axillary area. Routine blood investigations and ECG were normal. Sputum smears for acid fast bacilli were negative. Chest X-ray [Figure 1] showed cystic 'ring-shadows' in left lower zone suggestive of bronchiectasis. In view of the above findings, HRCT was done which showed 'chain of beads' of air collection posterior to trachea and left main bronchus, suggestive of tracheobronchial diverticulum, with left lower lobe bronchiectasis [Figure 2 & 3]. A diagnostic video- bronchoscopy revealed multiple wide mouthed diverticulae adjacent to each other on the posterior wall of trachea, which are also seen in left main bronchi confirming the diagnosis of tracheobronchial diverticulosis [Figure 4 & 5].

Patient was informed about the underlying clinical condition and was treated symptomatically using mucolytic, expectorants, nebulized bronchodilators and chest physiotherapy (vibration, shaking, percussion). Patient improved symptomatically and was discharged. Informed consent was obtained from the patient for the use of images and his other data in this case report.

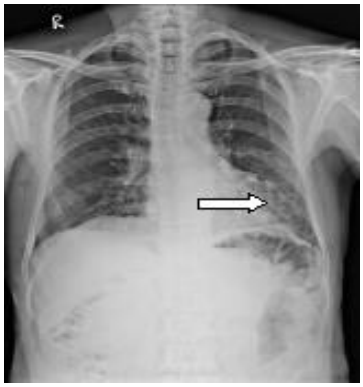

**Figure 1: Chest radiograph showing cystic shadows in left lower zone**

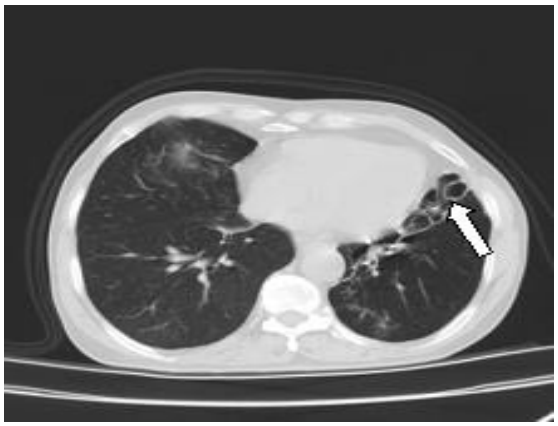

**Figure 2: Left lower lobe bronchiectasis**

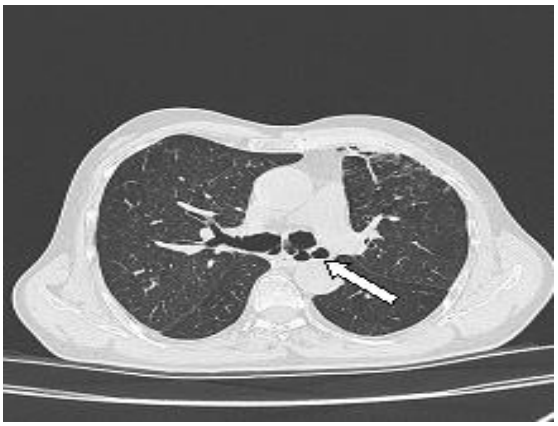

**Figure 3: Air collection posterior to trachea and left main bronchus**

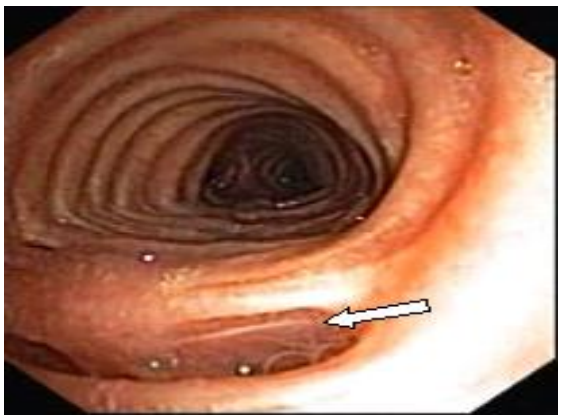

**Figure 4: Diverticulae adjacent to posterior wall of trachea**

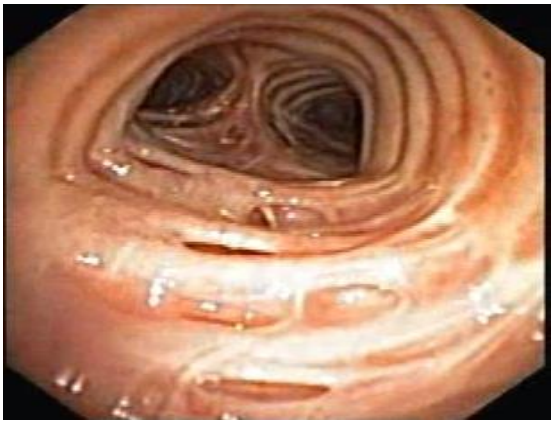

**Figure 5: Diverticulae adjacent to posterior wall of trachea**

## Discussion

Tracheal diverticulosis is an incidental finding when the patient is radio logically evaluated for other symptoms [5]. Rokitansky first described about this in 1838 [6]. In 1999, Goo et al. has reported sixty four cases in a study [7]. Prevalence is 1% according to an autopsy study series by Mackinnon [1]. Katz et al. described four types of tracheal diverticuli- rudimentary bronchus, cystic dilatation of mucus gland duct, tracheocoele and diverticulum associated with tracheobrochomegaly [8]. Tracheal diverticulum may be congenital or acquired. Congenital tracheal diverticulum is smaller, located approximately 4–5 cm below vocal cords or just above the carina. More common in male [9]. Right side of the trachea is more commonly involved [10]. Acquired diverticula can be seen at any level [11,12]. Acquired is more common in the posterolateral region. Acquired is having wider opening compared to congenital [13]. Left tracheal diverticulum is rare [1]. Tracheal diverticulum in this patient was located on the left side of trachea. Acquired tracheal diverticulum may be single or multiple. Multiple acquired tracheal diverticula are hallmark of tracheobronchomegaly or Mounier-Khun disease [14].

Differential diagnosis of tracheal diverticula includes laryngocele, Zenkers diverticulum, pharyngocele, apical hernia of the lungs and bronchogenic cyst [7,15]. Diagnosis is basically confirmed using CT [13]. Bronchoscopic examination is used to see the orifice of diverticulum. Since most of the cases are asymptomatic, a conservative treatment with mucolytics, antibiotics and physiotherapy is usually recommended. Surgery is rarely indicated. Endoscopic cauterization with laser is also available.

## Conclusions

Tracheal diverticulosis is a rare and incidental finding. Clinical presentation may be non-specific. Diagnosis is basically confirmed using CT. Surgical treatment is indicated only in cases of large chronic

symptomatic diverticula or patients with frequent concomitant infections.

**Conflicts of interest:** None declared

**Acknowledgements:** None

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