Case Report

Tracheal diverticulum- a rare and incidental finding

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Abstract:

Tracheal diverticulum is a rarely and incidentaly encountered sonographic or radiologic finding. Most cases are asymptomatic, but when symptoms are present they usually have airway symptoms with cough or recurrent respiratory infection. Here, we report a rare case of 43 years old, non-smoker, male, with high grade fever, cough with expectoration,occasional hemoptysis and breathlessness. He was found to have an incidental right paratracheal air filled cavity connected by narrow stalk with posterior wall of trachea at level of thoracic inlet region on his CECT Chest.

Key Words:

Recurrent respiratory infection, hemoptysis, breathlessness, paratracheal air filled cavity.

Introduction:

The tracheocele or tracheal diverticulum, a rare entity, is a cavity secondary to a congenital or acquired weakness of the tracheal wall. Very few cases have been reported in English literature. Due to its low symptomatology, is often diagnosed incidentally and due to its rarity, there is no standard treatment. It is a benign entity but has the potential to cause specific symptoms or can be asymptomatic. We herein report a case of tracheal diverticulum that presented with complaint of high grade fever,breathlessness and occasional hemoptysis.

Case Report:

A 43 years old, non-smoker, male was admitted in our hospital with high grade fever,cough with expectoration,occasional hemoptysis and breathlessness. There was also history of repeated episodes of high grade fever, mild hemoptysis and dysphagia to solids. He gave the history of anti-tuberculosis treatment due to hemoptysis many years ago but sputum microscopy was not done at that time. He was a known case of bronchial asthma and was on inhalers since 5 to 6 years. On physical examination there were bilateral crepitations and ronchi. Provisional diagnosis of reactivation of tuberculosis; bronchiectesis due to ABPA or due to old treated tuberculosis along with superadded infection or Fungal infection were kept. Hematological examination showed a raised TLC with neutrophilia. Sputum microscopy and cartridge based nucleic acid amplification test(CBNAAT) were negative for AFB(Acid fast bacilli). Sputum for fungus was also negative. . Sputum culture showed growth of E.coli .CT scan also done showed an air filled cavity originating from trachea detected in right paratracheal region at level of thoracic inlet. The presence of narrow stalk connecting lesion with posterior wall of trachea established diagnosis of tracheal diverticulum , which was an incidental finding (Fig 1).Treatment according to culture sensitivity report was given and the patient responded to appropriate treatment. Further diagnostic workup with bronchoscopy could not be performed due to low oxygen saturation of the patient. (76%).

Discussion:

A tracheal diverticulum is a rare benign entity characterized by invaginations of the tracheal wall, which is part of the differential diagnosis of paratracheal cysts. It was first described by Rokitansky in 1838, with very few cases reported in English literature. Tracheal diverticulum has been variously described as para-tracheal diverticulum, air-cyst, bronchogenic cyst, tracheocele, lympho-epithelial cyst, etc. in previous literature.A report of the largest series of 64 cases, has been carried out by Goo et al. As per the autopsy reports the overall prevalence appears in up to 1% of autopsies.The incidence of tracheal diverticula varies between 2% and 3.7% according to the literature , and 98% of tracheal diverticula are located at the right posterolateral aspect of the trachea, usually at the level of the thoracic inlet between the T1 and T3 vertebrae . This fact can be explained by the relative positions of the trachea and esophagus or aorta; the supportive effect of the esophagus or aorta on the trachea is along its left postero-lateral side, leaving the right side of the trachea relatively unsupported. .The tracheal diverticulum is mostly asymptomatic and is an incidental finding in radiology. Four types of tracheal diverticula have been described by Katz et al.; rudimentary bronchus, cystic dilatation of

mucous gland duct, tracheocele, and diverticulum associated with trachea-bronchomegaly. Tracheocele typically present as a single, large, air-containing sac, which develops through a localized weakness in the right posterior tracheal wall as seen our patient. This may be formed by prolonged increase in intratracheal pressure from violent coughing or from an occupation involving excessive vocal or pulmonary effort.

As per the etiology tracheal diverticula can be divided into congenital and acquired. These differ in the location, and histology. Congenital tracheal diverticulum is smaller, located approximately 4–5 cm below vocal cords or just above the carina. It's more common in males and can be considered as a supernumerary, malformed branch of the trachea. The histological structure of this diverticulum resembles that of tracheal elements such as muscle or cartilage in their thick wall and may be filled with mucosal contents. Other malformations like trachea-esophageal fistula may also coexist. The acquired tracheal diverticulum can appear in any level in trachea. These are more common in the posterolateral region between the extra-thoracic and intrathoracic trachea mostly on the right side. These are larger than the congenital ones with a wider opening. These occur as a consequence of the increase of the intratracheal pressure which leads to a herniation in the weakest wall of the trachea. The histology of acquired diverticulum lacks smooth muscle and cartilage. It has only respiratory epithelia.

Tracheal diverticulum is commonly asymptomatic and is detected incidentally.Some patients may present with symptoms of chronic cough, recurrent infections, hemoptysis, dysphagia or dyspnea. Compression of the vocal cords by the diverticulum can also cause dysphonia .An infected tracheal diverticulum can present as paratracheal abcess impairing the airway requiring surgical drainage. The differential diagnosis of a paratracheal air collection includes pharyngocele, esophageal diverticulum, laryngocele, apical hernia of the lung, and apical paraseptal blebs or bullae . CT done with thin collimation is a preferred modality to show the abnormalities of the tracheal wall. 2D or 3D reconstruction images may help to diagnose this abnormality early and accurately. Diverticula almost always occur along the right posteriolateral wall near the thoracic inlet between the cartilaginous and muscular portions of the tracheal wall and may appear isolated or communicate with lumen. Bronchoscopy may also help in the diagnosis of this entity although in some cases the communication was not visible as in diverticula with a very narrow opening or with a fibrous attachment.

The management of this entity can be either surgical resection which is rarely advised and conservative management. Conservative measures, such as antibiotics, mucolytic agents and physiotherapy are proposed especially in older patients and for non-specific symptoms. Surgical treatment has been reported to be effective and safe for symptomatic patients. Due to the rarity of the disease there is no general consensus regarding the indications for specific treatment.

Conclusion:

In conclusion, tracheal diverticula is a rare entity, commonly seen on right side, producing very few symptoms and is frequently an incidental finding . The present case demonstrates the importance of keeping a tracheal diverticula in mind while dealing with recurrent respiratory symptoms. Diagnostic techniques such as CECT and 3D reconstruction technology may help to diagnose the tracheal diverticulum timely and accurately . Surgical treatment has been reported to be effective and safe for symptomatic patients .

Conflict of Interest: None

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