Acta Scientific Otolaryngology

Volume 2 Issue 3 March 2020

Case Report

Tracheal Diverticulum- A Rare Case of Young Female with Unresolved Dysphagia - Case Report

Manish Munjal, Japneet Kaur*, Porshia Rishi, Harjinder Singh and Shubham Munjal

Department of Otorhinolaryngology-HNS, Dayanand Medical College and Hospital, Ludhiana, Punjab, India

***Corresponding Author:** Japneet Kaur, Department of Otorhinolaryngology-HNS, Dayanand Medical College and Hospital, Ludhiana, Punjab, India.

Received: February 01, 2020

Published: February 10, 2020

Abstract

Tracheal diverticulum (DV) is a type of paratracheal air cyst (PTAC)

Tracheal DV can be congenital and acquired [1]. Patients can be asymptomatic or present with Dysphagia, odynophagia, neck pain, hoarseness, hemoptysis, choking, and recurrent episodes of hiccups and burping. Tracheal diverticulum can be diagnosed on CT Scan and bronchoscopy and the connection with tracheal lumen can be established. Conservative treatment is the preferred treatment in asymptomatic patients. Surgical or conservative treatment can be performed for symptomatic patients, depending on patient age and physical condition.

Keywords: Tracheal Diverticulum (DV); Bronchoscopy

Case Report

A 42 year old female patient presented with dysphagia of 11 months duration with neck pain. Examination of the neck and chest was unremarkable. Routine laboratory tests were found normal, barium swallow was advised. In order to rule out extraluminal causes for dyspahgia. A computed tomography of neck and chest was done that showed a 2.5-3 cm air-filled structure, which was adjacent to the right posterolateral wall of the trachea at the level of thoracic inlet, there was no communication of the sac with the tracheal lumen. Fiberoptic bronchoscopy revealed a normal tracheobronchial tree, with no obvious orifices in the tracheal wall.

The patient was planned for tracheal diverticulum sac dissection under general anaesthesia. Right side kochers incision was put. The strap muscles were divided and the cervical portion of the trachea was recognized. The diverticulum was identified at the right side of the trachea and below the inferior pole of the right lobe of the thyroid (Figure 1). After careful dissection, the right recurrent laryngeal nerve was identified on the superior surface of the sac wall and gently freed and preserved (Figure 2). The diverticulum was then found and meticulously freed circumferentially from the trachea (Figure 3). Once fully mobilized, the lesion was excised from its attachment to the right side of the posterior tracheal wall, the stalk of the diverticulum was ligated and the diverticulum was delivered in toto (Figure 4 and 5). Lateral fibres of sternothyroid muscle were overseen over the remnant of the sac. Postoperative course was uneventful and the patient was discharged on day 3.

Figure 1: Sac of the tracheal diverticulum visualised.

Figure 2: Relationship with Recurrent Laryngeal Nerve.

Figure 3: Inferior blunt dissection being done in order to free the sac.

Figure 4: Blunt dissection done to deliver the diverticulum sac in toto.

Figure 5: Resected specimen showing tracheal diverticulum sac with its mucinous contents.

Histopathologic examination showed a fibrotic cystic structure lined by tall columnar pseudostratified ciliated columnar epithelium. The stroma showed chronic inflammatory cells. The histopathology was consistent with an acquired type of tracheal diverticulum.

At 1-month follow-up, her symptoms had resolved and the neck and chest CT showed the trachea and lungs were normal.

Discussion

Tracheal diverticula is an out pouching of the tracheal mucosa, also known as tracheocoeles. These are usually incidental findings with an incidence of 4% in general population [1].

Tracheal diverticula mostly occur on the right side and the proposed reason for same is lack of support to the right posterior tracheal wall due to the left posterior location of esophagus.

It is classified into the congenital or acquired types based on the location and histogenesis [2]. Congenital type is relatively small and narrow-mouthed and the usual location is on the right side approximately 4 to 5 cm below the true vocal cords. It may occur in association with other congenital tracheobronchial anomalies. It is proposed to arise from defective endodermal differentiation during development of the membranous posterior trachea wall or from defective tracheal cartilage development. The histology of congenital tracheal diverticulum is similar to the normal tracheal wall [3,4].

Tracheal diverticulum is a very rare entity characterized by single or multiple outpouchings of the tracheal wall. This abnormality has been divided into 4 types: (1) rudimentary bronchus; (2) cystic dilatation of the mucous gland duct; (3) tracheocele; and (4) diverticulum with tracheobronchomegaly [5].

Acquired tracheal diverticula can arise because of increased intraluminal pressure by chronic coughing or the weakening of the structures after tracheal surgical procedures, resulting in an external invagination of the mucous membrane through vulnerable points in the trachea [2,3]. Although, according to MacKinnon [2] diverticulum arises by cystic distention of mucous gland ducts leading to enlargement of the ducts draining the mucous glands, resulting in a simple epithelium-lined fibrous-walled cyst. The acquired form usually has a wide opening in the trachea and is larger than the congenital one. Its wall contains only respiratory epithelium, lacking smooth muscle or cartilage, as in our case. Acquired tracheal diverticulum may be single or multiple. Multiple acquired tracheal diverticula are the hallmark of tracheobronchomegaly or Mounier–Kuhn disease [6].

Diagnosis is made by CT scanning and bronchoscopic examination. The differential diagnosis of tracheal diverticulum includes pharyngocele, laryngocele, Zenker's diverticulum, apical lung herniation, apical paraseptal blebs/bullae, and pneumomediastinum [7]. These lesions can be ruled out by CT, barium esophagography, esophagoscopy, and bronchoscopy. The CT scan is characterized by an air filled tubular structure, often located posteriorly and to the right of the trachea. It can demonstrate the connection between the diverticulum and the tracheal lumen. A CT scan may help in the differentiation between the acquired and congenital form, depending on the presence of cartilage and the size of the neck of the diverticulum [8]. A bronchoscopy may help in localizing the opening, although the diverticulum with a narrow opening can be missed [8].

Asymptomatic diverticula do not require intervention. In case of diverticula causing symptoms lie dysphagia, dysphonia, neck pain, surgical resection of the diverticula can be undertaken including transcervical approach, endoscopic electrocoagulation.

Conclusion

Tracheal diverticulum is outpouching of tracheal wall, which can be congenital or acquired. Symptomatic tracheal cysts present with dysphagia, foreign body sensation thereby should be evaluated by endoscopic and bronchoscopy examination in suspected cases. Surgical resection is advised in symptomatic cases. Detailed history and examination are pertinent in order to diagnose and treat tracheal cysts.

Bibliography

1. M Mineshita., *et al*. "Paratracheal air cysts in middle aged Japanese men". *Journal of Bronchology and Interventional Pulmonology* 13.1 (2006): 6-8.

2. Soto-Hurtado EJ., *et al*. "Tracheal diverticulum: a review of the literature". *Lung* 184 (2006): 303-307.

3. Polverosi R., *et al*. "Tracheal and main bronchial diverticula: the role of CT". *Radiologia medica* 113 (2008): 181-189.

4. Wakisaka M., *et al*. "Multiple tracheal diverticula detected by multidetector-row computed tomography". *Journal of Bronchology and Interventional Pulmonology* 17 (2010): 359-361.

5. Tanaka H., *et al*. "Paratracheal air cysts communicating with the trachea: CT findings". *Journal of Thoracic Imaging* 12 (1997): 38-40.

6. Caversaccio MD., *et al*. "Tracheal diverticulum presenting with recurrent laryngeal nerve paralysis". *Annals of Otology, Rhinology, and Laryngology* 107 (1998): 362-364.

7. Infante M., *et al*. "Tracheal diverticulum: a rare cause and consequence of chronic cough". *European Journal of Surgery* 160 (1994): 315-316.

8. Goo JM., *et al*. "Right paratracheal air cysts in the thoracic inlet: clinical and radiologic significance". *AJR American Journal of Roentgenology* 173 (1999): 65-70.