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A Patient With Congenital Bronchial Diverticula Localized In The Left Main Bronchus And Paraaortic Mediastinal Bronchogenic Cyst

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Abstract

Congenital diverticulosis of the left main bronchus is extremely rare in the adult. Bronchial diverticula could act as a reservoir for bronchial secretions and theoretically predispose to repeated respiratory infections. We reported a diverticulum originating from the left main bronchus with recurrent bronchopneumonia and whistling since 15 years ago. Additionally, our case had a paraaortic mediastinal bronchogenic cyst. Physical examination demonstrated whistling in expiratory phase which appeared when he was lying on his back or on his left side. Flexible bronchoscopy showed a round-shaped lumen of the left main bronchus and bubbling from slits or indentations of the bronchial mucosa in the left main bronchus. Because our patient complained of whistling and past history of recurrent bronchopneumonia infection due to bronchial diverticulum, operation was done. To the best of our knowledge, there has been no case of congenital bronchial diverticula localized in the left main bronchus associated with a paraaortic mediastinal bronchogenic cyst in the medical literature.

Key words: *bronchial diverticula, bronchogenic cyst, whistling*

INTRODUCTION

Diverticula of the main bronchus is rare conditions that were first described by Rocitansky in 1846.¹ Diverticula of the main bronchus are usually asymptomatic and are not usually a pathologic condition; however, in some cases, therapeutic intervention may be considered. Bronchogenic cysts are congenital lesions derived from an abnormal budding of the embryonic foregut. The mediastinum or lung location of bronchogenic cysts are related to the time of separation from the tracheobronchial tree.² We encountered the case of an enlarged subcarinal air cyst accompanied by bronchial diverticula and paraaortic mediastinal bronchogenic cyst. This is the first case wherein diagnosis and treatment of left main bronchial diverticula with the paraaortic mediastinal bronchogenic cyst are reported.

CASE REPORT

The patient was a 20-year-old male. He had recurrent bronchopneumonia and whistling since 15 years ago. Whistling had occasionally occurred when he was in the recumbent position during sleep at night. Physical examination demonstrated wheeze in expiratory phase which appeared when he was lying on his back or on his left side. The patient did not have any smoking history. Chest CT and MRI exhibited an air cyst (size, 25 mm) connected to the lumen of the left main bronchus and paraaortic mediastinal bronchogenic cyst (Figure 1 and 2). Flexible bronchoscopy showed a round-shaped lumen of the left main bronchus and bubbling from slits or indentations of the bronchial mucosa in the left main bronchus. The resection of left main diverticulum with right thoracotomy was undergone. Histologically it was characterized by a lining wall of stratified columnar ciliated epithelium and the presence of smooth muscle and cartilage in the wall. Fifteen days later, the paraaortic mediastinal bronchogenic cyst was completely resected. Histologic examination showed a cyst filled with viscid and turbid fluid

formed by ciliated columnar epithelial, hyaline cartilage and smooth muscle. The postoperative course was uneventful and no recurrence has been observed until now.

DISCUSSION

Diverticula of the trachea and bronchus are usually classified into two types, congenital and acquired. Congenital diverticula are thought to correspond to a rudimentary accessory bronchus that is usually located in the posteromedial border of the right main bronchus or the posterolateral border of the lower trachea. Therefore, most reported congenital diverticula have been located in these sites.³ In our young patient, bronchial diverticulum was in the left main bronchus and associated with recurrent infections of the lower airways, which were more severe in the left lung. The acquired type is thought to be associated with some inherent weakness in the tracheal or bronchial walls. Previous studies have demonstrated that acquired bronchial diverticula have a significant association with chronic obstructive pulmonary disease and smoking-related lung disease.⁴

Mediastinal air cysts due to bronchogenic diverticulum are extremely rare, and their differential diagnosis may include tracheocele (also known as paratracheal air cyst or tracheal diverticulum), bronchogenic cyst, and bronchopulmonary foregut duplication cyst.⁵

A bronchial diverticulum is usually asymptomatic. If it becomes a large cavitary lesion filled with secretions, it can cause chronic cough, recurrent respiratory tract infections, hemoptysis, dyspnea or stridor.⁶ Bronchial diverticula could act as a reservoir for bronchial secretions and theoretically predispose to repeated respiratory infections. In our case, whistling was audible and recorded only on the left side of the sternum. Flexible bronchoscopy demonstrated the airflow through a small orifice. From this observation, it was concluded that this diverticulum caused the whistling.

Resection of bronchial diverticula is not performed in most reported cases because this condition is generally symptom-free. When infection occurs repeatedly in such diverticula, however, resection should be done.³ Because our patient complained of whistling and past history of recurrent bronchopneumonia infection due to bronchial diverticulum, operation was done.

The mediastinum or lung location of bronchogenic cysts is related to the time of separation from the tracheobronchial tree. The bronchogenic cysts are usually asymptomatic and often diagnosed incidentally during routine chest roentgenogram for other reasons. The treatment options depend on the patients' age and symptoms at presentation.² If in young patients, the surgical resection of cysts is the only treatment of choice, in asymptomatic adult patients remains controversial owing to the unpredictability complications or degeneration.

In summary, we reported a diverticulum originating from the left main bronchus with recurrent bronchopneumonia and whistling since 15 years ago. When a patient displays signs of whistling, we have to consider bronchial lesions, such as bronchial diverticulum. When infection occurs repeatedly in such diverticula, resection should be done. To the best of our knowledge, there has been no case of congenital bronchial diverticula localized in the left main bronchus associated with a paraaortic mediastinal bronchogenic cyst in the medical literature.

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Figure legend

Figure 1: Computed tomography showing a connection between the subcarinal mediastinal air cyst and the left main bronchus.

Figure 2: Magnetic resonance imagine in the frontal plane showing a subcarinal mediastinal air cyst and the paraaortic mediastinal bronchogenic cyst.