



TRACHEAL DIVERTICULUM: *COMPLICATIONS AND OVERLOOKED DETAILS*

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<p>Article Info <i>Received 15/05/2015</i> <i>Revised 27/05/2015</i> <i>Accepted 12/06/2015</i></p> <p>Key words: Tracheal diverticulum, Complicated Tracheal Diverticulum, Tracheal Compression.</p>	<p>ABSTRACT</p> <p>Tracheal diverticulum is a rare clinic entity and it's usually diagnosed as an incidental finding by thoracic computed tomography or bronchoscopy. We aimed to present the clinic, radiologic, spirometric and bronchoscopic features of seven patients with tracheal diverticulum. The age of patients were ranged 63 and 84 and male to female ratio was 4/3. The tracheal diverticulum complications were seen in 4(57.1%) of patients. The expansion, increase in diameter of tracheal diverticulum, was observed in 2(28.5%) patients and tracheal compression was observed in one of them. The infection complication of tracheal diverticulum was observed in 1(14.2%) patient. In conclusion; tracheal diverticulum complications may appear with infection, expansion and tracheal compression, it can called as "complicated tracheal diverticulum".</p>
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INTRODUCTION

Tracheal diverticulum is a paratracheal air cyst representing an out pouching of the tracheal wall. It may be congenital or acquired. They are usually diagnosed as an incidental finding by thoracic computed tomography (CT) or bronchoscopy and it was reported in 1% of patients in an autopsy series [1,2]. Most cases are asymptomatic, but when symptoms are present they usually have airway symptoms with cough or recurrent respiratory infection. The acquired form is thought to be due to prolonged increased intraluminal pressure such as with a chronic cough. We aimed to present the clinic, radiologic, spirometric and bronchoscopic features of patients with tracheal diverticulum.

PATIENTS AND METHODS

Total 7 patients with tracheal diverticulum were diagnosed at Samsun Medicalpark Hospital, Department of Pulmonary Medicine. The patients characteristics were shown in the table and figures. The minimum and maximum ages of patients were 63 and 84 years old. The

male to female ratio was 4/3. The tracheal diverticulum complications were seen in 4(57.1%) of patients. These patients were defined as complicated tracheal diverticulum. The expansion, increase in diameter of tracheal diverticulum, was observed in 2(28.5%) patients and tracheal compression was observed in one of them. The tracheal compression from tracheal diverticulum was observed in 2(28.5%) patients. The infection complication of tracheal diverticulum was observed in 1(14.2%) patient and it was called as infected tracheal diverticulum.

DISCUSSION

Tracheal diverticulum is a rare clinic entity and it's usually diagnosed as an incidental finding by thoracic computed tomography (CT) or bronchoscopy. There are two different types of tracheal diverticula: congenital and acquired. Congenital tracheal diverticula are present as sac formations that are connected with the trachea through a narrow isthmus, which on occasion may not be seen. They have the same histologic characteristics as the



trachea. They are usually small and may be accompanied by other malformations of the tracheobronchial tree. Those that are acquired, as we believe is the case of the patient that we present, consist of a herniation of the mucosa through a weak spot in the tracheal wall due to an increase in the endoluminal pressure. Histologically, they have a thin wall that is basically composed of respiratory epithelium and do not present a cartilaginous component. Acquired tracheal diverticula are larger and present a more extensive connection with the trachea than congenital

diverticula [2,3]. It projects posteriorly where the cartilage rings are deficient and usually lies to the right where there is no oesophagus supporting the paratracheal tissue. Typically located in the right postero-lateral tracheal wall about the level of the thoracic inlet, as seen in our patients. A direct connection with the trachea is often visible on CT and/or bronchoscopy. We showed the direct connection to the trachea with a fistula, as in our patient. It is usually associated with chronic pulmonary diseases, especially with chronic obstructive pulmonary disease (COPD).

Figure 1 and 2. A 66 years old Turkish man admitted to the hospital with complaints of recurrent dyspnea, chronic cough and sputum. He had received inhaled bronchodilators due to chronic obstructive pulmonary disease (COPD). Chest roentgenography revealed that the pulmoary reticulonodular infiltrates. The thorax CT scan showed a air-filled structure on the right side of the trachea with interstitial and parenchymal reticuloalodular infiltrates. Coronal reconstruction of thorax CT images demonstrated the connection between the trachea and this air collection. Also, it was observed the enlargement compared with two years ago tomography(Figure 1A and 1B). Fiberoptic bronchoscopy was performed and there was communication with the trachea and diverticulum with a fistula(Figure 2 and arrow on Figure 2 B).

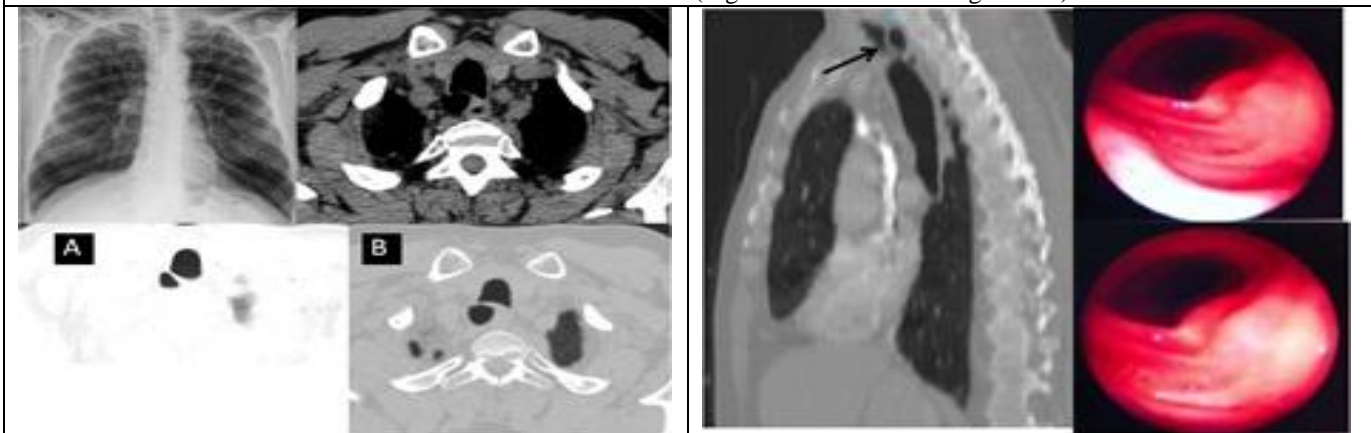


Figure 3. A 72 years old Turkish man suffered from COPD symptoms including chronic cough and exertional dyspnea. Chest roentgenography demonstrated the hyperventilation both of the lugs. The thorax CT scan showed a air-filled structure on the right postero-lateral side of the trachea(Figure 3A). Pulmonary function tests revealed the upper airway obstruction on the volume-flow curve(Figure 3B)



Figure 4. A 65 years old Turkish man admitted to the hospital with chronic cough, sputum and acute fever. Chest roentgenography revealed that the pulmoary reticulonodular infiltrates on the lower lobes of lugsns. The thorax CT scan showed a air-filled structure including air bronchograms on the right side of the trachea with bi-basilar interstitial and parenchymal reticuloodular infiltrates(arrow on Figure 4).

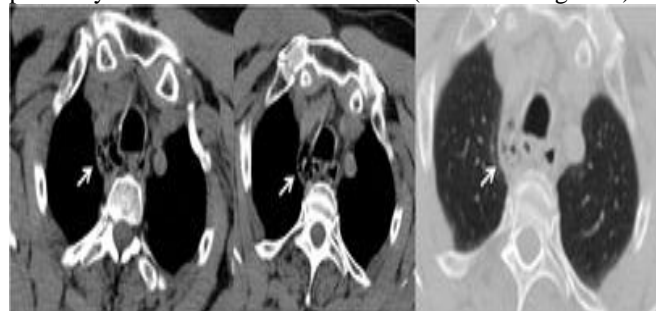


Figure 5. A 69 years old Turkish woman admitted to the hospital with severe dyspnea and chronic cough. Chest roentgenography revealed that the pulmonary reticular lesions and thorax CT scan showed a large tracheal diverticulum. This tracheal diverticulum was doing significant pressure(arrow in Figure 5) on the trachea and it was observed that the significant enlargement compared with four years ago tomography(arrow in Figure 5A and 5B).

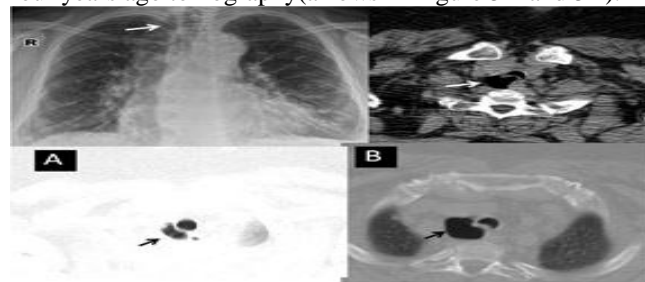


Table 1. Observations

Age/sex	Symptoms	Associated with	Location	Complication	Spirometry
66y/M	Reccurent dyspnea, Cough, Sputum	COPD* Post-tuberculosis sequelae	Right	Expansion	Obstructive
72y/M	Cough Exertional dyspnea	COPD	Right	Tracheal compression	Upper airway obstruction
65y/M	Cough Sputum Fever	Interstitial lung disease	Right	Infection	Restrictive and Upper airway obstruction
69y/F	Severe dyspnea Cough	Asthma	Right	Expansion Tracheal compression	Upper airway obstruction
84y/F	Cough Dyspnea	Interstitial lung disease	Right	None	Restrictive
70y/M	Chronic cough	Post-tuberculosis sequelae	Right	None	Restrictive
63y/F	Cough Dyspnea	Interstitial lung disease	Right	None	Restrictive

*COPD: Chronic Obstructive Pulmonary Disease

Tracheal diverticula are usually asymptomatic; however, they can act as a reservoir for secretions with secondary chronic infections of the tracheobronchial tree. Therefore, tracheal diverticula may present clinically with chronic cough, dyspnea, stridor, and repeated episodes of tracheobronchitis, just like in our patients. Treatment options in tracheal diverticula include surgical resection in young patients and conservative symptomatic medical treatment with antibiotics, mucolytics, and physiotherapy

in elderly and debilitated patientsv [4,5].

CONCLUSION

Although tracheal diverticulum accompanied with chronic lung diseases, it should be considered especially in uncontrolled and symptomatic patients with chronic lung diseases. Tracheal diverticulum complications may appear with infection, expansion and tracheal compression, it can called as “complicated tracheal diverticulum”.

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