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Two Cases with Tracheomalacia

Trakeomalazili İki Olgu

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Abstract

Tracheomalacia is a difficult to manage condition. The symptoms are similar to those of COPD and asthma patients. This may cause misdiagnosis. Herein, we present two tracheomalacia cases who received no benefit from inhaled treatment. The patients were examined via computed tomography (CT), bronchoscopy, and polysomnography. The first case was a 83-year-old male having a 50 package-year smoking history. He applied to the hospital due to coughing and followed for COPD. Obstructive sleep apnea was detected via polysomnography. Despite increased positive pressure, the apneas did not heal. On CT, tracheal flattening and tracheal ring and cartilages deterioration were detected. The patient had no sleep apnea one year after stenting. The second case was a 66-year-old male having inhaled treatment for five years for chronic coughing. In bronchoscopy, anterior and posterior parts of trachea were seen to cleave into each other in expiration. Since his tracheomalacia was not life-threatening, he has taken under follow-up.

Key words: *Apnea, cough, tracheomalacia, sleep.*

Özet

Trakeomalazi yönetimi zor olan ciddi bir hastalıktır. Bu hastaların muayene bulguları KOAH ve astım hastalarına benzerdir. Bu nedenle tanıda yanılmaya sebep olabilir. Bu çalışmada, inhaler tedavilerden fayda görmeyen iki trakeomalazi olgusunu sunmayı amaçladık. Hastalar bilgisayarlı tomografi, bronkoskopi ve polisomnografi ile değerlendirildi. Birinci olgu 83 yaşında erkek hasta idi. Elli paket-yıl sigara anamnezi vardı. Hasta öksürük şikâyeti nedeni ile hastanelere başvurmuş ve 10 yıldır KOAH tanısıyla takip edilmişti. Polisomnografi ile uykuda obstrüktif apneleri tespit edildi. Arttırılan pozitif basınca rağmen apneleri düzelmedi. Bilgisayarlı tomografi ile trakeada yassılaşma, trakeal halka ve kıkırdaklarda bozulma tespit edildi. Trakeal stent takılan hastanın birinci yılın sonunda uyku apnesi yoktu. İkinci olgu beş yıl boyunca kronik öksürük nedeniyle farklı inhaler tedaviler verilen 66 yaşında bir erkek hastaydı. Hastanın öksürüğü sert ve gürültülü idi ve uyku apnesi yoktu. Bronkoskopide expiryumda trakeanın ön ve arka duvarının birbirine yapıştığı görüldü. Trakeomalazisi hayatı tehdit etmediğinden takibe alındı.

Anahtar Sözcükler: *Apne, trakeomalazi, öksürük, uyku.*

Tracheomalacia in adults is a severe disease which is very difficult to manage and treat. It causes frequent infections and mortality. Although there are no standardized techniques or criteria for the diagnosis of tracheomalacia, previously published articles recommend thoracic CT and bronchoscopy (1-3). The treatment approach is complex. There is no requirement in the treatment of mild asymptomatic cases. The history for determining the etiology, physical analysis, radiological, and bronchoscopic examination are of utmost importance for the treatment (4). In this article, we evaluated the symptoms, diagnostic methods, and treatments of two patients who were admitted to our clinic for chronic cough and were diagnosed through computed tomography (CT) and bronchoscopy.

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CASE

Case 1: The first case was an 83-year-old male patient. He had a history of smoking 50 cigarettes per year. He was being followed for chronic obstructive pulmonary disease (COPD) for the past 10 years and was receiving bronchodilator treatment. He had a history of frequent applications to hospital due to coughing and purulent sputum. Over the past six months, in particular, he had complaints of sleep disturbances at night and frequently waking up with the feeling of suffocation during sleep. There was a serious worsening in his sleep quality. During the daytime, he would frequently doze off. His cough was occasionally productive, but often noisy, suffocating and dry. His physical examination revealed bilateral rough rhonchi. Saturation was about 90% with pulse oximeter. In addition, CT was performed for the differential diagnosis of his chronic cough. On thoracic CT, the trachea was observed to be flattened and it's annular and cartilage structures were disrupted (Figure 1). The patient was admitted to the intensive care unit, where he could be treated with positive air pressure, and he was given 3 mg of midazolam for sedation and monitored. Obstructive sleep apnea was observed immediately after the patient fell asleep, the patient's saturations were falling and positive pressure ventilation was given; however, despite the gradually increased pressure, apnea did not improve. As this type of apnea is life-threatening and can severely ruin the quality of life in patients, a tracheal stent was placed (Figure 2). In his one year follow-up, apnea was observed to have totally recovered after the tracheal stenting, his quality of sleep significantly improved, but his complaints of frequent cough and purulent sputum production persisted.

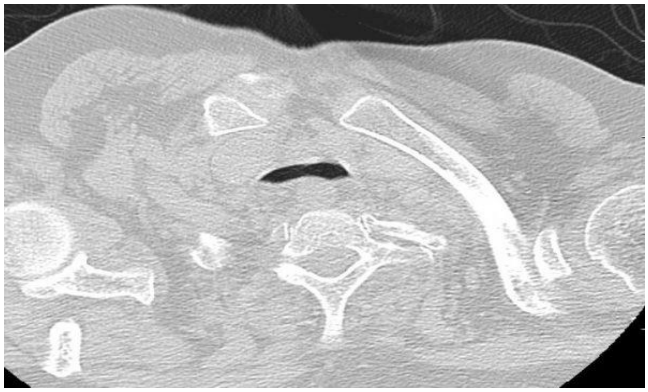

Figure 1: *Flattening of the trachea in thoracic CT*

Figure 2: *Tracheal stent implementation of first case in thoracic CT*

Case 2: The second case was a 66-year-old male patient. Over the past five years, he received several treatments due to a chronic cough, but did not respond to these treatments. He had also frequently used bronchodilators, but experienced no improvements. His cough was choking, hard, noisy, and dry. There was no night-time cough or daytime sleepiness. The physical examination of his lungs was normal. Saturations were about 95% with pulse oximeter. Tracheomalacia was suspected and bronchoscopy was performed due to noisy character of his cough. With bronchoscopy, the anterior and posterior walls of the trachea were observed to stick together during expiration (Figure 3). The patient was followed, since the tracheomalacia was not life-threatening.

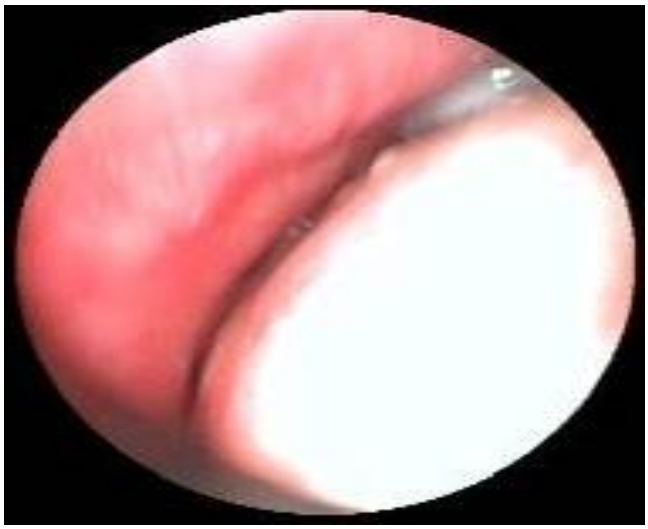

Figure 3: *With bronchoscopy the anterior and posterior walls of the trachea sticking together during expiration*

DISCUSSION

Tracheomalacia in adults is a life-threatening disease which is very difficult to manage and treat. It causes frequent infections and mortality (5). Tracheomalacia can be divided into two categories, congenital and acquired. Acquired cases can originate from thoracic trauma, tracheostomy, inflammation, chronic irritation, malignancy, and mechanical anatomical factors. Tracheal cartilage softening can extend to the whole of the trachea and sometimes even further down. Although previously conducted studies have demonstrated a significant relationship between COPD and smoking, the relationship between COPD and tracheomalacia has not well-understood yet (6,7).

Although there are no standardized techniques or criteria for the diagnosis of tracheomalacia, previously published articles recommend thoracic CT and bronchoscopy (1-3). The treatment approach is complex. There is no requirement in the treatment of mild asymptomatic cases. The history for determining the etiology, physical analysis, radiological and bronchoscopic examination is important for treatment (4). We preferred thoracic CT in the first case due to the older age and the presence of comorbidities, while we used bronchoscopy in the second case. In both cases, the reason we suspected tracheomalacia was the noisy cough originating from the vibration of the trachea. Also, there were the symptoms of OSAS in our first patient. His quality of sleep was very poor and his daytime sleepiness was continuous.

In the first stages, tracheomalacia patients do not have clear symptoms. However, shortness of breath, cough, sputum production, and other symptoms of obstruction and infection can be seen with the progression of the disease. The incidence of the disease has rapidly increased with the increased tracheomalacia awareness (8). While the asymptomatic cases can be followed without treatment, surgical techniques such as tracheal stents, tracheostomy tube implantation and external stabilization techniques can be used in certain cases with severe airway collapse (8-11). Previous publications have reported continuous positive airway pressure (CPAP) as the preferred method in treatment for tracheomalacia (8). In our first case, we treated the patient with a tracheal stent because of the life-threatening tracheal collapse and apnea which did not respond to bilevel positive airway pressure (BIPAP) with the suspicion of COPD. In the second case, we chose to follow the patient without treatment. The tracheal symptoms of our first case decreased substantially following placement of the tracheal stent.

In conclusion, tracheomalacia should be considered in cases with severe, noisy chronic coughing originating from tracheal vibration. In addition, OSAS symptoms can be seen in these patients. They can acquire frequent pulmonary infections. They do not benefit from bronchodilator treatment. Rough rhonchi can be heard in their physical examinations. Furthermore, CT and/or bronchoscopy can be performed for the diagnosis. Trachea flattened can be observed with thoracic CT and with bronchoscopy, the anterior and posterior walls of the trachea can be observed to stick together during expiration. Positive pressure treatment options, such as positive airway pressure (CPAP) or BiPAP, should be considered and tracheal stents should be considered in patients who do not respond to positive airway pressure.

CONFLICTS OF INTEREST

None declared.

AUTHOR CONTRIBUTIONS

Concept - H.Y., A.A., S.E., M.H.B.; Planning and Design - H.Y., A.A., S.E., M.H.B.; Supervision - H.Y., A.A., S.E., M.H.B.; Funding - H.Y., A.A., S.E., M.H.B.; Materials - H.Y., A.A.; Data Collection and/or Processing - H.Y., A.A., S.E., M.H.B.; Analysis and/or Interpretation - H.Y., S.E., A.A., M.H.B.; Literature Review - H.Y., A.A.; Writing - H.Y., A.A., M.H.B.; Critical Review - H.Y., S.E., M.H.B., A.A.

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