

Endotracheal preocclusive lipoma: A rare reason of tracheal occlusion

Endotrakeal preoklusif lipom: Nadir bir trakeal tıkanıklık nedeni

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ABSTRACT

Benign tracheobronchial tumors are rarely found as masses and are unlike malignant lesions of the tracheobronchial system. We report a male patient who was a smoker and had been under long-term treatment for asthma. The patient came to the emergency room with a late onset of shortness of breath and tiring earlier when exercising. On a multidetector computerised tomography (MDCT) scan the patient was found to have a proximal endotracheal tumor causing a severe narrowing of the tracheal lumen and measuring -93.6 Hounsfield Unit (HU) compatible with endotracheal lipoma.

Keywords: Benign tracheal tumors, Lipoma, Obstruction

ÖZET

Malign trakeobronşial sistem tümörlerinin aksine solunum yolları selim tümörleri nadir görülen tümörlerdir. Bu yazımızda, uzun zamandır astım tedavisi almakta olan sigara içicisi bir hastayı sunuyoruz. Hasta acil servise son zamanlarda artan nefes darlığı ve egzersizle erken yorulma şikayetleri ile başvurdu. Yapılan çok kesitli bilgisayarlı tomografi (ÇKBT) incelemesinde proksimal trakeada hava sütununda ileri derecede daralmaya neden olan, -93.6 Hounsfield Unit (HU) ölçülen endotrakeal lipom ile uyumlu homojen düzgün konturlu lezyon saptandı.

Anahtar Kelimeler: Selim trakeal tümörler, Lipom, Tıkanıklık

Introduction

Primary tracheal tumors are very rare, with an incidence of 0.2/100.000 of the population [1]. Benign tracheal tumors are a minority of these (10-20%). Endobronchial lipomas represent 0.1-0.5% of all pulmonary tumors [2]. There are few reports of tracheal lipomas in the literature, with most of the endobronchial lipomas located in the lower tracheobronchial tree [1,3].

Lipomas are composed exclusively of mature fat and comprise 0.1 % of all benign lung tumors. Most intrathoracic lipomas are endobronchial [4]. Tracheobronchial lipomas arise from the submucosal fat of the tracheobronchial tree [4]. Lipomas can produce symptoms of airway obstruction such as a productive cough, wheezing, recurrent pneumonia, and bronchiectasis. Identification of fat on computed tomography (CT) within a lesion is suggestive of either a lipoma or hamartoma [5]. CT is highly specific and sensitive in the detection of fat and can be helpful in diagnosing tracheobronchial lipomas.

Endobronchial lipomas are more common than endotracheal lipomas. Although there are publications stating that lipomas are rarely found in the endobronchial system, we could not find any published papers giving statistical data about the location and incidence of endotracheal lipomas in the literature especially for the proximal trachea. Airway lipomas have a striking male dominance of 90% and usually present in patients at late middle age.

We report the case of a middle aged man with proximal preocclusive tracheal lipoma who had previously been treated for asthma. The diagnosis was only clarified after the onset of progressive dyspnea less responsive to the bronchodilators when the patient applied to the emergency room.

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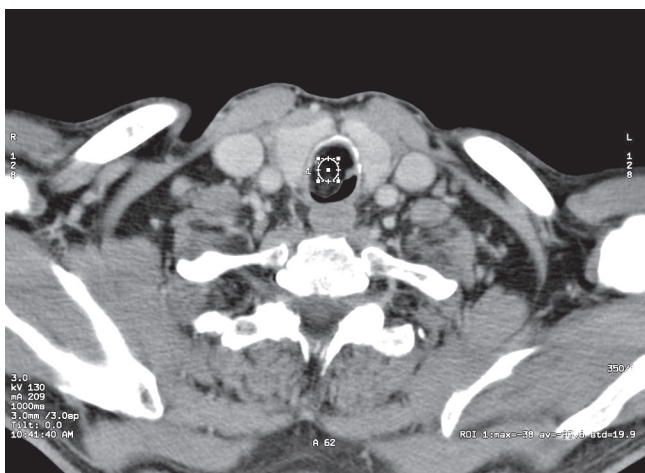


Figure 1. MDCT axial section of proximal endotracheal lipoma with -93.6 HU



Figure 2. MDCT sagittal reformat scan of proximal preocclusive endotracheal lipoma

Case Report

A 62-year-old male patient applied to the emergency room with progressive shortness of breath. He had been smoking 1.5 packets of cigarettes per day for more than 20 years. His history showed a diagnosis of asthma 5 years ago but he had not been using the treatment regularly. Lately, he was suffering of dyspnea on exercise. He had no history of any recurrent pneumonia. Nine months earlier, he had the same symptoms with a cough and, on the basis of electrocardiography findings he was diagnosed as having a myocardial infarction with high troponin levels - initial troponin level at 20.7 progressively declining with his symptoms in ten days. On his latest admission, physical examination showed that he had stridor, slight peripheral cyanosis, dyspnea at rest, but auscultation showed no lung

abnormality. His blood pressure was normal and his blood sugar level was slightly above normal. The other blood tests were within normal limits. The patient had no fever or infection on his arrival. The patient was monitored: the SPO₂ level was 84%, oxygen treatment at 5 lt/min was applied but his response was slow.

On a chest CT scan, the superior part of the trachea showed an endotracheal soft tissue tumor obliterating more than 80% of the area of the lumen (Figures 1,2). The tumor was well-circumscribed, homogenous and hypodense, originating from the anterior endoluminal wall; the density was between - 83 -110 HU. There was no parenchymal pathology in either lung field. Finally an endotracheal lipoma was diagnosed.

The patient's symptoms resolved after oxygen treatment, bronchodilators and steroid treatment, on follow-up. The patient was referred to surgery, but he rejected the operation.

Discussion

Benign tumors of the tracheobronchial system originate from the surface epithelium or the mesenchyme. Papillomas are the most frequent benign tumors in the group of benign tumors arising from the surface epithelium. Hamartomas, leiomyomas, lipomas, fibromas and neurogenic tumors are other benign tumors, and have a mesenchymal origin. Hamartomas are the most frequently seen tumors in this group and together with lipomas they are most commonly found in the left main stem bronchus of middle aged male smokers with clinical findings reported here [6] including a persistent cough, chest pain, dyspnea, recurrent fever and pneumonia, and sometimes with wheezing [7,8]. Hemoptysis is uncommon, owing to the avascular nature of lipomas, but can occur as a result of postobstructive infection [7].

In our patient the main symptom was dyspnea and previously he had been admitted to the coronary unit with high troponin and ECG findings supporting acute myocardial infarction and a history of asthma nine months earlier. In a long term smoker, clinical findings which mimic chronic obstructive pulmonary disease (COPD) or asthma, worsening of dyspnea in the supine position, short term improvement after bronchodilators and steroids can delay the diagnosis. In such cases, CT is the preferred screening modality to rule out endotracheobronchial lesions causing the symptoms.

Computed tomography is extremely valuable in the accurate diagnosis of endobronchial lipomas. They manifest as a pedunculated or a broad based homogeneous lesion with attenuation around -100 HU. Multidetector CT enables

the display of milimetric endobronchial tumors [9]. Bronchoscopic biopsies are frequently of no diagnostic value as the thick fibrous capsule could be misleading if atypical cells are found secondary to chronic inflammation.

In our review of the literature, we found only a few papers from Japanese and Brazilian [4,10] publications as case reports supporting the view that tracheal lipomas are extremely rare benign tumors. They could be mistaken and followed as obstructive lung disease.

References

1. Keshavjee S, De Perrot M, Cardoso P, Pearson FG. Upper airway tumors. In: Pearson FG, Cooper JD, Deslauriers J, et al, editors. Thoracic Surgery. 2nd ed. Philadelphia: Churchill Livingstone, 2002: 347-62.
2. Gaissert HA, Grillo HC, Shadmehr MB, et al. Uncommon primary tracheal tumors. *Ann Thorac Surg* 2006;82:268-73 doi: 10.1016/j.athoracsur.2006.01.065
3. Gamblin TC, Farmer LA, Dean RJ, Bradley RA, Dalton ML. Tracheal polyp. *Ann Thorac Surg* 2002;73:1286-7. doi:10.1016/S0003-4975(01)03115-0
4. KoJM, Jung JI, Park SH, et al. Benign tumors of the tracheobronchial tree: CT-pathologic correlation. *AJR Am J Roentgenol* 2006; 186: 1304-13.
5. Park CM, Goo JM, Lee HJ, Akim M, Lee CH, Kang MJ. Tumors in the tracheobronchial tree: CT and FDG PET features I. *RadioGraphics* 2009;29:55-71.
6. Stey CA, Vogt P, Russi EW. Endobronchial lipomatous hamartoma; a rare cause of bronchial occlusion. *Chest* 1998; 113: 254-5.
7. Politis J, Funahashi A, Gehlsen JA, DeCock D, Stengel BF, Choi H. Intrathoracic lipomas: report of three cases and review of the literature with emphasis on endobronchial lipoma. *J Thorac Cardiovasc Surg* 1979; 77:550-6.
8. Pinero A, Gimenez A, Lax FG, Parrilla P. Hemoptysis caused by an endobronchial lipoma. *J Thorac Cardiovasc Surg* 1996; 111:1104-5.
9. Morton SE, Byrd RP Jr, Fields CL, Roy TM. Tracheal lipoma: a rare intrathoracic neoplasm. *South Med J* 2000; 93:497-500. doi:10.1097/00007611-200093050-00011
10. Mota VT, Maia JGS, Barbosa ATF, Fernandez DFS. Tracheal lipoma mimicking obstructive lung disease. *J Bras Pneumol* 2010;36:152-5.