

Thoracic Aortic Aneurysm: A Rare Case Report

Toraksik Aort Anevrizması: Nadir Görülen Bir Vaka

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Abstract

Özet

Symptomatic thoracic aortic aneurysms (TAA) are rare. A 72 year-old man was admitted to our chest disease clinic suffering from back pain for the past two years. Posteroanterior chest X-ray showed left hilar enlargement. Computerised thorax tomography (CTT) images were taken and a saccular TAA 8 cm in diameter was found. An endovascular stent graft was successfully implanted in the patient. In this paper, we aim to show that TAA should be considered as a differential diagnosis of patients with chronic back pain and hilar enlargement.

KEY WORDS: Aneurysm, aorta, thorax

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Semptomatik toraksik aort anevrizmaları (TAA) nadirdir. Yetmiş iki yaşında erkek hasta göğüs hastalıkları kliniğimize 2 yıldır devam eden sırt ağrısı ile başvurdu. Posteroanterior akciğer grafisinde sol hiler dolgunluk görüldü. Bunun üzerine bilgisayarlı toraks tomografisi çekildi ve 8 cm çapında sakküler toraksik aortik anevrizma saptandı. Hastaya endovasküler stent başarıyla yerleştirildi. Bu yazıda, TAA'nın kronik sırt ağrısı ve hiler dolgunluğu olan hastalarda ayırıcı tanıda yer almasının gerektiğini göstermeyi amaçladık.

ANAHTAR SÖZCÜKLER: Anevrizma, aort, toraks

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INTRODUCTION

Aneurysm is defined as the irreversible dilation of the artery by more than 50% of the normal diameter [1]. The rate of thoracic aortic aneurysm (TAA) is 4.5 per hundred thousand people. Frequently, atherosclerosis is a condition manifested by hypertension-induced arterial wall weakening and rupture. Genetic diseases (Marfan syndrome, Loeys-Dietz syndrome, Ehler Danlos syndrome, familial thoracic aortic aneurysm syndrome, and aneurysms osteoarthritis syndrome), cystic medial necrosis, giant cell arteritis, infections (syphilis, mycotic infections, tuberculosis) and trauma play a role in the aetiology [2-5]. Thoracic aortic aneurysm is usually asymptomatic and is normally diagnosed with imaging techniques performed for unrelated reasons [6]. Patients with TAA have often had some life-threatening complications, such as aortic rupture, dissection and mortality.

In this paper we aimed to present a rare case TAA found in 72 year-old male patient presenting with back pain.

CASE REPORT

A 72 year-old man was admitted to our department suffering from back pain for the past two years. The patient had intermittent interscapular pain independent of position, breathing and exercise. The last pain had been present for 2 months. He had also suffered from hypertension for 20 years with an irregular antihypertensive treatment. Aetiopathogenetic investigation of the patient revealed no systemic connective tissue disease, infection, genetic defects, inflammation, or history of trauma. Moreover, he did not have any known genetic disease; however, his parents had suffered from hypertension and diabetes. Written consent form was obtained from the patient for this paper.

He had no history of smoking, coughing, weight loss, dyspnoea, dysphagia and haemoptysis. His vital signs were as follows: blood pressure: 140/80 mm Hg, pulse rate: 90 beats/minute, respiratory rate: 16 breaths/minute, body temperature: 36°C.

Cardiac and other system examinations were normal, but there was a decrease of breathe sounds in the left infra-scapular area in the auscultation. Complete blood count, biochemical and serological analyses were normal. The patient had a normal erythrocyte sedimentation rate of 10 mm/h and a white blood cell count of $9 \times 10^9/L$. High sensitivity C-reactive protein and serum D-dimer levels were found to be normal. Posteroanterior chest X-ray



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(Figure 1) examination revealed a large left hilar mass. In addition to a lack of aeration of the lower lobe of the left lung, there was minimal costophrenic sinus bluntness.

In echocardiographic examination, systolic function was normal (fractional shortening: 30%, ejection fraction: 65%), there was grade I diastolic dysfunction, mitral lid E-A velocity: 0.7 m/s, no mitral failure, no valvular regurgitation and hypertrophy (interventricular septum diastolic diameter: 10 mm). Calcification existed in the aortic lid. Haemodynamically insignificant atheroma plaques were detected in bilateral carotid arteries by colour and pulse

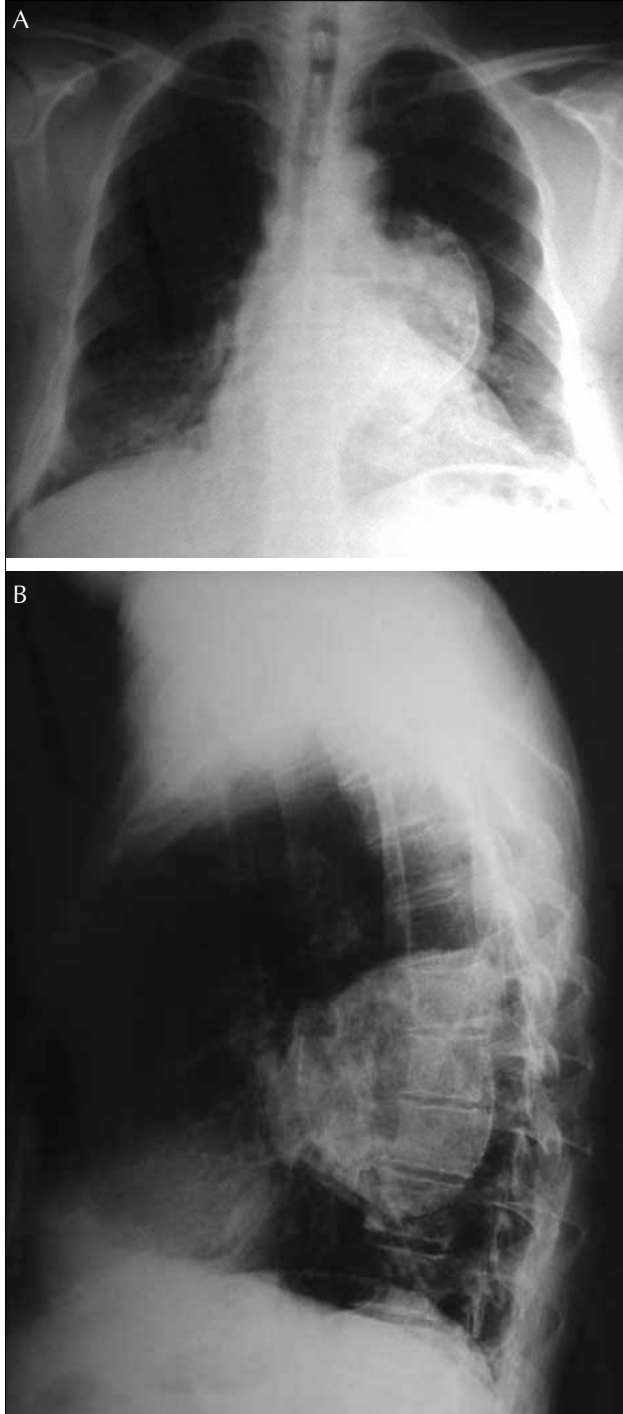


Figure 1 a, b. Chest X- ray of the patient with thoracic aortic aneurysm

valve Doppler ultrasonography. Computerised thorax tomography scan (Figure 2) showed that the mass was located in the proximal part of the descending aorta, with a diameter of 8 cm, suggesting a saccular aortic aneurysm. Defined thrombus material was pressurising the posterior of the oesophagus and the left atrium. Also, due to compression, atelectasis was seen on the posterobasal segment of the left lung. Additionally, a large thrombus (6 cm) and atherosclerotic atheroma plaques were shown within the TAA. There was no pleural effusion. Then, the patient was referred to cardiovascular surgery. Thoracic aortography examination showed an aneurysm located in the proximal part of the descending aorta with a diameter of 8 cm.

In surgical treatment, under general anaesthesia penetrating to the femoral artery and using arcus aortography and toracal aortography, an aneurysm with a diameter of approximately 8 mm was discovered. The 30x120 mm aortic stent graft was applied to the aneurysm. In the post-operative phase, the patient had no back pain. No complication was seen; after follow-up and improvement of their general condition, the patient was discharged from the hospital on postoperative day 15.

DISCUSSION

Rupture of TAA and dissections are very rare, despite the very high morbidity and mortality rates. Therefore, early detection is important. Thoracic aortic aneurysms are usually asymptomatic (about 75%), but pain is known as the predominant referable symptom in about 17% of patients [7]. Although usually asymptomatic, chest pain, back pain, hoarseness due to recurrent laryngeal nerve compression, difficulty in swallowing due to compression of the oesophagus and shortness of breath due to the bronchial compression may be seen [8]. In our case, there is no continuity in back pain over the last two years. Hilar enlargement on chest radiographs suggested the need for a computerised thorax tomography scan, which revealed



Figure 2. Computerized thorax tomography of the patient with thoracic aortic aneurysm

the descending TAA. The rate of descending aortic aneurysms in the aetiology of atherosclerosis is high [4].

In addition in the ascending aorta, the aneurysms may be saccular or fuzzy form and may press onto the oesophagus and trachea. Moreover, in the real aneurysms, all layers of the aorta wall may be affected. Usually, pseudoaneurysms may occur after trauma or as a postoperative complication. In our case, a thoracic saccular aneurysm was seen, which spanned all layers of the aorta. No dysphagia was observed, although there was pressure on the oesophagus in CTT.

In our case, the patient had no genetic or systemic disease, no infection, and no history of trauma. Atheromatous plaque findings in CTT also suggested an aneurysm. It is unknown whether atherosclerotic aneurysms are caused by atherosclerosis or atherosclerosis is caused by deformities in vascular structure caused by aneurysms; however, we believe in our case that the atherosclerosis is associated with the thoracic aortic aneurysm. In aneurysms, smoking history, chronic obstructive pulmonary disease, advanced age, pain, hypertension, and a diameter of more than 5 cm of the aorta increases the risk of aortic rupture [9]. In the case presented here, despite an aortic diameter of 8 cm, advanced age and hypertension, the lack of rupture positively influenced the prognosis of the patient's diagnosis. Nowadays, because of low morbidity, mortality and hospital stay, thoracic endovascular stent graft surgery, generally under epidural anaesthesia, is the preferred surgical method in especially old TAA patients [10,11]. Thoracic endovascular stent graft surgery was applied to our patient too. The lack of postoperative complications suggests that endovascular stent graft surgery in TAA without rupture or dissection will diminish mortality rates.

Consequently, we believe that, despite its rare incidence, TAA should not be forgotten in the differential diagnosis of chronic back pain. In these patients, early diagnosis

diminishes mortality rates and increases the quality of life for patients.

Conflict of Interest

No conflict of interest was declared by the authors.

REFERENCES

1. Hiratzka LE, Bakris GL, Beckman JA, et al. 2010 ACCF/AHA/AATS/ACR/ASA/SCA/SCAI/SIR/STS/SVM guidelines for the diagnosis and management of patients with thoracic aortic disease: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines, American Association for Thoracic Surgery, American College of Radiology, American Stroke Association, Society of Cardiovascular Anesthesiologists, Society for Cardiovascular Angiography and Interventions, Society of Interventional Radiology, Society of Thoracic Surgeons, and Society for Vascular Medicine. *Circulation* 2010;121:266-369. [\[CrossRef\]](#)
2. Şentürk T, Yetgin ZA, Doğan T, Aydınlar A. Torasik aort anevrizmasında endovasküler stent greft implantasyonu. *Anadolu Kardiyol Derg* 2009;9:5-9.
3. Coady MA, Rizzo JA, Goldstein LJ, et al. Natural history, pathogenesis, and etiology of thoracic aortic aneurysms and dissections. *Cardiol Clin* 1999;17:615-615-35. [\[CrossRef\]](#)
4. Isselbacher EM. Thoracic and abdominal aortic aneurysms. *Circulation* 2005;111:816-28. [\[CrossRef\]](#)
5. Akin I, Kische S, Rehders TC, et al. Endovascular repair of thoracic aortic aneurysm. *Arch Med Sci* 2010;6:646-52. [\[CrossRef\]](#)
6. Buket S, Bilgen F, Battaloğlu B, Gürbüz A, Alhan C. Aort cerrahisinde tanı ve tedavi klavuzu 2008. *Türk Kalp Damar Cerrahisi Derneği Aort Cerrahisi Çalışma Grubu*; 2008.
7. Joyce WJ, Fairbairn JF, Kincaid DW, et al. Aneurysms of the thoracic aorta. A clinical study with special reference to prognosis. *Circulation* 1964;29:176-81. [\[CrossRef\]](#)
8. Findeis LK, Cody ME. Endovascular repair of thoracic aneurysms. *Semin Intervent Radiol* 2011;28:107-17. [\[CrossRef\]](#)
9. Hountis PG, Plestis KA. Strategies in the management of extensive descending and thoracoabdominal aortic aneurysms. *Hellenic J Cardiol* 2009;50:295-302.
10. Bortone AS, De Cillis E, D'Agostino D, et al. Endovascular treatment of thoracic aortic disease: four years of experience. *Circulation* 2004;110:262-7. [\[CrossRef\]](#)
11. Stone DH, Brewster DC, Kwolek CJ, et al. Stent-graft versus open-surgical repair of the thoracic aorta: mid-term results. *J Vasc Surg* 2006;44:1188-97. [\[CrossRef\]](#)