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Thoracic Aortic Aneurysm: A Case Report

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Abstract **Case Report**

Introduction: Thoracic aortic aneurysm (TAA) is a cardiovascular disorder, associated with high morbidity and mortality. Most of these aneurysms are incidentally discovered while doing imaging studies. This report describes a unique pattern of TAA. ***Case Presentation:*** A 52 years old female presented in outpatient department with chronic back pain for 2 years. She was a known case of systemic arterial hypertension for 20 years and on irregular antihypertensive medications. The patient was worked up and found to have aortic aneurysm extending from upper descending thoracic aorta to right common iliac artery. Maximum diameter of false lumen was 53 mm and seen in lower thoracic and mid abdominal aortic level. ***Conclusion:*** TAA is a life-threatening condition with indistinct sign and symptoms. A high index of suspicion and early implementation of radiological studies are of paramount importance to reach the diagnosis.
Keywords: Thoracic Aortic Aneurysm, Clinical Presentation, Computed Tomography Angiography.

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INTRODUCTION

Thoracic aortic aneurysm (TAA) is defined as a loss of parallelism of the aortic walls resulting in saccular, fusiform or diffuse dilatation, 1.5 times greater than the superjacent aorta (1). If TAA is 10cm in diameter then it is considered as Gaint TAA. (2). TAA is a significant healthcare problem worldwide with an estimated annual incidence of 5.3 per 100,000 persons/year and is a significant risk of rupture which has over 90% mortality. TAA are less common than the abdominal aortic aneurysm 4% (3,4,5). Frequently, atherosclerosis is a condition manifested by hypertension induced arterial wall weakening and rupture. Genetic diseases (Marfan syndrome, Loeys-Dietzs 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 role in the aetiology (2-5). Cystic medial necrosis where focal degeneration of elastic and muscular fibre within the tunica media of aortic wall often results in TAA (6). The natural history of TAA is progressive expansion of aneurysm that depends on the location and cause of aneurysm. Although most TAA produces no symptoms, patients who become symptomatic or have complications related to the aneurysm (acute aortic regurgitation, dissection, aortic rupture) should undergo repair (1-5). Conservative management of asymptomatic TAA is given where the aims are to reduce the stress on the aorta and limit further aortic expansion. Asymptomatic patients who do not meet the criteria for repair also require ongoing aneurysm surveillance. Any patient with additional risk factors (marfanoid habitus, positive family history) should be evaluated for possible underlying genetic conditions known to be associated with thoracic aortic aneurysm and dissection. Thoracic aortic aneurysm is mostly asymptomatic and diagnosed incidentally with imaging techniques performed for other causes (6). Patients with TAA often had some life-threatening complications such as aortic rupture, dissection. In this paper we aimed to present a rare case of TAA found 52years old patient presenting with back pain.

CASE REPORT:

A 52 years old female was admitted to our department suffering from back pain for the past two years. She had been experiencing intermittent interscapular pain which was independent of position, exercise and breathing. She had also suffered from systemic hypertension for 20 years with an irregular antihypertensive treatment. Investigation of the patient revealed no systemic connective tissue disease, infection, inflammation or history of trauma. Moreover, she did not have any known genetic disease. Written consent was obtained from the patient for his paper. She had no history of cough, weight loss, dyspnoea, dysphagia and hemoptysis. Her vital signs were as follows: blood pressure: 140/80 mmHg, pulse rate: 90 beats/min, respiratory rate: 16 breaths/min, body temperature: 36°C. Cardiac and other system examinations were normal, but there was a decrease of breath sounds in the left infra-scapular area on the auscultation. Complete blood count, biochemical and serological analyses were normal. The patient had a normal erythrocyte sedimentation rate (ESR) of 10 mm in 1 st hour and white blood cell count of 9×109 /L. High sensitivity C-reactive protein (CRP) and serum D-dimer levels were found to be normal. Posteroanterior chest X-ray revealed hilar enlargement. In echocardiographic examination, systolic function was normal (fractional shortening: 30%, ejection fraction: 65% in teicholz method), there was grade I diastolic dysfunction, mild aortic regurgitation and mild mitral regurgitation. Computerized tomography (CT) angiogram (Figure 1) study of the aorta and its branches shows elongated intimal flap extending from upper descending thoracic aorta to right common iliac vessel and a long dilated false lumen which compress the adjoining true abdominal aortic lumen. Long mural thrombus is seen in false lumen from lower descending aorta to right common iliac artery. Thoracic part of false lumen shows curvilinear wall thickening. Maximum diameter of false lumen was 53 mm and seen in lower thoracic and mid abdominal aortic level. Then, the patient was referred to cardiovascular surgery.

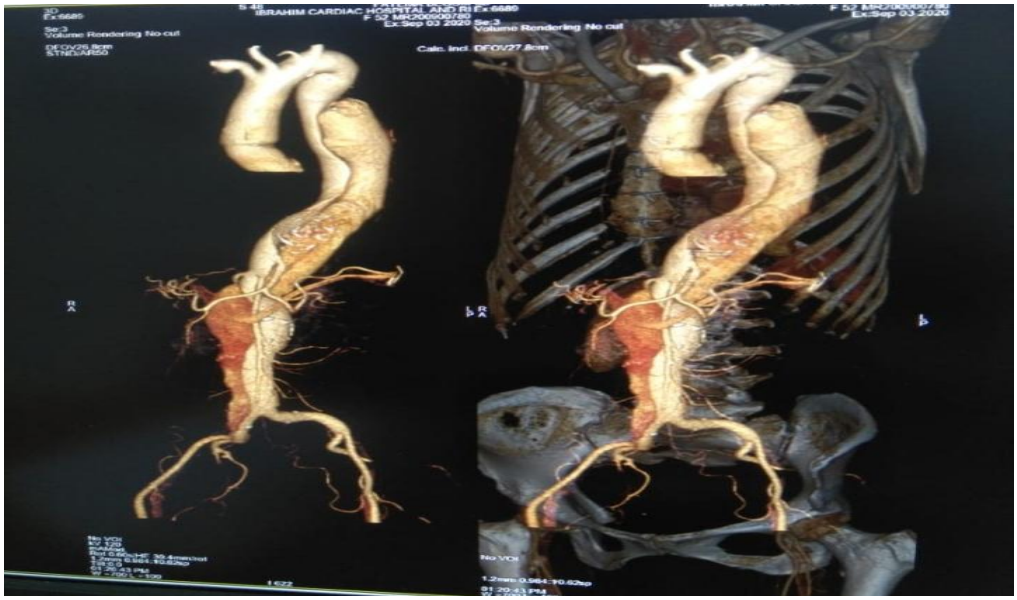

Figure 1: Computerized tomography (CT) angiogram study of the aorta and its branches shows elongated intimal flap extended from upper descending aorta up to right common illiac vessel, causing a long dilated false lumen which compress the adjoining true abdominal aortic lumen. Long mural thrombus is seen in false lumen from lower descending aorta to right common iliac arteries (CIAs). In thoracic part, false lumen shows curvilinear wall thickening. Maximum diameter of false lumen is 53 mm and seen in lower thoracic and mid abdominal aortic aortic level.

DISCUSSION

Though rupture of TAA and dissection are very rare, it carries very high morbidity and mortality rate. Therefore, early detection is important. Thoracic aortic aneurysms are usually asymptomatic (about 75.0%), but pain is known as the predominant referable symptom in about 17.0% of patients (7). Although usually asymptomatic, chest pain, back pain, hoarseness of voice 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 was history of back pain over the last two years and the patient was diagnosed with hypertension for twenty years, which constitutes the main risk factor predisposing for TAAs and aortic dissection. The patient had no genetic or systemic disease, infection or history of trauma. Smoking, hypertension, advanced age, chronic obstructive pulmonary disease and diameter more than 50mm increase the risk of rupture (9). Her hilar enlargement on chest radiographs suggested the need for a computerized tomography (CT) angiogram study of the aorta which revealed the descending thoracic aneurysm with intimal flap and dilated false lumen which compressed the adjoining true abdominal aortic lumen and also thrombus

was seen in false lumen. No dysphagia was observed, although there was pressure on the oesophagus as noticed in CT angiogram. In this case, despite an aortic diameter of 53mm with hypertension, the lack of rupture positively influenced the prognosis of the patient's diagnosis. Usually in asymptomatic TAA, up to 5.5 cm can be managed medically by regular monitoring of size, strict blood pressure control and smoking cessation (10,11,12). But in our case, patient was symptomatic, so she was referred to cardiovascular surgery. Elective surgery is indicated 6.5 cm for descending aortic aneurysms and aneurysm growth of >1 cm per year. Propranolol was started. Because, it has been shown to slower the rate of dilatation and lower mortality significantly than treatment with non β-blocker therapy (12-16). Nowadays, because of low morbidity, thoracic endovascular stent graft surgery, generally under epidural anaesthesia is the preferred surgical method in especially elderly TAA patients.

CONCLUSION

It is known that most patients with TAA are asymptomatic and diagnosis is made incidentally during imaging studies for additional reasons (9). Our patient was diagnosed during evaluation for backpain. We believe that, despite its rare incidence, TAA should not be forgotten as the differential diagnosis of chronic back pain. In these patients, early diagnosis diminishes mortality rates and increases the quality of life.

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