Case Report

Conservative Management of mild symptomatic descending thoracic aneurysm – A case report with 1 year follow-up

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ABSTRACT:

Background: *The thoracic aorta is made up of the ascending, descending, aortic arch, and aortic root. An aneurysm forms when the artery's usual diameter increases by fifty percent. Thoracic aneurysms affect 10 of every 100,000 elderly adults and are less common than their abdominal counterparts. Patients with thoracic aortic aneurysms (TAAs) rarely experience symptoms, and 95% of TAA patients are asymptomatic.*

Case history: *A 47-year-old male patient who had a medical history of hypertension, dyslipidemia, and smoking. During the first visit, the patient presented with two months of dull back pain. The patient's blood pressure was 180/110 mm of Hg. Our initial assessment involved taking an X-ray and an echocardiography of the patient's chest. The data from his echocardiography and chest reveals that he has a thoracic aneurysm. After a confirmatory CT scan, the diagnosis of thoracic aortic aneurysm was made.*

Conclusion: *In our case report, conservative method was successful in the management of a mild symptomatic descending thoracic aorta aneurysm. However, the size, growth pace, and underlying cause of an aortic aneurysm might all affect whether doctors recommend surgery to repair it. If an aneurysm ruptures or dissects, immediate surgery may be required.*

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Introduction

The thoracic aorta is made up of the ascending, descending, aortic arch, and aortic root.[1] An aneurysm forms when the artery's usual diameter increases by fifty percent.[2] Widening that is more than 10 cm in diameter is regarded as giant TAA. [3] Thoracic aneurysms affect 10 of every 100,000 elderly adults and are less common than their abdominal counterparts. [4,5]

It occurs due to the intrinsic fragility of the aortic wall. Patients with thoracic aortic aneurysms (TAAs) rarely experience symptoms, and 95% of TAA patients are asymptomatic.[6,7]The reason these aneurysms are referred to as "silent killers" is that they can result in severe consequences like aortic dissection or rupture.[8] Twenty-two percent of patients who have an aneurysm complication die before reaching the hospital.[9] Most thoracic aortic aneurysms affect the ascending or root aorta, which is followed by the descending and occasionally the arch aorta.[1]

There are multiple possible etiologies for thoracic aortic aneurysms (TAA). Patients who develop symptoms or experience aneurysm-related problems (such as acute

aortic regurgitation, dissection, or aortic rupture) should have their TAA repaired, even though the majority of these patients do not show any symptoms.[10] Reducing aortic stress and preventing additional aortic enlargement are the goals of conservative therapy of asymptomatic TAA. [10] Patients with no symptoms who don't fit the repair criteria also need to have their aneurysms monitored continuously. Endovascular repair has been increasingly utilized as a first-line treatment. [11] The endovascular technique has several advantages such as avoiding the need for an incision during a thoracotomy or sternotomy, preventing aortic cross-clamping, reducing blood loss, and lessening end-organ ischemia. [12]

In this study, we are reporting a case of a mild symptomatic descending thoracic aneurysm.

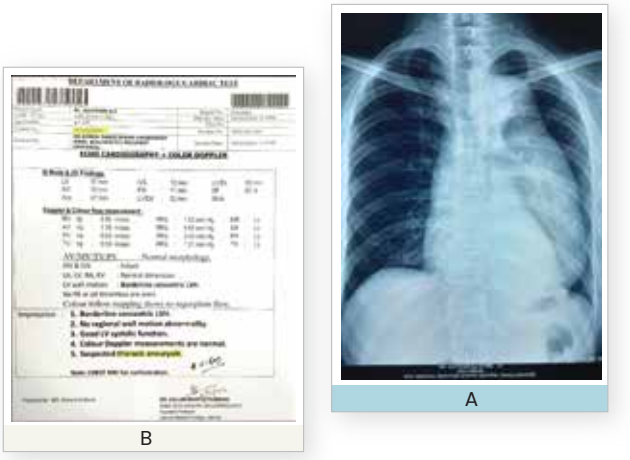
Case History

A 47-year-old male patient who had a medical history of hypertension, dyslipidemia, and descending thoracic aortic aneurysm arrived. He had never smoked. During the first visit, the patient presented with two months of back and chest pain complaints. The patient's blood pressure increased to 180/110. Our initial assessment involved taking an X-ray and an echocardiography of the patient's chest. [Fig.1] The data from his echocardiography and chest reveals that he has a thoracic aneurysm. After a confirmatory CT scan, the diagnosis of thoracic aortic aneurysm was made.

In the CT aortogram report, there was evidence of a left-sided aortic arch with the aorta emerging from the left ventricle. Aneurysmal dilatation of the descending thoracic aorta was seen with a length of the aneurysm which was about 23 cm with fusiform dilatation and eccentric circumferential thrombus inside (maximum diameter 9.2 x 8.5 cm, contrast filed lumen measures about (6.8 x 6.2) cm. [Fig.2]

Other than back and chest pain, the patient did not exhibit any mass-effect symptoms such as dyspnea or cough. He got a full cardiac evaluation at that time, showing no abnormalities in heart function and 0.9 mg/dl of blood creatinine. Consequently, we advised the patient to undergo the surgical procedure. However, the patient chose TAA's conservative management because of his unstable financial situation. Based on our assessment, we decided to start the patient on conservative treatment and monitor him for a year.

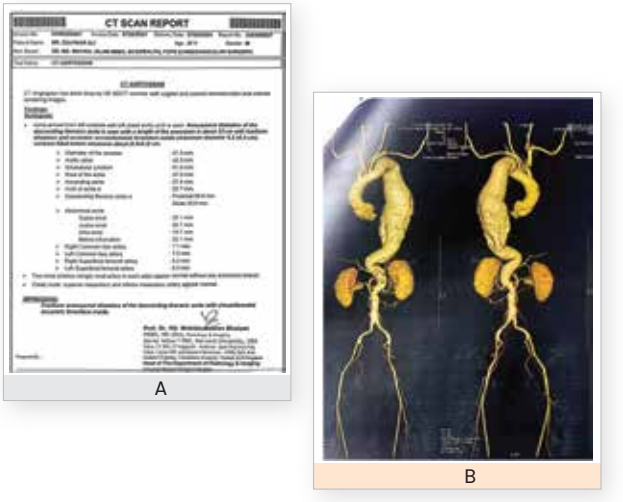
At a follow-up after four months, the CT angiography showed no problems. The patient was doing well and we got no complaints from the patient regarding his health at the 12-month follow-up.



A

B

Figure 1: A) Chest x-ray, B) Echocardiography of the patient



A

B

Figure 2: A) & B) CT angiogram of the patient

Discussion

Thoracic aortic aneurysms are thought to be underreported in frequency since they often show no symptoms. Six to ten cases are estimated to occur for every 100,000 patient-years.[13] Patients with TAA greater than 6.0 cm had an estimated 15.6% likelihood of rupture, dissection, or mortality from all causes before surgical surgery. The same study found that only 54% of patients with large TAAs survived for five years without surgery. [14]

The pathophysiology of TAA development includes focal

degeneration of the elastic and muscle tissue within the tunica media of the aorta wall, which is caused by the process of cystic medial necrosis. As a consequence of the high pressure of intraluminal blood flow, the aortic wall weakens and dilates.[15] This definition distinguishes between an aneurysm and a fake aneurysm, the latter being a perivascular pulsatile hematoma resulting from a vessel injury that is frequently observed during endovascular operations. The presence of two or more of the following characteristics—sepsis, positive blood culture, positive culture from the aneurysmal wall, or a distinctive radiological appearance—defines the mycotic counterpart, a third form of aneurysm.[16] Another kind of aneurysm develops after an acute episode of aortic dissection.

Since hypertension is a contributing factor in 50–60% of deaths from TAAs (aortic dissection and rupture), the patient in this case was diagnosed with the illness before receiving treatment. 15% of patients with aneurysms greater than 10 cm survive for five years.[17] A triple abnormality may be manifested by diastolic murmurs and, less frequently, congestive heart failure signs and symptoms. However, massive TAAs can also result in a local mass effect, such as compression of the trachea or mainstem bronchus, which can induce dyspnea, coughing, fatigue, wheezing, chest pain, or recurrent pneumonitis. [15,17,18] Another common symptom of an aortic rupture is sudden, severe pain in the neck, back, chest, and/or abdomen. [15]

Primary or secondary aortoesophageal fistulae (AEsFs) are categorized as complications in large thoracic aortic aneurysms (TAAs). It is well recognized that the majority of TAA patients have no symptoms, and the diagnosis is often obtained by accident when doing imaging examinations for other purposes.[15,17,18] As the gold standard for diagnosis, contrast-enhanced CT scans and MR angiography are the recommended imaging techniques to evaluate aneurysms. [15,17,18]

Unless they exhibit symptoms or comorbidities, patients with aneurysms smaller than 6 cm are typically not candidates for surgery and may instead get medicinal treatment. For individuals with proven aneurysm growth of more than 1 cm annually, repair is also advised. Elective surgery can be performed at a size of 5.5 cm for ascending and 6.5 cm for descending aortic aneurysms. Comparing propranolol to non-blocker therapy, studies have demonstrated a noticeably slower rate of aortic dilatation, fewer aortic events, and decreased mortality. [15,17,18]

Conclusion and recommendations

In our case report, conservative method was successful in the management of a mild symptomatic descending thoracic aorta aneurysm. We found our patient was experiencing no problems at his last follow-up. However, the size, growth pace, and underlying cause of an aortic aneurysm might all affect whether doctors recommend surgery to repair it. If an aneurysm ruptures or dissects, immediate surgery may be required. Open surgical repair and thoracic endovascular aortic repair (TEVAR) are the most common types of surgery performed. Intervention may not be beneficial for survival in DTAA <55 mm. To defend surgery in the small aneurysm group, operative outcomes need to be remarkable. It is necessary to obtain additional data from case series and case-control studies to elucidate the late complications and re-intervention rate after a 5-year follow-up.

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