

Thoracic Aortic Aneurysm

A thoracic aortic aneurysm is defined as a localized dilation of the thoracic aorta with at least a 50% increase in diameter in comparison to the expected diameter. They occur above the diaphragm and are usually diagnosed in asymptomatic, elderly men. There are several risk factors, but most important are hypertension, smoking, connective tissue disorders, and history of aortic vasculitis. On chest X-ray, the finding of a widened mediastinum may raise suspicion for the presence of a thoracic aortic aneurysm. This diagnosis can be confirmed with a chest CT angiography. Once diagnosed, a thoracic aortic aneurysm can often be managed with observation via serial imaging if the patient is asymptomatic. Emergent surgery is indicated if rupture or dissection occurs.



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Characteristics

Elderly Men

[Elderly Man](#)

Thoracic aortic aneurysms are often seen in elderly men. A possible reason for this is that elderly men are at increased risk of various other conditions known to be related to the development of aneurysms, namely longstanding hypertension, hypercholesterolemia, and atherosclerosis.

Above the Diaphragm

[A-orca bouncing Above Diaphragm-trampoline](#)

A thoracic aortic aneurysm is anatomically defined as any aneurysm occurring in the portion of the aorta located above the diaphragm. This is further subclassified depending on if it is localized to the ascending aorta, the arch, or the descending aorta. The ascending aorta is the most common of these three sites.

Usually Asymptomatic

[Thumbs Up](#)

Most thoracic aortic aneurysms are asymptomatic. Those that do have associated symptoms are typically very large and at risk for rupture. Symptomatic thoracic aortic aneurysms most commonly present with chest pain radiating to the back or symptoms related to compression of nearby structures leading to nerve dysfunction or vascular compromise. For example, compression of the esophagus would cause dysphagia while compression of the trachea may cause respiratory difficulties. Superior vena cava syndrome and Horner syndrome are also reported mass effect symptoms.

Risk Factors

Hypertension

[Hiker-BP](#)

The majority of thoracic aortic aneurysms are degenerative and are associated with risk factors for atherosclerosis such as hypertension.

Smoking

[Cigarette](#)

Smoking is a known risk factor for development of thoracic aortic aneurysm as it leads to atherosclerosis and degeneration of the connective tissue of the aorta.

Connective Tissue Disorders

[Connected Tissue-Boxes](#)

Connective tissue disorders such as Ehlers-Danlos syndrome and Marfan syndrome are risk factors for development of thoracic aortic aneurysms. Connective tissue disorders result in a weakened, less elastic vessel wall from cystic medial necrosis, resulting in an increased propensity for aneurysm formation.

Vasculitis

[Blood-vessels on Fire](#)

Vasculidities such as Takayasu arteritis and giant cell arteritis lead to inflammation within the connective tissue of the aorta leading to degeneration and predisposing the patient to developing an aneurysm. Infectious causes of vasculitis like obliterative endarteritis secondary to tertiary syphilis is also an etiology.

Diagnosis

Chest X-Ray

[Chest X-Ray](#)

Though not sufficient in definitively establishing a diagnosis, chest x-ray findings of a widened mediastinum or enlarged aortic knob may raise suspicion for a thoracic aortic aneurysm.

Chest CT Angiography

[Cat-angel](#)

To establish a definitive diagnosis of thoracic aortic aneurysm, a chest CT angiography is most useful as it involves the use of intravenous contrast dye which allows for sufficient visualization of the aorta.

Management

Manage Risk Factors

[Manager by Risk Factors](#)

An essential part of the management of thoracic aortic aneurysm is the management of underlying risk factors through measure such as controlling blood pressure and cholesterol and quitting smoking.

Surgery if Rupture or Dissection

[Surgeon by A-orca Ruptured and Dissected](#)

Emergent surgical intervention is indicated in the event that a thoracic aortic aneurysm dissects or ruptures, as both conditions can be immediately life threatening.

Observation if Asymptomatic

[Observatory with Thumbs Up](#)

For the majority of patients with a thoracic aortic aneurysm who are asymptomatic, management consists of observation via serial imaging, typically with CT angiography or MR angiography.