Abstract
Thoracoabdominal/thoracic aortic aneurysm is often diagnosed incidentally while evaluating for dyspnea or atypical chest pain of long duration. Late presentation in various forms such as palpable pulsatile swelling in this patient is quite rare and fatal and foreruns impending rupture. Thoracic aortic aneurysm mandates early diagnosis and prompt treatment as delay in the same leads to fatal rupture. Open surgical repair is the treatment of choice in large aneurysms causing significant compressive symptoms and imminent rupture.

Keywords: Open repair, rupture, thoracic aortic aneurysm

INTRODUCTION
Thoracic/thoracoabdominal aortic aneurysms are often asymptomatic. They commonly present with chronic chest pain, dyspnea, and cough or rarely due to compressive symptoms such as esophageal or bronchial compression. Pulsatile swelling over chest wall may be due to arteriovenous malformation or cardiomegaly causing palpable apex beat, especially in lean individuals. A thoracic aortic aneurysm protruding onto the chest wall is ominous and shows the sheer size of an aneurysm and more importantly imminent spontaneous rupture.

We present the case of a 53-year-old female who presented with a palpable thoracic aortic aneurysm, a presentation which is quite rare and challenging to tackle.

CASE REPORT
A 53-year-old female presented to the outpatient department with complaints of left-sided chest and upper back pain and worsening breathlessness for 2 weeks. She had undergone Bentall’s procedure for ascending aortic aneurysm 14 years back and was on oral anticoagulant. Clinical examination revealed tachycardia and orthopnea. She had a tense palpable pulsatile swelling in the left seventh intercostal space of about 4 cm × 4 cm in size. Chest X-ray showed mediastinal widening. Routine blood investigations were within normal limits. Computed tomography (CT) thorax (aortogram) revealed large thoracic aortic aneurysm [Figure 1a-c] measuring 9.6 cm in maximum dimension, protruding onto the chest wall through the left seventh intercostal space. The abdominal aortic segment was healthy although ectatic (3.2-cm maximum diameter) until the origin of renal arteries. There was no evidence of rupture. There was considerable compression on the left main bronchus causing lower lobe collapse. Her echocardiogram showed normal left ventricular systolic function and functioning prosthetic valve with severe pulmonary hypertension (compression on the left main pulmonary artery). Coronary angiogram was normal. Preoperatively, she was started on low-molecular-weight heparin after stopping oral anticoagulation.

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Under general anesthesia, cerebrospinal fluid (CSF) drain was inserted and prophylactically 15 ml of CSF was drained, and pressure was continuously monitored and maintained at <10 cm of H₂O. If pressure was high, CSF was drained in aliquots of maximum 10–15 ml/h. Left thoracophrenolaparotomy was performed and thoracic cavity entered through fourth intercostal space. Left lung was deflated and retracted and diaphragm was divided and aorta was exposed. Surgical findings included large thoracic aneurysm (9.5 cm maximum size) arising at the base of the left subclavian artery (SCA) [Figure 2a] until the celiac trunk. Innominate artery and left SCA origins were ectatic. Proximal clamp space was created proximal to the left SCA after preserving left recurrent laryngeal nerve and vagus nerve. Distal clamp space was created above the celiac trunk. Left femoral artery was exposed for cannulation. After heparinization (2 mg/kg), proximal and distal clamps were applied and aneurysm was opened and thrombus removed. There was no backbleeding from intercostal arteries. Proximal anastomosis was done distal to the left SCA origin with 28-mm coated polyester (Intergard™ Knitted, Maquet, Germany) tubular graft [Figure 2b]. Anastomosis was checked and temporary aortofemoral bypass was established by cannulating the graft distal to anastomosis using 20F cannula (EOPA, Medtronic™) and 16F cannula into the femoral artery. Distally, anastomosis was fashioned above the celiac artery as the aorta was healthy. After checking anastomosis, aortofemoral bypass was clamped and decannulated. Adequate heparin reversal was given with protamine.

She had an uneventful postoperative recovery. CSF drain was removed after 48 h. She was restarted on oral anticoagulation and was discharged in hemodynamically stable condition on the 9th postoperative day. At 6 months, she was doing well and was symptom free. CT aortogram revealed intact anastomoses [Figure 3a and b].

**DISCUSSION**

Late presentation of the thoracic aortic aneurysm is often due to compressive symptoms such as dyspnea, dysphagia,[1,2] or elevation of hemidiaphragm. Thoracic aortic aneurysms are largely asymptomatic. Acute expansion of the aneurysm causes interscapular pain, left-sided chest pain, and severe dyspnea.[3] Palpable thoracic aortic aneurysm has not been reported in the literature to the best of our knowledge. Large aneurysm is fatal as it can cause spontaneous rupture[4] which is often fatal.

Patients presenting with isolated chest discomfort and breathlessness present to the local physicians and diagnosis gets delayed due to lack of suspicion. Thoracic aortic aneurysms should be promptly managed with open surgical repair[5] or thoracic endovascular aortic repair (TEVAR). However, large aneurysms causing significant compression are best managed by open surgical repair[6] in a fit patient as TEVAR does not cause immediate relief of symptoms. In our index case, the aneurysm was compressing the left main...
bronchus, and TEVAR could not have produced relief of bronchial compression readily.

**CONCLUSION**

Morbidity and mortality associated with large thoracic aortic aneurysms are high, especially when it presents like in our index patient which predisposes to imminent rupture and death. We suggest there should be high suspicion for early diagnosis and treatment of thoracic aortic aneurysm in patients presenting with atypical presentation.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that names and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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