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## Case report

# Endovascular treatment of the malignant thrombus in the descending thoracic aorta

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## ABSTRACT

Thrombus in the Non-aneurysmal, Non-atherosclerotic Descending Thoracic Aorta (NAADTA) represents a rare source of peripheral arterial embolism. Despite being mostly asymptomatic process, its consequences can be very serious. In this case report, we described the case of a patient with malignant thrombus occurring in otherwise “healthy” descending thoracic aorta, already complicated by embolization into superior mesenteric artery, subsequently solved by stent graft implantation into the thoracic aorta.

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## Introduction

Primary thrombus in the descending thoracic aorta, thrombus thus formed in the absence of pre-existing aorta disease, presents a rare source of peripheral arterial embolism [1–3]. The incidence of peripheral arterial embolism is its most frequent clinical manifestation. The etiology of thrombus formation in a macroscopically normal aorta is not well understood. A correlation with underlying malignant disease, coagulation disorders, primary endothelial disorders or even

iatrogenic causes has been suggested [1]. The dominant treatment modalities include conservative therapy via anticoagulants, open surgery and endovascular treatment using a stent graft to fix the thrombus to the aortic wall [4]. The optimal management of patients with thrombus in NAADTA remains controversial; nevertheless first-line treatment is still anticoagulant therapy. Surgical intervention is reserved for patients with contraindications to long-term anticoagulation or those who failed to conservative management [1,4]. Our case report describes a female with malignant thrombus in the descending thoracic aorta, already complicated by embolization into superior mesenteric artery.

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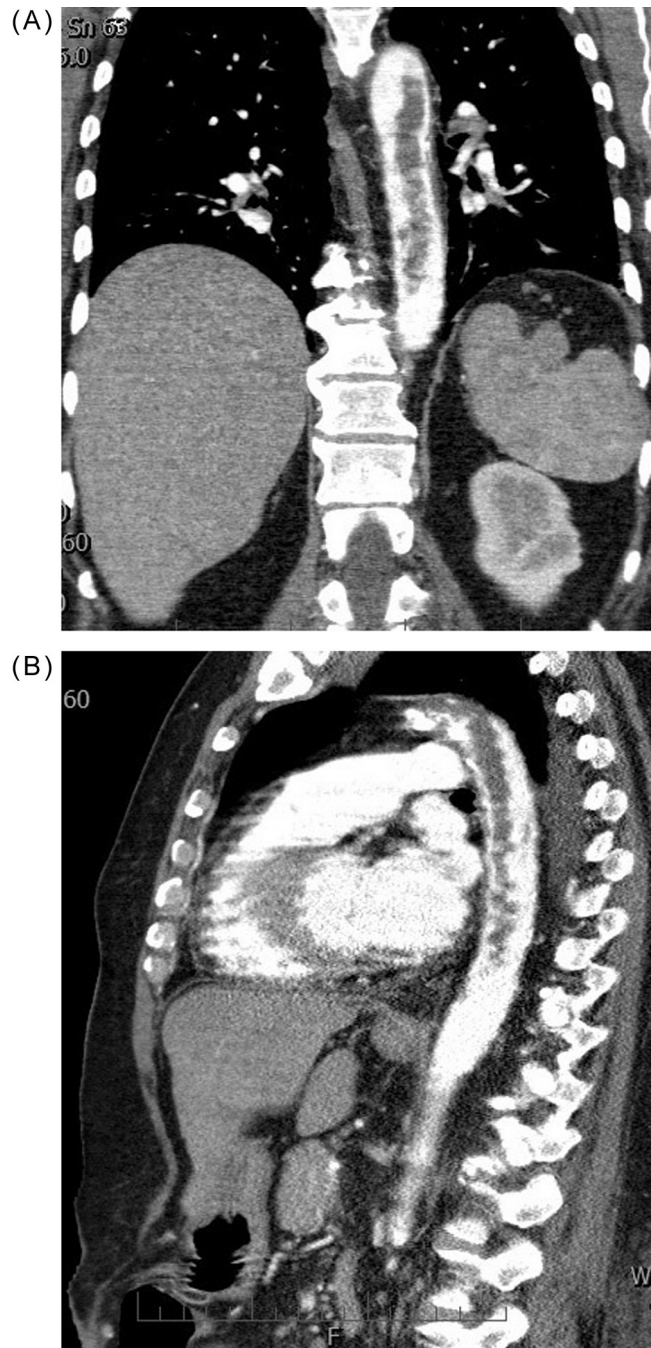
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## Description

61-Year-old female was admitted on March 3, 2014 to Institute for Clinical and Experimental Medicine with flapping thrombus in the thoracic aorta, 11 cm in length. Patient history includes obesity, arterial hypertension, hyperlipidemia and right nephrectomy for moderately differentiated conventional renal cancer in May 2013. The right femoro-popliteal bypass, closed several years ago, was performed in 2002. In November 2013, the patient underwent resection of the small bowel because of ischemic bowel gangrene followed by series revisions of peritonitis and prolonged healing of surgical wounds. CT angiography of thoracic and abdominal aorta revealed a smaller flapping thrombus in otherwise normal-looking thoracic aorta and the embolic closure of superior mesenteric artery was the cause of intestinal ischemia. Anticoagulant therapy was started. In February 2014, she was rehospitalized to regional department of surgery for recurrent abdominal pain, nausea, temporarily with the need for parenteral nutrition. CT angiography examination was repeatedly described this time a bulky flapping thrombus in descending aorta with a high potential for re-embolization. The thrombus started in the aortic arch just behind left subclavian artery, was up to 11 cm long and reached almost to the diaphragm (see Fig. 1A and B). Thrombophilia screening revealed the presence of the factor V – Leiden mutation. She was reviewed to our department to determine further therapeutic procedure. The highly malignant potential of thrombus embolization, an anamnesis of embolization in gastrointestinal tract and its localization induced an intervention consisting of thrombus exclusion with stent graft implantation into the thoracic aorta. She was admitted to our institution on March 3, 2014. The preoperative transthoracic echocardiography examination was without detection of significant pathology. The planned procedure was started on March 4, 2014. At the operating theater, under general anesthesia, we started with surgical preparation of the left common femoral artery. Subsequently, the stent graft Relay 24-200 (Boston Medical, Barcelona, Spain) was guided up to the aortic arch and implanted via the thrombus. Free-flow part of the stent graft overlaps the left subclavian artery, his covered part begins just after the mentioned artery. The right position of the stent graft was verified by control angiography so as the filling of visceral arteries (superior mesenteric artery is chronically closed in a short distance) and the imaging between aortic bifurcation and femoral arteries remain identical. After removal of the instrumentation there were done suture of left common femoral artery and wound closure in the left groin by standard manner. Early postoperative period was uneventful, for posthemorrhagic anemia treatment was given two packed of red cells and launched permanent antiplatelet therapy with clopidogrel. Checking with CT angiography confirmed the positive finding on thoracic aorta after implantation of the stent graft (see Fig. 2A and B), and on March 11, 2014 she was discharged to outpatient care. Within the subsequent follow-up for diseases of the thoracic aorta in our institute in December 2014 there was a further CT angiography, again



**Fig. 1 – (A, B) The thrombus of thoracic aorta started in the aortic arch just behind left subclavian artery, was up to 11 cm long and reached almost to the diaphragm.**

with a favorable finding on the intervened aorta, with no recurrence of the thrombus or peripheral arterial embolism.

## Discussion

Distal arterial embolism is a relatively common problem that carries increased morbidity and, potentially, mortality. Over 80% of all peripheral and visceral emboli originate from disturbances of cardiac function itself such as atrial fibrillation,

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