

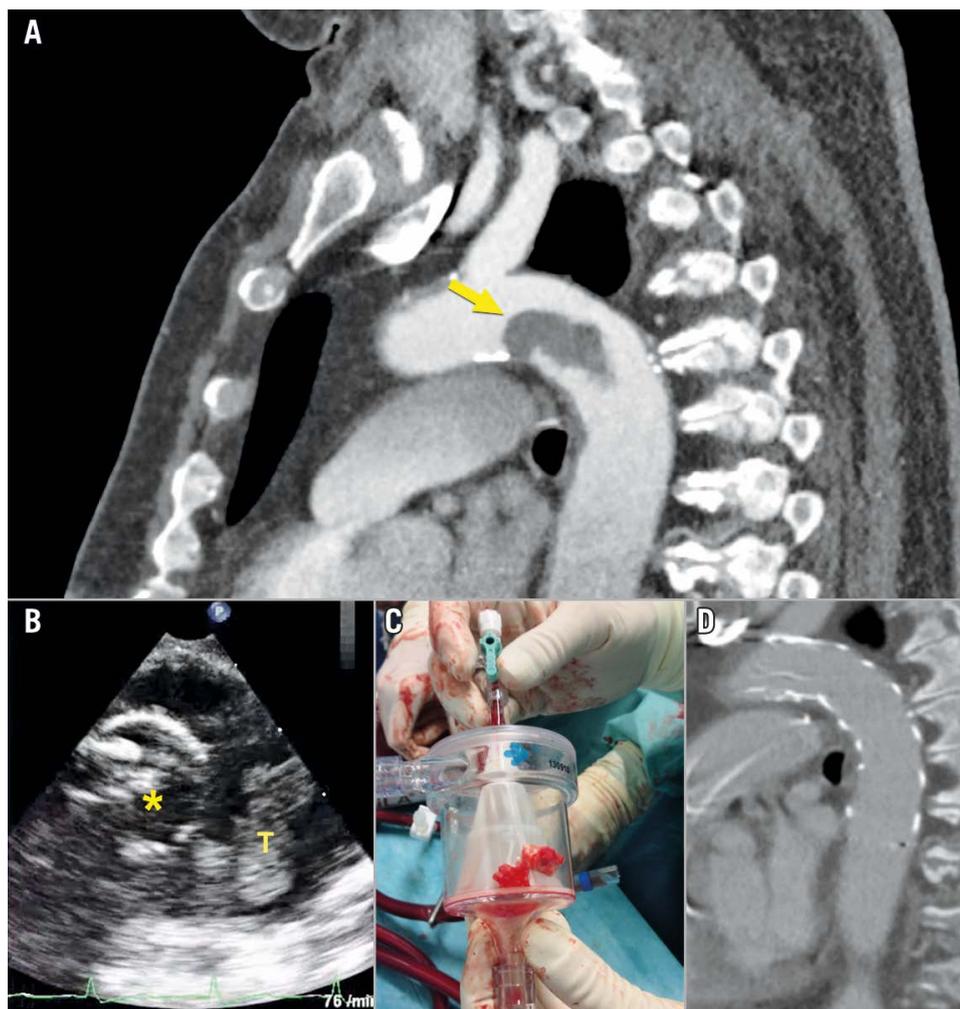
Successful percutaneous aspiration and endovascular stenting of a symptomatic floating thrombus located in the distal aortic arch



Markus Deichstetter^{1*}, MD; Andreas Maier-Hasselmann², MD; Ellen Hoffmann¹, MD; Johannes Rieber^{1,3}, MD

1. Department of Cardiology and Internal Intensive Care Medicine, Heart Center Munich-Bogenhausen, Munich Municipal Hospital Group, Munich, Germany; 2. Department of Cardiovascular Surgery, Heart Center Munich-Bogenhausen, Munich Municipal Hospital Group, Munich, Germany; 3. Department of Cardiology, University of Munich, Munich, Germany

This paper also includes supplementary data published online at: http://www.pcronline.com/eurointervention/124th_issue/172



*Corresponding author: Department of Cardiology and Internal Intensive Care Medicine, Heart Center Munich-Bogenhausen, Englschalkinger Str. 77, D-81925 Munich, Germany. E-mail: Markus.Deichstetter@klinikum-muenchen.de

Primary mural aortic thrombus in a non-aneurysmal aorta is a rare entity and an uncommon cause of peripheral arterial embolisation¹. This case report describes a minimally invasive, catheter-based treatment of a large symptomatic aortic thrombus located in the aortic arch using a transcatheter thrombus aspiration system followed by implantation of an endovascular thoracic stent graft in a patient not suitable for conventional surgery.

A 70-year-old obese male patient with past medical history of smoking, chronic obstructive pulmonary disease, hypertensive heart disease and insulin-dependent diabetes was transferred to our hospital with abdominal pain, dyspnoea and systemic inflammatory response syndrome (SIRS). A subsequent computed tomographic angiography (CTA) of the aorta and a transoesophageal echocardiography (TEE) revealed a large floating pedunculated thrombus based on the inner curve of the aortic arch, most likely due to an underlying penetrating atherosclerotic ulcer (PAU) (**Panel A, Moving image 1**). There was also evidence of multiple peripheral embolisation (spleen, celiac trunk, kidney). Conventional open thrombectomy or implantation of an intravascular stent graft was considered too dangerous due to the thrombus location and the existing comorbidities.

Since all conventional treatment options in this case were deemed unsuitable we decided to apply a thrombus aspiration strategy utilising the AngioVac catheter system (AngioDynamics, Latham, NY, USA) as an off-label use.

Right common femoral artery (CFA) and left common femoral vein (CFV) were exposed after surgical cut-down. The AngioVac system was connected to an extracorporeal bypass circuit (iLA activve®; Novalung, Heilbronn, Germany) operated by an adjustable centrifugal non-occlusive pump and the AngioVac cannula (22 Fr angled tip [20°]; 26 Fr introducer sheath) serving as the inflow and the cannula in the CFV (22 Fr) as the outflow.

Under angiographic and TEE guidance the AngioVac cannula was advanced distal to the thrombus (**Panel B**; AngioVac

catheter [*], thrombus [T]). Several cycles of the AngioVac system were performed with significant removal of thrombus. However, due to the dense structure, the thrombus could only be removed after applying a snaring device (GooseNeck®; Medtronic, Minneapolis, MN, USA) via a 6 Fr sheath (left CFA) to cut the thrombus in smaller pieces with the AngioVac system still operating distal to the thrombus to evacuate the mobile remnants (**Panel C, Moving image 2**). Eventually the whole thrombus could be removed successfully except for a small peduncle. The underlying PAU was then covered with an endovascular stent graft (Valiant™ Captivia™; Medtronic) (**Panel D**).

The postoperative course was uneventful and a six-month follow-up including a CTA of the aorta revealed an unremarkable stent graft without evidence of endoleak and no proof of remaining thrombus.

Conflict of interest statement

The authors have no conflicts of interest to declare.

Reference

1. Fayad ZY, Semaan E, Fahoum B, Briggs M, Tortolani A, D'Ayala M. Aortic mural thrombus in the normal or minimally atherosclerotic aorta. *Ann Vasc Surg*. 2013;27:282-90.

Supplementary data

Moving image 1. Transoesophageal echocardiography showing the pedunculated floating thrombus located in the aortic arch.

Moving image 2. Transoesophageal echocardiography showing the AngioVac catheter during thrombus suction process.

The supplementary data are published online at:

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