SHORT REPORT

Endovascular Therapy of a Symptomatic Mobile Thrombus of the Thoracic Aorta

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KEYWORDS
Mobile thrombus;
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Abstract
Introduction: The therapeutic strategies of a mobile luminal thrombus of the descending thoracic aorta with peripheral arterial embolization remain a matter of debate.

Report: We report the case of recurrent peripheral arterial embolism caused by a mobile thrombus of the descending aorta, which was successfully treated by implanting an endovascular stent graft.

Discussion: Our case demonstrates, that endovascular stent graft placement is feasible and can be performed as an effective and minimally invasive treatment option for mobile thoracic aortic thrombi.

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Introduction
A mobile thrombus in the thoracic aorta is a rare source of visceral, cerebral, and peripheral embolism. The best management of this disease is still a matter of debate and includes systemic anticoagulation, and open surgical procedures. Among these, surgical treatment has been used rather restrictively, mainly because operative morbidity was still considered comparatively high. We describe the case of a symptomatic thoracic aortic thrombus which, after frustrane systematic anticoagulation, was finally successfully treated by means of endovascular stent graft placement.

Report
A 47-year-old woman was admitted to a peripheral hospital with a history of acute rest pain in both legs. A computed tomography (CT) scan of the abdomen revealed thrombotic occlusion of the infrarenal abdominal aorta as well as of both iliacal arteries. A retrograde endarterectomy and thrombectomy of the infrarenal aorta and both iliacal arteries as well as a bilateral thrombectomy of the superficial and deep femoral artery followed by patchplasty was performed. The patient was heparinized with a systemic dosage.

Ten days postoperatively, rest pain of both legs occurred again. Then a transbrachial intraarterial
angiogram revealed reocclusion of both superficial femoral arteries. A CT-scan showed an approximately 1.5- × 8-cm endoluminal mass located in the descending thoracic aorta, 5 cm distal to the origin of the left subclavian artery (Fig. 1). The implantation base was sessile. After catheter guided thrombolysis with 3.3 mill. units of urokinase a recanalization of the superficial femoral and popliteal artery could be achieved. The maximal thrombolytic dosage, proposing an additional systemic effect, did not affect the aortic thrombus. Therefore, in order to prevent further peripheral and potentially fatal visceral embolization, we decided to insert an endograft covering the aortic thrombus. For that purpose, a 26 mm–10 cm thoracic stent graft (EXCLUDER, W.L. Gore & Associates, Flagstaff, AZ, USA) was used. The final transbrachial angiogram showed excellent positioning of the stent-graft distal to the origin of the left subclavian artery without luminal defects. The luminal thrombus could not be visualized and no other luminal defects were present at postoperative CT-scan control (Fig. 2).

The peri- and postoperative course was uneventful.

Discussion
The reason for choosing endovascular repair in our case was based on various key prepositions:

Firstly, the thrombus was located in the descending thoracic aorta and the implantation base was sessile. Consequently, thrombus localisation was favourable for stent graft placement.

Secondly, although introducing the guidewire and stent graft carries a certain risk of dislodging the thrombus, we felt EVAR to be feasible because the thrombus was at least 4 weeks old at the time of operation and it has remained unchanged after systemic anticoagulation. As a result, we could assume that the thrombus was already partly organized, which presumably would lower the risk of peri- and intraoperative peripheral arterial embolism. In addition to that, we used a left transbrachial angiographic access in order to prevent further manipulation of the thrombus and therefore to minimize the risk of releasing an atherothrombotic fragment from the thoracic aorta.

Thirdly, despite the young age of the patient, good long-term results could be expected as there was no other underlying aortic pathology present. Thus, future formation of endoleaks or stent graft migration is very unlikely to occur. Furthermore, experience gained from the use of thoracic aortic stent grafts for the treatment of aneurysms suggests that thrombus generation in a thoracic aortic stent graft with normal configuration and high flow is extremely rare.3

In comparison to EVAR, open surgical procedures comprise the major drawback of a higher perioperative morbidity and mortality.4

An endoluminal stent graft can be used to cover the circumscibed wall pathology or remnant thrombus material after incomplete thrombolysis and therefore restores physiological flow patterns in the aorta which should prevent the development of recurrent thrombus after thrombectomy.

With the use of anticoagulation, complete resolution or reduction in the size of the thrombus has been reported2 but surgical thrombus removal is suggested if anticoagulation alone is not effective. Anticoagulation alone can not effectively prevent recurrent embolization.

Considering the general health status, age, localisation and dimension of the thrombus as well as the frequency of embolic episodes, EVAR represents an effective and minimal invasive therapy with low morbidity and presumably good long term results in such selected patients.
Conflict of Interest

There is no financial arrangement or other relationship that could be construed as a conflict of interest.

References