

Management in Thoracic Aorta Mural Thrombi: Evidence Based Medicine and Controversy

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Thoracic aortic thrombus is a rare pathology that usually originates from an atherosclerotic aortic wall lesion or an aortic aneurysm and is a potential source of visceral, cerebral and peripheral embolism [1]. Even in this advanced era in medicine, the best therapeutic approach still remains controversial.

We recently had a 47-year-old male non-smoker with long history of hypertension who presented to Emergency Department (ED) with right leg pain and shortness of breath. A physical examination revealed intact pulses, no evidences of right or left sided congestive heart failure and no neurological deficits. During the workup for shortness of breath, a large thrombus was seen in the thoracic aorta from CT scan of chest with intravenous contrast (Figure 1), a very interesting condition. Since the patient came to the ED because of right leg pain, he might have been throwing microemboli to the right lower leg. The area where this thrombus was coming off of seemed to be a calcification or atherosclerotic plaque in the aorta. His echocardiogram was only consistent with some mild hypertensive type changes, no evidence of wall motion abnormalities or valvular heart disease. The extensive workups for thrombophilia were negative. Ultrasound of lower extremities revealed no deep venous thrombosis. The patient was placed on IV heparin, and initiated on warfarin. A Cardiothoracic consult was obtained. The patient was offered options being surgical removal or anticoagulation. The patient has opted for anticoagulation. He tolerated the heparin infusion well and was transitioned to long-term warfarin. Right leg pain was improved in 1 month follow-up visit.

The large thromboses that are generally seen in the aorta are almost always associated with atherosclerosis, the other causes have been blunt trauma or a previous dissection and, as stated, they are very rarely picked up on incidental findings, they are almost always found after a thromboembolic event. The incidence of thoracic aortic thrombi in cases of peripheral embolism is reported to be as high as 9% [2]. Mobile thrombus of the thoracic aorta should be considered in the differential diagnosis of embolic events, particularly in young patients

without cardiac disease, or presenting with recurrent peripheral emboli of undetected causes [3].

Transesophageal echocardiography (TEE) is the procedure of choice for the detection and measurement of thoracic aortic plaques and of cardiac sources of embolization. CT scanning and MRI can also be used to detect aortic plaques, but experience is more limited and plaque mobility cannot be readily characterized. The risk of thromboembolism or atheroembolism in patients with aortic atherosclerosis is markedly increased when the transesophageal echocardiogram (TEE) reveals protruding plaques, particularly if >4 mm in thickness or mobile [4].

All these patients should be aggressively treated for secondary prevention of cardiovascular disease. These modalities include aspirin, statins, blood pressure control, smoking cessation, and, in patients with diabetes, glycemic control.

Specific therapeutic management of an intraluminal mobile thrombus of the aorta remains controversial. Therapeutic strategies are influenced by the localisation of the thrombus, the co-morbidities of the patient and the physician's preferences. A variety of approaches are used, including anticoagulation, thrombolysis, interventional modalities such as thromboaspiration, or balloon-catheter thrombectomy, and open surgical procedures such as thrombectomy, thromboendarterectomy, and aortic prosthetic replacement [3]. Although the benefit of antithrombotic therapy for aortic arch thrombus with or without stroke is uncertain, Choukroun et al suggested anticoagulation with heparin infusion and subsequently chronic warfarin with regular surveillance if TEE findings demonstrated disappearance of the thrombus [5]. Surgery was considered when TEE demonstrated failure of anticoagulation or in cases of thromboembolism with anticoagulation. The value of thrombolysis has not been well-determined. This therapy could cause serious bleeding and massive embolization in cases of selective lysis of the stalk of pedunculated lesions. Endovascular treatment in combination with high dose statins has become the preferred treatment method in a recent report although long-term data are lacking [6]. We still currently need randomized trials and more studies to provide a guideline for management of patients with thoracic aorta mural thrombi.

References

1. Fueglistaler P, Wolff T, Guerke L, Stierli P, Eugster T (2005) Endovascular stent graft for symptomatic mobile thrombus of the thoracic aorta. J Vasc Surg 42: 781-783.

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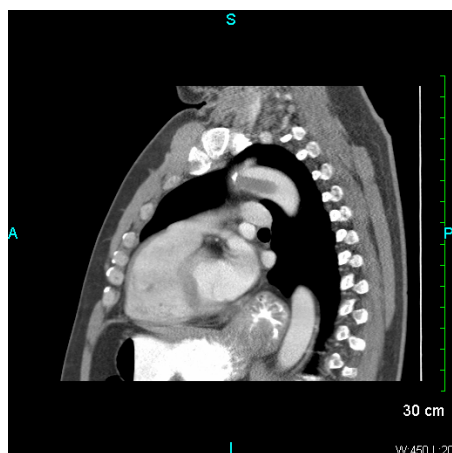


Figure 1: CT scan of chest with intravenous contrast demonstrated a large thoracic aortic thrombus measuring approximately 4.4 centimeters in diameter (arrow).

2. Reber PU, Patel AG, Stauffer E, Müller MF, Do DD, et al. (1999) Mural aortic thrombi: an important cause of peripheral embolization. *J Vasc Surg* 30: 1084-1089.
3. Piffaretti G, Tozzi M, Mariscalco G, Bacuzzi A, Lomazzi C, et al. (2008) Mobile thrombus of the thoracic aorta: management and treatment review. *Vasc Endovascular Surg* 42: 405-411.
4. Vaduganathan P, Ewton A, Nagueh SF, Weilbaecher DG, Safi HJ, et al. (1997) Pathologic correlates of aortic plaques, thrombi and mobile "aortic debris" imaged in vivo with transesophageal echocardiography. *J Am Coll Cardiol* 30: 357-363.
5. Choukroun EM, Labrousse LM, Madonna FP, Deville C (2002) Treatment of symptomatic mobile aortic thrombus. *Ann Vasc Surg* 16: 714-22.
6. Martens T, Van Herzeele I, Jacobs B, De Ryck F, Randon C, et al. (2010) Treatment of symptomatic mobile aortic thrombus. *Acta Chir Belg* 110: 361-364.