

Mobile mass in the aortic arch: A case report

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Case Report

Abstract

BACKGROUND: The finding of a floating mass in the aortic arch is rare and the management remains controversial.

CASE REPORT: We describe a 42-year-old woman with an embolic infarction in whom transesophageal echocardiography revealed a mobile mass in the aortic arch that was characterized as atherothrombi with an evidence of embolic infarction in the territory of the middle cerebral artery. Treatment with antiplatelet and anticoagulants failed to resolve the mass and is surgically resected.

CONCLUSION: In conclusion, the presence of mobile aortic mass seems to carry a high embolic risk. The optimal treatment for mobile aortic arch atherothrombi remains to be elucidated.

Keywords: Embolism, Echocardiography, Transthoracic Echocardiography, Transesophageal Echocardiography

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Introduction

The finding of a floating mass in the aortic arch is rare and the management remains controversial. Complex aortic arch atheromatous plaque (plaque thickness ≥ 0.44 mm or plaque with mobile elements) is a potential source of emboli that has become increasingly common these days due to the advent and extensive use of echocardiography.¹ We report the case of a 42-year-old woman with embolic infarction in whom the transesophageal echocardiography (TEE) study revealed a mobile mass in the aortic arch.

Case Report

A 42-year-old woman presented to the neurology emergency department with headaches, lack of mobility in right hand and foot and lost speech ability. On physical examination, there was complete Broca's aphasia and right hemiplegia. Brain computed tomography (CT) scan showed an evidence of embolic infarction in the left middle cerebral artery (MCA) zone and the treatment for cerebrovascular accident was started. Then, the heart and carotids were evaluated.

Carotid Doppler ultrasound and electrocardiogram (ECG) were normal. The heart rhythm in ECG was normal showing a sinus

rhythm. Transthoracic echocardiogram (TTE) was normal in chambers and heart valves, A suspicious mobile mass was seen in the aortic arch in assessment of suprasternal notch. To investigate further, the CT angiography of the thoracic aorta was performed and a filling defect was observed in the aortic arch. TEE was performed emergently. Hypermobile mass was seen in the aortic arch with the dimensions of $4.0 \times 0.5 \times 0.5$. On the histopathology, the resected intra-aortic mass showed a blood clot. Regarding the nature of mass, hypermobility and lack of intracerebral hemorrhage in brain CT scan, the decision was made to urgently resect the tumor. The patient was immediately transferred to the operating room.

Midsternotomy was performed right after receiving heparin and arterial cannulation of the right atrium was performed with a grade 7 cannula. Anonymous artery was cannulated with a cannula number 14 and the patient was cooled to 18 degrees and then was given health care assistant (HCA). The base of the anonymous artery was clamped and arterial flow was maintained through the anonymous artery cannula to 800 cc/kg. First arc opening and cutting was undertaken during septum.

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A red mobile mass of $4.0 \times 0.5 \times 0.5$ cm was observed at the junction of the ascending aorta and arch, with a soft consistency which was attached with a pike of 0.5×0.5 cm in aortic tissues. The free end of the mass reached the left carotid artery at the time of mobility which was consistent with the cerebrovascular accident (CVA) signs in the patient. Mass was removed with a margin of 2 mm from the wall of the aorta and aortic wall was repaired and the patient was warmed. After taking the appropriate course of action, the patient was referred to the heart department on the second day. The patient's clinical condition improved on the second day and she was discharged with aspirin and warfarin after 8 days. A follow-up echocardiogram one month later showed no change in the aortic arch and she had an uneventful surgical resection of the mass.

Discussion

In conclusion, "the presence of mobile aortic mass seems to carry a high embolic risk".¹ Echocardiographic evaluation of the aortic arch is mandatory in patients with embolism and mass and no obvious source of emboli.¹⁻³ Initial assessment can be performed by the suprasternal TTE view, followed by TEE, which is considered as the most reliable method for the detection of aortic arch atheroma.¹ The optimal treatment of mobile aortic arch atherothrombosis remains to be elucidated.^{1,4,5}

TEE is an accurate, reproducible and widely applicable method for the diagnosis of aortic arch atheromatosis. However, even the application of TTE suprasternal observation can be diagnostic, especially in cases who are suffering from large atherothrombotic plaques in the aortic arch.⁴⁻⁶ TEE may be combined with the Doppler ultrasound and color Doppler to evaluate blood flow across the heart's valves. In this case, the TTE suprasternal observation confirmed the presence of one mobile mass in the aortic arch, but for conducting an exploration through the rest of the thoracic aorta, the application of TEE was necessary.¹ In addition, the application of the real-time 3D echocardiogram provided the morphological picture of the mass as well as the aortic wall.^{2,7} Future studies are needed to show whether the better visualization of aortic atheromas (in terms of size, protrusion, mobility) and aortic wall by real-time 3D echocardiography will provide additional information regarding the

potential for embolism and the appropriate treatment.¹

The management of aortic arch atherothrombi is still not crystal clear considering different opinions. Today, the aggressive management of hypertension and hypercholesterolemia as the risk factors and also the use of antiplatelets in patients suffering from symptomatic aortic atheroma is considered as an intelligent and widely-accepted therapeutic strategy.^{2,7} Anticoagulants should be reserved for mobile atheromas.⁸ Surgical thrombectomy or atherectomy should be applied in patients with a history of embolism and persistent mobile atheromas despite anticoagulation.^{2,4} In our patient, the administration of anticoagulants and antiplatelets did not resolve the mass; therefore, the mass was removed surgically.¹

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Conflict of Interests

Authors have no conflict of interests.

References

1. Rallidis LS, Papadopoulou C, Michail PC, Paraskevaidis I, Anastasiou-Nana M. Mobile masses in the aortic arch in a patient with acute embolic event. *Hellenic J Cardiol* 2011; 52(3): 259-61.
2. Fosteris M, Skoura A, Mountaki V, Chlorogiannis I, Trikas A. Floating mass in the aortic arch: An interesting case report. *J Cardiol Cases* 2014; 9(2): 45-7.
3. Evangelista A, Rodríguez-Palomares AJ, Mahia P, González-Alujas T. Echocardiography in acute aortic syndrome. *Curr Cardiovasc Imaging Rep* 2008; 1(1): 58-65.
4. Weber A, Jones EF, Zavala JA, Ponnuthurai FA, Donnan GA. Intraobserver and interobserver variability of transesophageal echocardiography in aortic arch atheroma measurement. *J Am Soc Echocardiogr* 2008; 21(2): 129-33.
5. Hussein A, Hilal D, Hamoui O, Hussein H, Abouzahr L, Kabbani S, et al. Value of aortic arch analysis during routine transthoracic echocardiography in adults. *Eur J Echocardiogr* 2009; 10(5): 625-9.
6. Vizzardi E, Gelsomino S, D'Aloia A, Lorusso R. Aortic atheromas and stroke: Review of literature. *J Investig Med* 2013; 61(6): 956-66.

7. Zavala JA, Amarrenco P, Davis SM, Jones EF, Young D, Macleod MR, et al. Aortic arch atheroma. *Int J Stroke* 2006; 1(2): 74-80.
8. Macleod MR, Amarenco P, Davis SM, Donnan GA. Atheroma of the aortic arch: an important and poorly recognised factor in the aetiology of stroke. *Lancet Neurol* 2004; 3(7): 408-14.

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