Abstract: P1731

Multiple floating thrombi in aortic arch leading to acute stroke: A case report and systematic review of literature

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Topic(s):
Imaging: Aortic Disease

Citation:
Aortic Disease

Introduction

Around 10-15% of acute cerebrovascular events occur in young adults with age less than 40 years. Trans-oesophageal echocardiogram (TOE) is routinely performed to rule out any cardio-embolic source in patients with ischemic stroke. TOE has shown to significantly change management strategy in up to 16.7% of stroke cases. We report a rare case of recurrent stroke in a young female who was found to have multiple mobile thrombi in aortic arch on TOE. We also report systematic review of literature of similar cases to highlight the management strategies.

Case Presentation

A 38-year-old female presented with one-week history of right upper and lower extremity paresthesia along with headache. Physical examination was unremarkable for any focal neurological deficits at time of initial evaluation. She had pertinent history of acute stroke two years ago associated with non-occlusive left common carotid artery thrombus for which she was previously on anticoagulation with rivaroxaban. The anticoagulation, however, was stopped five months ago after repeat imaging revealed complete resolution of thrombus. Electrocardiogram showed normal sinus rhythm without any other significant abnormality. CT head showed no acute bleeding or infarct. MRI brain showed scattered infarcts in right cerebral hemisphere and left cerebellar hemisphere. CT angiography of head and neck showed multiple small nodular and linear pedunculated thrombi in distal arch of aorta (see Figure 2). TOE was then performed which confirmed two pedunculated and mobile echogenic masses, largest measuring 0.9 x 0.6 cm, in the distal aortic arch (see Figure 1). TOE did not show intracardiac source of embolism. Laboratory testing for thrombophilia was negative for Factor V and Prothrombin gene mutation and heterozygous positive for Methylene tetrahydrofolate reductase (MTHFR)-677T gene. She was also found to have elevated homocysteine levels. She was restarted on anticoagulation with rivaroxaban.

Discussion and Conclusion

Young patients with stroke should undergo detailed investigation to rule out hypercoagulable pathology and cardiovascular embolic source. This should also include multimodality imaging including TOE in the selected patients. During TOE examination, a particular attention should be paid for evaluation of aortic source of thrombo-embolism. Our patient was heterozygous for MTHFR-66T gene which is associated with decreased activity of MTHFR by 35 % with elevated homocysteine levels. Treatment of floating aortic thrombus is still controversial. Anticoagulation is suggested as primary modality by multiple authors who reported complete resolution of thrombus. Other option includes surgical thrombectomy. Our patient was treated with anticoagulation alone due to hypercoagulable state and small size of thrombi.
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Figure 1: TOE image of distal aortic arch showing two mobile pedunculated masses suggestive of thrombi.

Figure 2: CT angiography showing filling defect in distal aortic arch suggestive of thrombus.