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FLEETING MONOPARESIS AND AORTIC ARCH ATHEROMA

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ABSTRACT

A 72-year-old female with a history of hypertension and hyperlipidemia presented with alternating numbness, tingling sensations and weakness of both upper extremities with left shoulder pain. Each episode of these symptoms lasted about thirty minutes and reoccurred three times on either side of her upper limbs at about 2 hourly intervals. She had no associated headache, blurry vision, slurred speech or diplopia. Six years prior to presentation, she underwent a successful repair of an unruptured abdominal aortic aneurysm. Significant findings include; blood pressure of 177/74-mm Hg and a radial pulse rate of 78 beats per minute, blood urea nitrogen (BUN) of 21, creatinine, and abnormal lipid profile. Head CT was negative. Chest x-ray showed calcification and tortuosity of the thoracic aorta. A trans-thoracic echo was negative for vegetation while trans-esophageal echocardiogram (TEE) showed a tortuous thoracic aorta and an ulcerative plaque with an overlying four-cm irregular mobile thrombus in the aortic arch and several small mobile clots. The patient treated with aspirin, heparin and placed on warfarin for one year at target I.N.R of 2.0-3.0. She was symptom free at one-year follow-up.

Key words: Aortic arch, atheroma, fleeting monoparesis

INTRODUCTION

Worldwide, there is a progressive epidemiologic transition towards chronic non-communicable diseases. Cardiovascular diseases, cerebro-vascular accidents (CVA) and malignancies are the leading causes of death in developed countries and are achieving increasing significance in developing countries. Familiarity with common and unusual presentations of cerebrovascualar events is imperative, especially in settings where invasive diagnostic modalities are unavailable. A rather sinister cause of embolic CVA is aortic atheroma with overlying thrombus. This is often missed with conventional diagnostic modalities including transthoracic echocardi-ography. Clinical diagnosis and characterization of such anatomical lesions is frequently challenging.

CASE REPORT

A 72-year-old female with a history of hypertension and hyperlipidemia presented with alternating numbness, tingling sensation and weakness of

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both upper extremities with left shoulder pain. Each episode of these symptoms lasted about thirty minutes and reoccurred three times on either side of her upper limbs at about 2 hourly intervals. She had no associated history of headache, blurring of vision, slurred speech or diplopia. She had no complaints of chest pain, cough, lower extremity pain or weakness or abdominal pain. She gave no history of alcohol or tobacco use. Six years prior to presentation, she underwent a successful repair of an unruptured abdominal aortic aneurysm.

Physical examination revealed a blood pressure of 177/74-mm Hg and a radial pulse rate of 78 beats per minute. The rest of the physical assessment was unremarkable. Laboratory findings included blood urea nitrogen (BUN) of 21, creatinine-1.6, triglycerides- 222, total cholesterol- 284, low-density lipoprotein (LDL) cholesterol-204, high density lipoprotein (HDL) cholesterol-36. Rapid plasma reagin screen was non-reactive. Head computerized axial scan was negative for acute infarct, bleed or other significant changes. Chest x-ray showed calcification and tortuosity of the thoracic aorta. A trans-thoracic echo showed normal global LVF in EF of 60% with mildly reduced LV compliance. It was negative for vegetation. Stress thallium was positive for antero-lateral ischemia. Cardiac catheterization revealed a 90% stenosis of the first diagonal branch of the left anterior descending coronary artery. A trans-esophageal echocardiogram (TEE) showed a tortuous thoracic aorta and an ulcerative plaque with an overlying four-cm irregular mobile thrombus in the aortic arch with several small mobile clots. (Figure 1). The patient treated with aspirin, heparin and subsequently warfarin. She was discharged home on warfarin for one year (INR: 2.0-3.0). She was symptom free at one-year follow-up.

Figure 1: Transoesophageal echocardiogram showing tortuous thoracic aorta and ulcerative plaque with an overlying thrombus in the aortic arch

DISCUSSION

Thrombosis of the aortic arch arises as a complication of ulcerated atherosclerotic plaque.[1] It is an infrequent cause of systemic emboli.[2] The two largest series involve twenty three and forty cases respectively.[3, 4] Aortic thrombi vary in size, regularity, insertion and mobility. There is a high prevalence of insertion of thrombi on the wall opposite the ostia of the aortic arch, an area of low wall shear stress.[3] Risk factors for aortic atheroma include diabetes, hypertension, smoking, obesity and hyperlipidemia. Its' complications include acute myocardial infarction, peripheral arterial ischemia, catastrophic mesenteric ischemia, increased peri-operative risk, cerebrovascular accidents and sudden death.[4, 5] Recurrent alternating transient ischemic attacks (TIA) as seen in our

patient may be due to cerebral embolizations to alternate carotid systems. Our patient's presentation is unique and is to our knowledge possibly first reported association between aortic arch atheroma and fleeting monoparesis.

Transesophageal echocardiogram (TEE) is the best modality to visualize aortic arch atheroma. It accurately identifies atheromatous plaques and describes its thickness, luminal extension, position, regularity, sessile or mobile nature and adjacent small clots. [1, 6] It also elucidates other possible causes of unexplained emboli including small cardiac thrombi, patent foramen ovale (associated with paradoxical embolism) and atrial septal aneurysm. [5, 7] Anticoagulation with aspirin, heparin and warfarin are the mainstay of management. The role of thrombolytics and surgery has not been fully established. Indications for surgery include persistence of aortic mass despite adequate anticoagulation, highly mobile masses and recurrent embolic events. Surgical management includes thrombectomy and resection of atherosclerotic plaque and repair of aortic wall. Surgical complications of aortic thrombectomy and repair include axillo-femoral bypass infections, deep venous thrombosis and recurrence of lesions.[3]

CONCLUSION

Aortic atheroma is associated with myriad of cardiovascular and cerebrovascular events and sudden death. Careful management of high-risk patients is imperative to mitigate potentially fatal complications. It is prudent to recommend all high-risk patients presenting with unexplained thrombo-embolic events undergo TEE. In centers without invasive diagnostic support, appropriate clinical risk-stratification and judgment on empiric long-term anticoagulation therapy should be entertained on individual basis. The need for adequate follow-up, cost and compliance of long term warfarin therapy are important clinical considerations. Where such concerns are high, long-term aspirin therapy for secondary stroke prevention is indicated with due vigilance to bleeding complications.

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