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Case Report

Innominate Artery Thrombus Leading to Acute Anterior Circulation Ischemic Stroke

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Abstract

The incidence of innominate artery thrombus is not known and it is not possible to calculate the same given the fact that it is very rare. It is a rare cause of acute ischemic stroke that can be fatal if not diagnosed in a timely fashion. Apart from atherosclerosis there are other rare causes that can lead to innominate artery thrombosis which also needs to be evaluated in a patient with acute ischemic stroke secondary to innominate artery thrombus.

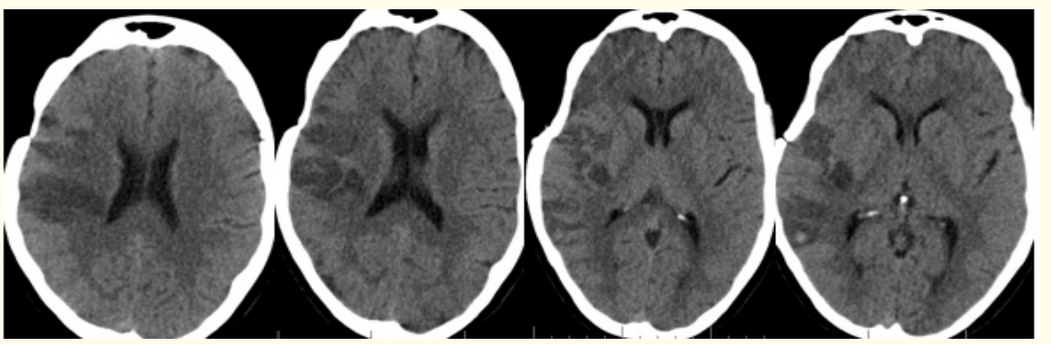
Keywords: *Innominate Artery; Thrombus; Acute Ischemic Stroke*

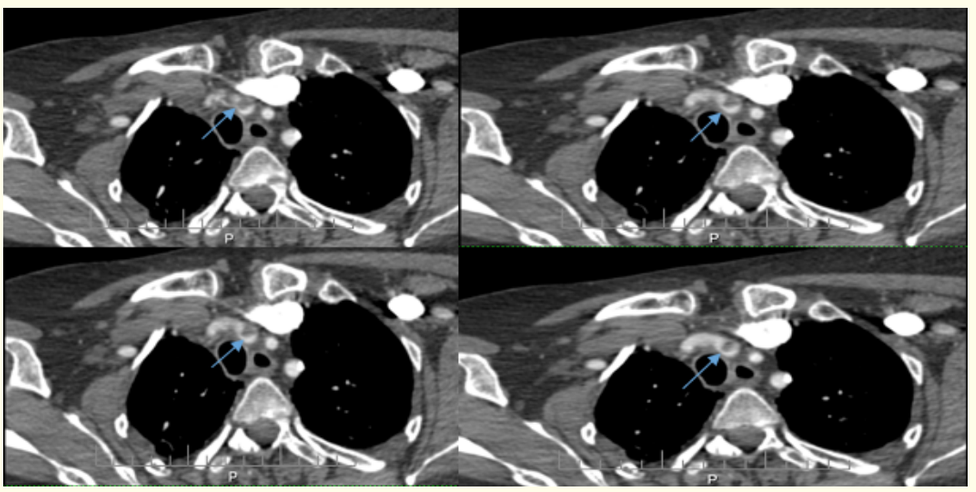
Introduction

Innominate artery thrombus is a very rare phenomenon when compared to other large extracranial and intracranial artery thrombus. There have been very few published reports of acute ischemic stroke secondary to innominate artery thrombosis. The most common cause of innominate artery thrombosis as reported has been atherosclerosis with ruptured atheroma.

Case Report

A 52 year old Caucasian female with history of ruptured right middle cerebral artery (MCA) aneurysm which was treated with clipping in the past, was admitted with acute onset left sided weakness and paresthesias. She also complained of some incoordination and unsteady gait. On admission she had pronator drift in the left upper and lower extremity, distal weakness on the left hand with sensory loss to light touch, pinprick and temperature on the left side of the body. Initial national institute of health stroke scale (NIHSS) was 6 on admission. Computerized Tomography (CT) scan head showed patchy right MCA stroke with hemorrhagic transformation (Figure 1). CT angiography (CTA) head/neck showed partially occlusive thrombus in the innominate artery with moderate narrowing and the etiology of the stroke was thought to be artery to artery embolism (Figure 2). Magnetic resonance imaging (MRI) brain could not be done due to the presence of aneurysm clips. She had a normal transesophageal echocardiogram and other causes of innominate artery thrombus like vasculitis, dissection, infection, trauma, cardio-embolism, thoracic outlet syndrome as well as possible hypercoagulable conditions were ruled out. All other laboratory work up was within the normal range. Patient was initially treated with aspirin for 2 weeks due to the hemorrhagic transformation and then transitioned to anticoagulation with warfarin with no further worsening of her symptoms.





Discussion

Incidence of innominate artery atheroma is about 2 - 4% [1]. Ruptured atherosclerotic plaque accounts for about 8 - 12% cases of innominate artery thrombus [2]. As such thrombosis in the innominate artery is a very rare occurrence. The other uncommon causes of innominate artery thrombosis could include hypercoagulable conditions like antiphospholid antibody syndrome, dissection, vasculitis, infection, trauma, thoracic outlet syndrome, as well as surgeries for congenital heart disease [3-5]. Martin., *et al.* were the first authors to report a right MCA stroke from floating innominate artery thrombosis in two young patients, which was superimposed on atherosclerotic plaque, without any evidence of other causes and was fatal in one of the patient inspite of anticoagulation with heparin [6]. Heidt *et al* reported arterial thoracic outlet syndrome as a very rare cause of innominate artery thrombosis leading to fatal stroke [7]. Brewster., *et al.* reported a retrospective review of 71 patients who underwent surgery for innominate artery problems and found occlusive disease secondary to atherosclerosis to be the most common [8]. They also found that innominate occlusive disease was more common in women and the average age was 52.5 years which is very similar to our case. The cases described in the literature with innominate artery thrombosis leading to acute ischemic stroke though very sparse, have all been involving anterior circulation (like our case) instead of posterior circulation inspite of the possible potential posterior circulation embolization from innominate artery thrombosis. This might be an important point to note and may have prognostic and therapeutic implications while dealing with rare cases of acute ischemic stroke secondary to innominate artery thrombosis. There have been couple of rare reports of calcific embolization from the innominate artery leading to acute ischemic stroke as well as causing salted pepper appearance and worm like calcification in the MCA distribution [9,10]. This however was not seen in our patient. Contrary to the couple of published reports suggesting possible fatal outcome from innominate artery thrombosis leading to acute ischemic stroke, in our case patient had responded well to anticoagulation treatment but it is very imperative to identify this potential rare cause of acute ischemic stroke in a timely fashion to prevent fatality.

Conclusion

Innominate artery thrombosis is a very rare embolic source of acute ischemic stroke, which commonly occurs secondary to ruptured atherosclerotic plaque.

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