Symmetric Bilateral Thalamic Infarcts: A Rare Complication of Cardiac Catheterization

S Mujeeb, S Bruhl, H Elsamaloty, W Colyer Jr

Citation

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Abstract

Although stroke is a rare complication of cardiac catheterization, bilateral thalamic infarcts are exceedingly rare in any setting. Such infarcts are seen almost exclusively in the setting of vascular anomalies where a single artery supplies both sides of the brain. We present a case of a bilateral thalamic infarct following diagnostic cardiac catheterization due to an occlusion of the artery of Percheron. This is an unreported complication of cardiac catheterization and we describe its presentation and possible interventions.

INTRODUCTION

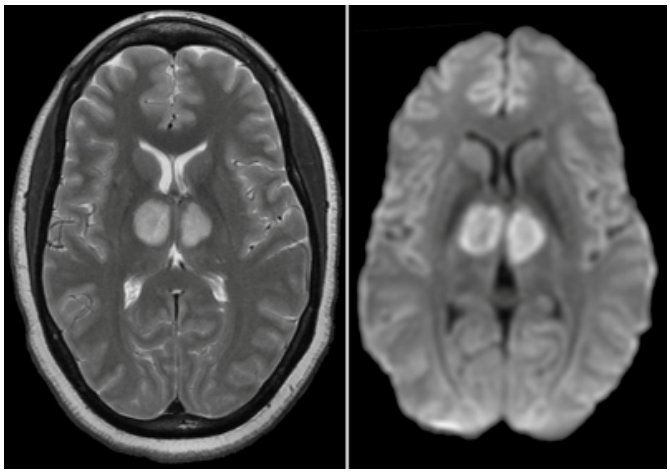
Cardiac catheterization is complicated by stroke in around 0.07-0.03% of patients [1]. The majorities of these strokes are unilateral and result in neuron deficits that depend on the vascular territory affected. Here we describe an unusual presentation and location of a stroke following cardiac catheterization.

CASE REPORT

A 35 yr old African American female complained of intermittent chest pain and increasing shortness of breath on exertion over one year. The patient had no past medical history except for sub aortic stenosis that was surgically resected at 18 years old and remained asymptomatic until this time. Echocardiogram showed evidence of increased aortic velocities suggestive of recurrent aortic stenosis as well as proximal aortic dilatation. An elective cardiac catheterization was scheduled for further evaluation of her aortic stenosis. Cardiac catheterization showed moderate left ventricular outflow tract obstruction with a gradient of 23mmHg. Post procedure the patient was difficult to arouse however, physical examination failed to reveal any focal neurological deficits except for hypersomnolence. Emergent CT scan of brain failed to show any evidence of hemorrhage or any ischemic lesions. Follow up MRI of the brain showed symmetrical bilateral thalamic high signal intensity on fast spin-echo T2 weighted and FLAIR images. At the same level, diffusion weighted images showed high signal intensities suggestive of acute ischemic injury.(Figure 1) Bilateral carotid dopplers and magnetic resonance arteriography failed to show any evidence of thrombosis, stenosis or any other vascular abnormalities. A transesophageal echo was also performed and showed a moderate degree of atheroma within the ascending aorta but did not show any evidence of thrombus within the left atrium or left ventricle.

Figure 1

Figure 1. (Left) Axial FSE T2 images and diffusion weighted imaging of the brain (right) showing bilateral thalamic infarcts.



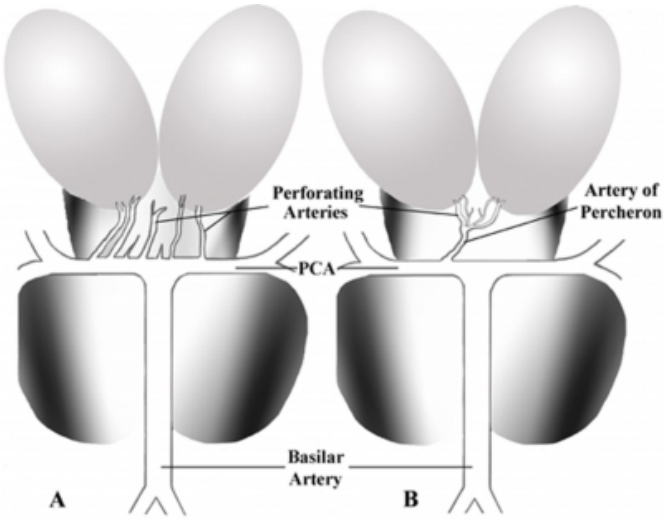
DISCUSSION

Although stroke is a rare complication of cardiac catheterization, bilateral thalamic infarcts are exceedingly rare in any setting. Such infarcts are seen almost exclusively in the setting of vascular anomalies where a single artery supplies both sides of the brain. One of the few examples is

the artery of Percheron arising from the posterior communicating artery. This artery produces branches that supply both sides of the thalamus and if occluded can produce bilateral thalamic infarcts [2] .(Figure 2) The source of our patient's emboli was presumed to be secondary to a dislodged cholesterol plaque from the aorta during cardiac catheterization. The increased atheromatous load of the patient's aorta was possibly due to long standing sub aortic stenosis.

Figure 2

Figure 2. (Left) The most common vascular distribution showing bilateral thalamic vascular supply arising from multiple P1 vessels off of the PCA. (Right) Rare anatomic variant where bilateral thalamic perforating arteries arise from a single artery known as the artery of Percheron.



Although the artery of Percheron anomaly was first described in 1973 and several strokes have been described as a result of its occlusion, to our knowledge this is the first case report describing its occlusion as a complication of cardiac catheterization [3] . Awareness of the atypical signs and symptoms associated with this type of stroke is important because successful percutaneous thrombolysis of artery of Percheron occlusions have been successfully executed in patients with spontaneous occlusions when the diagnosis was quickly identified [4] .

On day two following the procedure, the patients' mental status improved, but transcortical aphasia persisted. Further deficits included behavioral and memory disturbances but no motor or sensory deficit were seen. The patient was discharged to a rehabilitation facility for physical and speech therapy and improved over a period of 2-3 weeks with only mild residual speech disturbance.

References

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Author Information

S. Mujeeb, MD
Department of Internal Medicine, University of Toledo Medical Center, Toledo, Ohio

SR Bruhl, MD
Division of Cardiology, University of Toledo Medical Center, Toledo, Ohio

H Elsamaloty, MD
Department of Radiology, University of Toledo Medical Center, Toledo, Ohio

WR Colyer Jr, MD
Division of Cardiology, University of Toledo Medical Center, Toledo, Ohio