Radiology Case Reports 13 (2018) 490–494

Available online at www.sciencedirect.com

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journal homepage: http://Elsevier.com/locate/radcr

Neuroradiology

Coil embolization of an enlarging fusiform myxomatous cerebral aneurysm

Frances Lazarow MD[a,*], *Serra Aktan MD*[b], *Karah Lanier MD*[a], *John Agola MD*[a]

[a] *Department of Radiology, Eastern Virginia Medical School, P.O. Box 1980 Norfolk, VA*
[b] *School of Medicine, Eastern Virginia Medical School, Norfolk, VA*

ARTICLE INFO

Article history:
Received 6 July 2017
Received in revised form 17 November 2017
Accepted 30 November 2017
Available online 2 January 2018

Keywords:
Myxomatous aneurysm
Fusiform
Coil embolization

ABSTRACT

Myxomatous cerebral aneurysms are rare sequelae of cardiac atrial myxoma. These aneurysms are generally fusiform, multiple, and distal. Pathogenesis and evolution of these aneurysms is still debated. There are currently no guidelines on the management of aneurysms secondary to atrial myxoma. We present a case of a 52-year-old man with multiple fusiform aneurysms 3 years after resection of a left atrial myxoma. One of these aneurysms was followed with cerebral angiography and showed substantial interval enlargement. This aneurysm was subsequently embolized. All aneurysms were stable 6 months post-embolization.

Case presentation

A 52-year-old man presented to the emergency department complaining of chronic cough. On review of systems, the patient reported several pre-syncopal episodes and substantial weight loss. On physical examination, he was found to have poor finger-nose-finger coordination bilaterally and up-going toes bilaterally. Clinical signs suggested congestive heart failure and the subsequent 2-dimensional echocardiogram revealed a mobile left atrial mass. Further evaluation with cardiac magnetic resonance imaging (MRI) confirmed a 4.5 × 2.9-cm left atrial mass, which prolapsed into the left ventricle during diastole. Computed tomography (CT) head demonstrated multiple scattered white matter lucencies, and subsequent MRI head showed multiple acute and subacute infarcts, consistent with embolic shower. Given patient's symptomatology, the decision was made to resect the left atrial mass, pathologically determined to be a myxoma.

Three years later, the patient presented with acute right lower extremity weakness and seizures. CT head demonstrated multiple small areas of intraparenchymal hemorrhage. MRI head showed multiple scattered nodular foci along the cortex/subarachnoid compartment, particularly prominent in the frontal and parietal lobes, suspicious for leptomeningeal metastases vs subacute cortical infarcts vs a granulomatous process, such as neurosarcoidosis. A search for a primary malignancy was undertaken, including a CT of the chest, abdomen, and pelvis, which was negative. Echocardiogram and cardiac MRI were also performed to evaluate for recurrence of the atrial

Acknowledgment: Special thanks to Anthony Trace, MD, PhD, for reviewing the manuscript.
Competing Interests: The authors have declared that no competing interests exist.
* *Corresponding author.*
E-mail address: lazarofb@evms.edu (F. Lazarow).
https://doi.org/10.1016/j.radcr.2017.11.015

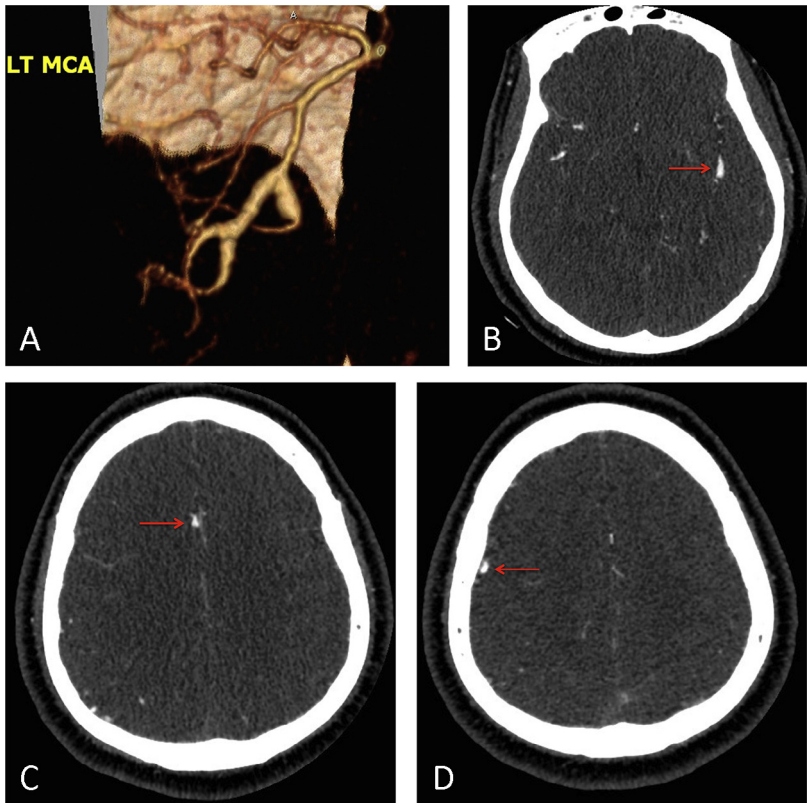

Fig. 1 – (A) Three-dimensional reconstruction from CTA head and neck demonstrates second- and third-order left MCA branch vessel ectasia. (B) Axial CT image from the same CTA study shows the 4.6-mm aneurysmal left MCA M2 segment. (C) An axial CT image from the same study also demonstrates 3-mm ectasia of a distal branch of the right ACA. (D) Shows another ectatic vessel in the posterolateral right frontal lobe. ACA, anterior cerebral artery; CT, computed tomography; CTA, computed tomography angiogram; MCA, middle cerebral artery.

myxoma, which was also negative. Cytology obtained from lumbar puncture also failed to demonstrate malignant cells or any definitive evidence for infectious or inflammatory process. Computed tomography angiogram (CTA) head and neck demonstrated multifocal short segments of ectasia in the right anterior cerebral artery (ACA) and bilateral middle cerebral artery (MCA) branch vessels, with the largest aneurysmal dilatation seen in the Sylvian M2 segment of the left MCA, measuring 4.6 mm (Fig. 1A-D). Cerebral angiogram confirmed these findings, demonstrating diffuse distal cerebral arterial vasculopathy (Fig. 2). Given the patient's history of resected left atrial myxoma, and otherwise negative workup, this was favored to represent myxomatous vasculopathy.

Two years later, the patient presented with new headaches for several weeks. MRI brain showed significant enlargement of a fusiform aneurysm of the M2 segment of the left MCA over this time period, from 4.6 mm to 9.3 mm (Fig. 3). Patient was taken for pancerebral arteriogram for further evaluation, which confirmed dramatic progression of aneurysmal dilatation of a left inferior division MCA branch, measuring up to 9 × 14 mm (Fig. 4A-B). Interestingly, 2 smaller aneurysms (watershed distal right anterior cerebral artery/MCA at the posterior frontal lobe, and a small branch of the anterior inferior frontal distribution) showed interval resolution. However, all other fusiform aneurysms showed

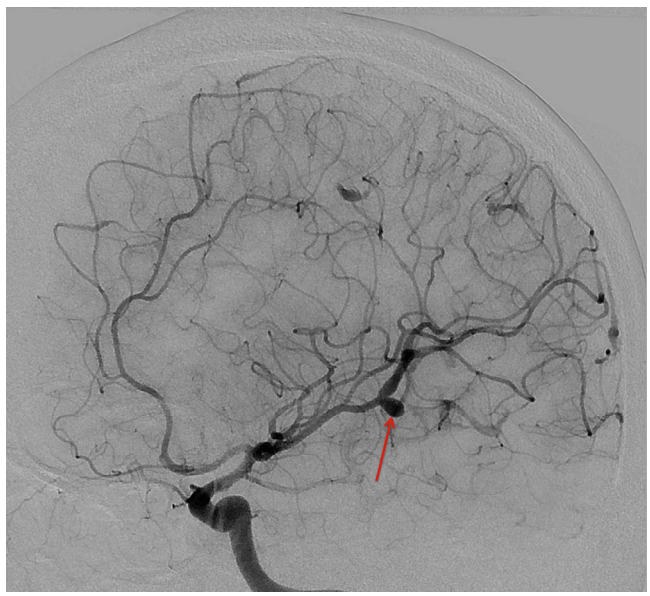

Fig. 2 – Cerebral angiogram of the left internal carotid artery (LICA) confirms diffuse cerebral arterial aneurysms. Arrow points to the left MCA M2 segment fusiform aneurysm measuring approximately 5 mm. MCA, middle cerebral artery.