Teaching NeuroImages: Intracranial foreign body reaction after endovascular procedures

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Neurology® 2018;90:296-297. doi:10.1212/WNL.0000000000004938

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Figure 1 Left internal carotid artery (ICA) aneurysm on cerebral angiogram and rationale behind pipeline placement

(A) Cerebral angiogram shows a 6-mm periphthalmic left ICA aneurysm. Drawing of flow diversion for intracranial aneurysms. (B) Blood flow through an untreated aneurysm. (C) Flow diverter placed in the parent vessel redirects blood causing intra-aneurysmal stasis. (D) Progressive intra-aneurysmal thrombosis leads to (E) aneurysm occlusion.

A 64-year-old woman with a family history of aneurysmal subarachnoid hemorrhage was diagnosed with an incidental aneurysm during screening. The aneurysm was treated with flow diversion (figure 1). Two months later, she complained of headache and intermittent word-finding difficulty. Brain MRI demonstrated multiple areas of nodular enhancement ipsilateral to the treated aneurysm (figure 2A). After a 6-week course of oral steroids, both the radiologic findings and her symptoms resolved (figure 2, C and D). This patient's clinical course and imaging findings are consistent with a foreign body reaction occasionally seen after endovascular treatment. This is related to an allergic reaction to microparticles sheared from catheters/devices during endovascular procedures.^{1,2}

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Author contributions

Enrico Giordan: manuscript preparation, drafting manuscript, collection of data and figures, approval of final version. Waleed Brinjikji: manuscript preparation, drafting manuscript,

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Figure 2 Brain MRI shows presentation, progression, and resolution of foreign body reaction

(A) T1-contrast-enhanced MRI 2 months after treatment shows nodular enhancement in the left frontal and parietal lobes (arrowheads). (B) T2-enhanced/fluid-attenuated inversion recovery MRI shows marked edema/T2 changes in the region of nodular enhancement (arrow). (C) Four months later, MRI shows marked reduction in enhancement and (D) improvement in edema/T2 changes (arrowheads).

collection of data and figures, approval of final version. Giuseppe Lanzino: manuscript preparation, drafting manuscript, collection of data and figures, approval of final version.

Study funding

No targeted funding reported.

Disclosure

The authors report no disclosures relevant to the manuscript. Go to Neurology.org/N for full disclosures.

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This information is current as of February 5, 2018

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