Neurosurgical Forum LETTERS TO THE EDITOR

Hybrid approaches in pediatric neurovascular surgery

TO THE EDITOR: We read with interest the article by Ocal et al.² describing their interesting case of a cervical carotid artery aneurysm in a pediatric patient treated with combined surgical and endovascular therapy (Ocal O, Yilmaz M, Peynircioglu B, et al: Hybrid vascular intervention for a giant cervical carotid artery aneurysm in a clopidogrel-hyporesponsive child. *J Neurosurg Pediatr* 22:265–269, September 2018). The authors describe a creative approach to treating this challenging lesion.

We recently published a similar case experience in *Cureus*, describing a hybrid approach for the surgical reconstruction of the carotid artery to enable eventual endovascular treatment.³

Ocal et al. discuss the challenges involved with primary endovascular treatment of this lesion, highlighting difficulty with access and tracking a stiff stent through the tortuosity. In our case, we encountered the same difficulty with a loop associated with 3 pseudoaneurysms. Resection of this redundant loop allowed for eventual guide catheter traversal for flow diversion (FD) treatment of an intracranial aneurysm. Sacrifice of the vessel could have also been considered, either surgically or endovascularly. We considered such a Hunterian strategy in our case after the patient passed a balloon test occlusion but opted against this approach. In a young patient, if there are other viable options, we favor a reconstructive approach over a deconstructive one.

Finally, we wish to discuss the use of antiplatelet activity monitoring that was so well applied in this case. Monitoring P2Y₁₂ or other assays prior to endovascular therapy is controversial. We have discussed our standard protocol as applied to FD cases.⁴ Even if it may be an inexact science, monitoring a patient's response to antiplatelet medications is important to avoid potential complications, especially when the exposed bare metal burden is quite high, as in the case described. The use of these assays in pediatric FD has been a particular topic of interest as this treatment becomes more common in that population.¹ Ocal et al. have one of the foremost single-center experiences with these situations. The standard doses used in adults likely do not apply in children, and weight-based dosing for these medications is not available based on current formulations. Thus, we must rely on objective guidance to determine if patients are receiving appropriate

therapy. As more neurointerventionalists foray into using FD in children, they should be encouraged to follow the experience already gained by these authors.

It is fortunate that the patient described did not suffer adverse events despite abrupt cessation of antiplatelet therapy. This may likely be due to progressive stenosis leading to occlusion in a "tourniquet" effect, as we have previously described.⁴ In some of the cases in which we encountered this effect, it occurred after reduction of antiplatelet therapy. We commend the authors for sharing their experience with this interesting case and encourage others to consider a similar hybrid approach in such cases.

Visish M. Srinivasan, MD

Peter Kan, MD, MPH

Baylor College of Medicine, Houston, TX

Edward A. M. Duckworth, MD, MS

Northwest Neurosurgical Associates, Boise, ID

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Disclosures

The authors report no conflict of interest.

Correspondence

Visish M. Srinivasan: vsriniva@bcm.edu.

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Response

No response was received from the authors of the original article.

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