Letter by Jiang Regarding Article, “Hemorrhagic Moyamoya Disease in Children: Clinical, Angiographic Features, and Long-Term Surgical Outcome”

To the Editor:

We read with interest the article by Liu et al., which described the clinical and angiographic features, as well as the long-term surgical outcome, in pediatric patients with hemorrhagic moyamoya disease (MMD). We agree with the authors that anterior choroidal artery and posterior communicating artery dilation may be associated with the bleeding episode in children with hemorrhagic MMD and that EDAS surgery may decrease the incidence of recurrent hemorrhage. However, the conclusion would be more convincing if the following additional factors were taken into consideration.

First, the mechanism of bleeding in MMD is complicated. The current hypothesis primarily focuses on the rupture of fragile collateral vessels, concomitant pseudomicroaneurysms, and abnormal dilation of the anterior choroidal artery and posterior communicating artery. In this article, the authors’ findings on the angiographic features in pediatric hemorrhagic MMD were the same as our previous study in adults. However, the postsurgical angiographic changes were not described in detail, and the relationship with recurrent bleeding was unclear. Therefore, further analysis of the changes in anterior choroidal artery and posterior communicating artery dilation, before and after EDAS (encephaloduroarteriosynangiosis) surgery, would help strengthen the cause and effect relationship, making the conclusion more persuasive. Furthermore, recent studies have identified asymptomatic cerebral microbleeds as a marker for the bleeding-prone microangiopathy in MMD. Thus, combining the analysis of the cerebral microbleeds with the angiographic features may help us to comprehensively understand the nature of bleeding in children with hemorrhagic MMD.

Second, hemodynamic stress caused by progressive stenosis or occlusion of the intracranial arteries was considered to be a primary cause for the episode of bleeding in hemorrhagic MMD. Hence, a perioperative evaluation of the cerebral hemodynamics is extremely necessary. In this article, the authors mentioned the hemodynamic changes by collateral circulation through the EDAS in digital subtraction angiography according to the Matsushima criteria. However, we suggest a quantitative assessment of the cerebral hemodynamics by computed tomographic/magnetic resonance perfusion, single-photon emission computed tomography, or positron emission tomography-computed tomography, as these parameters are more objective and acknowledged.

Finally, the episodes of rebleeding after surgery are concerning for the investigators. In this study, a recurrent intracranial hemorrhage occurred in 1 of 30 patients (1/30, 3.3%) at 4 years after surgery, and this patient died. However, detailed information about the patient with rebleeding was unknown. For example, did the rebleeding occur in the ipsilateral or contralateral hemisphere? If in the ipsilateral hemisphere, did it have the same form of bleeding as the first episode? Was a postsurgical follow-up angiogram obtained in this patient and what about the differences of the angiographic changes compared with others without rebleeding? This in-depth analysis could provide us with more information about the cause of the episodes of rebleeding after surgical revascularization, and the relevant detailed data are sometimes essential.

Disclosures

None.

Jiang Hanqiang, MD, PhD
Department of Neurosurgery
Huashan Hospital
Fudan University
Shanghai, P.R. China

Letter by Jiang Regarding Article, "Hemorrhagic Moyamoya Disease in Children: Clinical, Angiographic Features, and Long-Term Surgical Outcome"
Jiang Hanqiang

Stroke. 2016;47:e35; originally published online January 5, 2016; doi: 10.1161/STROKEAHA.115.012090
Stroke is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2016 American Heart Association, Inc. All rights reserved.
Print ISSN: 0039-2499. Online ISSN: 1524-4628

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://stroke.ahajournals.org/content/47/2/e35

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Stroke can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Stroke is online at:
http://stroke.ahajournals.org/subscriptions/