Figure. Serial MR angiography revealing progressive right middle cerebral artery stenosis (A, initial; B, two months later) and interval collateral recruitment of the right posterior communicating artery (arrows).

Willisian collateralization

David S. Liebeskind, MD; and Lauren H. Sansing, MD, Philadelphia, PA

Serial MR angiography (MRA) of a woman aged 31 years with moyamoya demonstrated progressive stenosis of the right middle cerebral artery with collateralization of a hypoplastic right posterior communicating artery (PCoA; figure, arrows). Willisian collaterals are considered primary sources of collateral blood flow

recruited at the onset of ischemia, yet PCoA hypoplasia (diameter, <0.8 mm on MRA) may preclude collateral compensation.¹ Willisian collateralization of a hypoplastic PCoA suggests that PCoA hypoplasia is not a static feature. Dynamic anatomic and physiologic changes of such primary Willisian collaterals suggest secondary collateral potential. Moyamoya PCoA dilatation may indicate disease progression and portend hemorrhagic sequelae.²

Address correspondence and reprint requests to Dr. David S. Liebeskind, Comprehensive Stroke Center and Department of Neurology, University of Pennsylvania, 3 West Gates Building, 3400 Spruce Street, Philadelphia, PA 19104-4283; e-mail: davidliebeskind@yahoo.com

1. Hartkamp MJ, van der Grond J, van Everdingen KJ, Hillen B, Mali WP. Circle of Willis collateral flow investigated by magnetic resonance angiography. *Stroke* 1999;30:2671–2678.
2. Morioka M, Hamada J, Kawano T, et al. Angiographic dilatation and branch extension of the anterior choroidal and posterior communicating arteries are predictors of hemorrhage in adult moyamoya patients. *Stroke* 2003;34:90–95.

Neurology[®]

Willisian collateralization

David S. Liebeskind and Lauren H. Sansing

Neurology 2004;63;344

DOI 10.1212/01.WNL.0000134624.45563.52

This information is current as of July 26, 2004

Updated Information & Services

including high resolution figures, can be found at:
<http://n.neurology.org/content/63/2/344.full>

References

This article cites 2 articles, 2 of which you can access for free at:
<http://n.neurology.org/content/63/2/344.full#ref-list-1>

Citations

This article has been cited by 3 HighWire-hosted articles:
<http://n.neurology.org/content/63/2/344.full##otherarticles>

Subspecialty Collections

This article, along with others on similar topics, appears in the following collection(s):

All Imaging

http://n.neurology.org/cgi/collection/all_imaging

MRI

<http://n.neurology.org/cgi/collection/mri>

Subarachnoid hemorrhage

http://n.neurology.org/cgi/collection/subarachnoid_hemorrhage

Permissions & Licensing

Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:

http://www.neurology.org/about/about_the_journal#permissions

Reprints

Information about ordering reprints can be found online:
<http://n.neurology.org/subscribers/advertise>

Neurology® is the official journal of the American Academy of Neurology. Published continuously since 1951, it is now a weekly with 48 issues per year. Copyright . All rights reserved. Print ISSN: 0028-3878. Online ISSN: 1526-632X.