

Cerebrovascular Diseases - Aneurysm, Vascular Malformation, and Subarachnoid Hemorrhage

Cerebrovascular diseases affect blood vessels and blood supply to the brain. They include aneurysms (bulge in a blood vessel), vascular malformation (abnormally developed blood vessel), and subarachnoid hemorrhage (SAH) (bleeding surrounding the brain).

For a known SAH, arteriography cervicocerebral (AC) (imaging of blood vessels in the head) and CT angiography (CTA) (<https://www.radiologyinfo.org/en/info/angiocr>) head (CT scan (<https://www.radiologyinfo.org/en/info/headct>) of blood vessels of the brain) with contrast (a special dye) are usually appropriate. MR angiography (MRA) (<https://www.radiologyinfo.org/en/info/angiomr>) (MRI of blood vessels of the brain) without contrast may be appropriate.

Imaging tests for suspected vasospasm (sudden constriction of blood vessel) include AC and CTA with contrast. Ultrasound duplex Doppler transcranial (<https://www.radiologyinfo.org/en/info/ultrasound-cranial>) (ultrasound waves to assess blood vessels in the brain), MRI or CT perfusion (measures blood flow) with contrast and MRI or CT without contrast may be appropriate.

With known, untreated aneurysm, MRA without contrast and CTA with contrast are usually appropriate. AC and MRA without and with contrast may be appropriate. For known, treated aneurysm, AC, MRA without and with contrast, MRA without contrast, and CTA with contrast are usually appropriate.

MRA without contrast and CTA with contrast are usually appropriate to screen high-risk individuals.

For known vascular malformations (<https://www.radiologyinfo.org/en/info/vascular-malformations>) , AC, MRA or CTA with contrast, MRA without and with contrast, and MRA without contrast are usually appropriate. MRI without and with contrast and MRI without contrast may be appropriate.

With suspected central nervous system vasculitis (inflammation of blood vessels), MRA or MRI without contrast or MRI without and with contrast are usually appropriate. AC and CTA with contrast may be appropriate.

For more information, visit the *Vascular Malformations* (<https://www.radiologyinfo.org/en/info/vascular-malformations>) page.

— By Sandra V. Kotsis, MPH and Kemi Babagbemi, MD. This information originally appeared in the *Journal of the American College of Radiology*.

Disclaimer

This information is copied from the RadiologyInfo Web site (<http://www.radiologyinfo.org>) which is dedicated to providing the highest quality information. To ensure that, each section is reviewed by a physician with expertise in the area presented. All information contained in the Web site is further reviewed by an ACR (American College of Radiology) - RSNA (Radiological Society of North America) committee, comprising physicians with expertise in several radiologic areas.

However, it is not possible to assure that this Web site contains complete, up-to-date information on any particular subject. Therefore, ACR and RSNA make no representations or warranties about the suitability of this information for use for any particular purpose. All information is provided "as is" without express or implied warranty.

Please visit the RadiologyInfo Web site at <http://www.radiologyinfo.org> to view or download the latest information.

Note: Images may be shown for illustrative purposes. Do not attempt to draw conclusions or make diagnoses by comparing these images to other medical images, particularly your own. Only qualified physicians should interpret images; the radiologist is the physician expert trained

in medical imaging.

Copyright

This material is copyrighted by either the Radiological Society of North America (RSNA), 820 Jorie Boulevard, Oak Brook, IL 60523-2251 or the American College of Radiology (ACR), 1891 Preston White Drive, Reston, VA 20191-4397. Commercial reproduction or multiple distribution by any traditional or electronically based reproduction/publication method is prohibited.

Copyright © 2026 Radiological Society of North America, Inc.