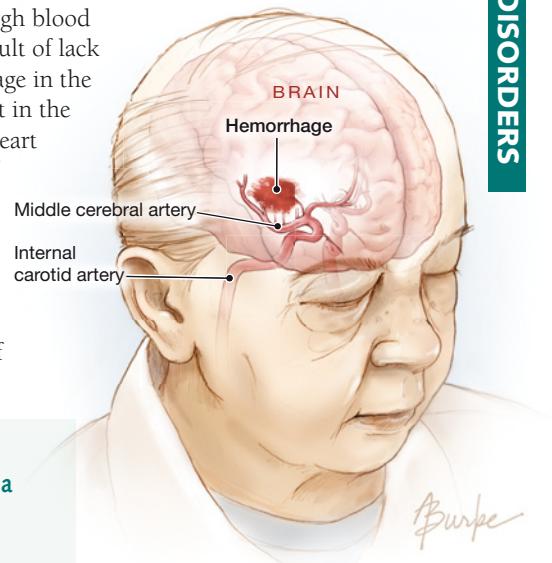


Hemorrhagic Stroke

A stroke occurs when brain tissue is damaged because there is not enough blood flow or oxygen delivery to the brain's cells. **Ischemic** strokes are a result of lack of blood flow. Different types of ischemic stroke may be due to blockage in the arteries that supply blood to the brain (such as in carotid artery disease), a clot in the smaller arteries in the brain itself (**thrombotic** stroke), a blood clot from the heart that travels to the brain (**embolic** stroke), or poor flow to the brain because of heart failure. Damage caused by bleeding into or around the brain is called a **hemorrhagic stroke**. Hemorrhagic strokes are less common than ischemic strokes but cause a significant number of deaths worldwide. Hemorrhagic strokes are also responsible for severe, nonfatal damage to brain tissue that can leave individuals paralyzed or weak, with difficulty speaking, swallowing, thinking properly, or doing activities of daily living. The June 9, 2010, issue of *JAMA* contains an article about hemorrhagic stroke.



STROKE SYMPTOMS

Call for emergency medical care immediately—dial 9-1-1 in the US and Canada

- Sudden weakness or numbness of the face, arm, or leg, especially on one side
- Sudden confusion, trouble speaking, or trouble understanding
- Sudden trouble seeing in one or both eyes
- Sudden difficulty walking, dizziness, loss of balance, or loss of coordination
- Sudden severe headaches with no known cause

A focused medical history and physical examination, combined with **computed tomography** (CT scan) of the head, establish the diagnosis of stroke. It is important to rapidly evaluate persons who may be having a stroke in order to begin appropriate treatment and to try to limit lasting damage to the brain from a stroke.

RISK FACTORS FOR HEMORRHAGIC STROKE

- **Hypertension** (high blood pressure) is the most important risk factor for hemorrhagic stroke.
- **Anticoagulant** (blood thinning) medications make bleeding into the brain more likely, especially if taken improperly or in large doses.
- **Cerebral (brain) aneurysms** (enlargements of blood vessels)
- Substance abuse
- Family history of strokes
- Smoking, diabetes, high cholesterol, obesity, and a sedentary lifestyle are risk factors for all types of strokes.

TREATMENT

Treating a hemorrhagic stroke involves stopping any ongoing bleeding in the brain. Surgical treatment may be necessary to stop bleeding, to remove a blood clot, to clip an aneurysm, or to relieve excess pressure on the brain. Medications are often required to treat high blood pressure. Blood product transfusion may be necessary, and life support may be required if a hemorrhagic stroke is severe.

FOR MORE INFORMATION

- American Stroke Association
www.strokeassociation.org
- National Institute of Neurological Disorders and Stroke
www.ninds.nih.gov
- National Stroke Association
www.stroke.org
- American Academy of Neurology
patients.aan.com/disorders/

INFORM YOURSELF

To find this and previous JAMA Patient Pages, go to the Patient Page Index on JAMA's Web site at www.jama.com. Many are available in English and Spanish. A Patient Page on transient neurological attacks was published in the December 26, 2007, issue; and one on hypertension was published in the May 26, 2010, issue.

Sources: American Stroke Association, National Institute of Neurological Disorders and Stroke, National Stroke Association, American Academy of Neurology

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