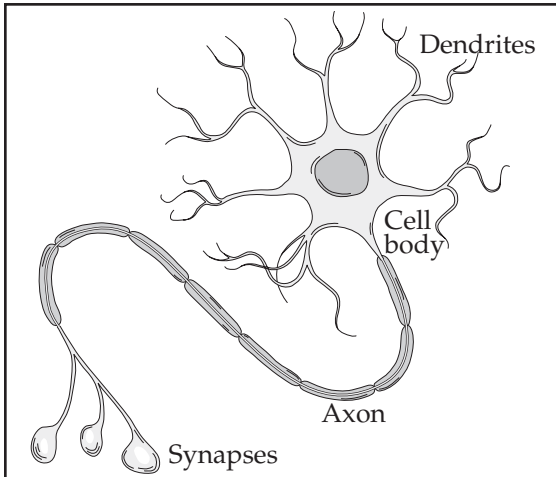


Chapter 1: What Is a Stroke?

A stroke occurs when the flow of blood and oxygen to the brain is stopped or interrupted. This happens because of a burst (ruptured) or blocked blood vessel.

A stroke can cause serious disability and can be life-threatening.

The Role of Your Brain and Central Nervous System



© Allina Health System

The different parts of a nerve cell.

Nerve cells in the brain (neurons) send signals to the rest of your body. These signals control your speech, movement, thinking process and senses (hearing, sight and touch).

The part of your brain affected by a stroke determines how your body is affected.

The right side of your brain controls the left side of your body. Usually, the right side of your brain controls the ability to pay attention, be aware of your own body, or recognize things you see, hear or touch.

The left side of your brain controls the right side of your body. Usually, the left side of your brain controls the way you talk and understand speech.

The base of your brain (brainstem) is connected to your spinal cord. The brainstem controls specialized functions, including:

- your eye movements
- swallowing
- breathing
- alertness.

The Parts of Your Brain

Frontal lobe controls:

- behavior and self-control
- decision-making, problem solving and planning
- emotions
- movement
- language.

Parietal lobe controls:

- movement
- memory, recognition
- sensory information (such as touch, temperature, pain).

Occipital lobe controls vision.

Front

Back

Temporal lobe controls:

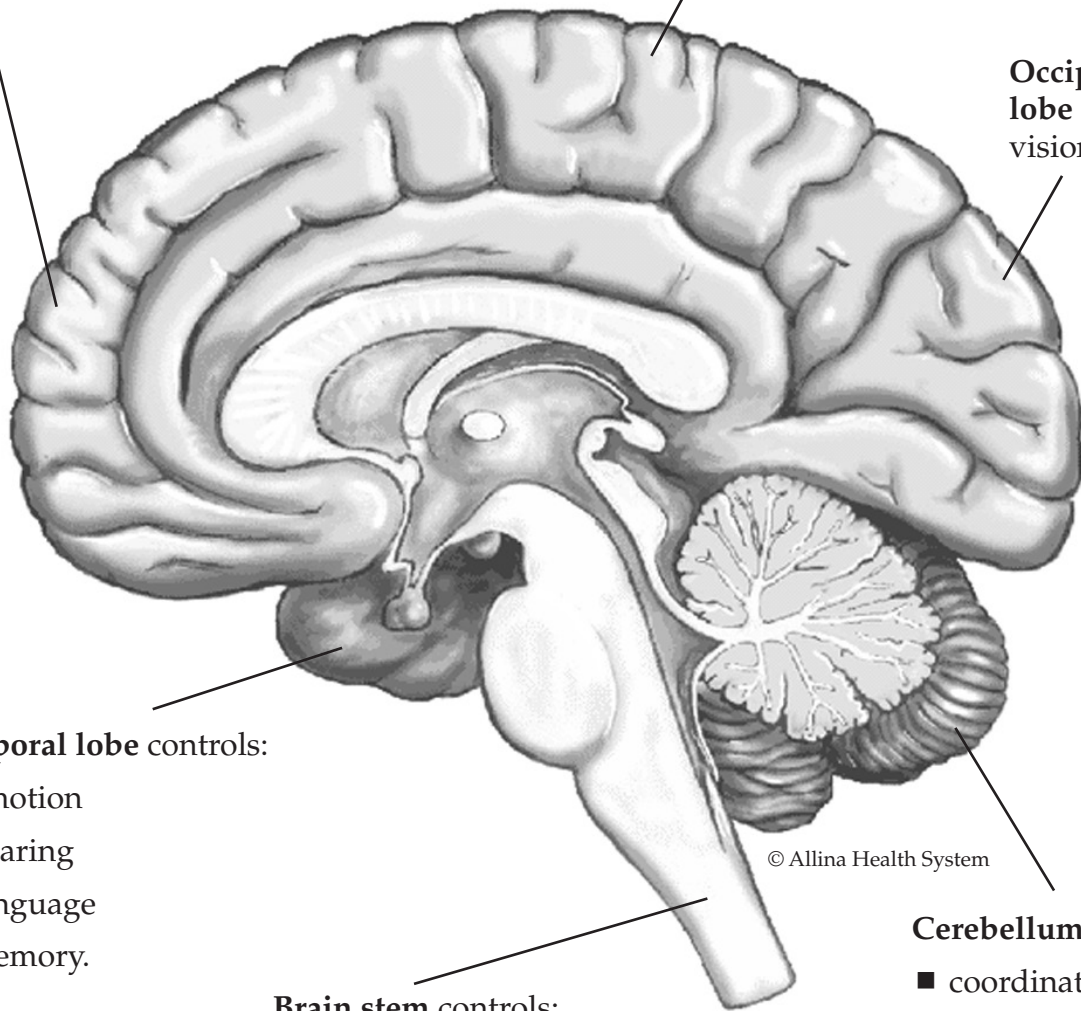
- emotion
- hearing
- language
- memory.

Brain stem controls:

- breathing
- heart rate
- eating
- swallowing
- sleeping
- wakefulness.

Cerebellum controls:

- coordination
- balance
- movement
- posture.



© Allina Health System

Causes and Types of Stroke

Did You Know?

Blood carries oxygen and nutrients through your body.

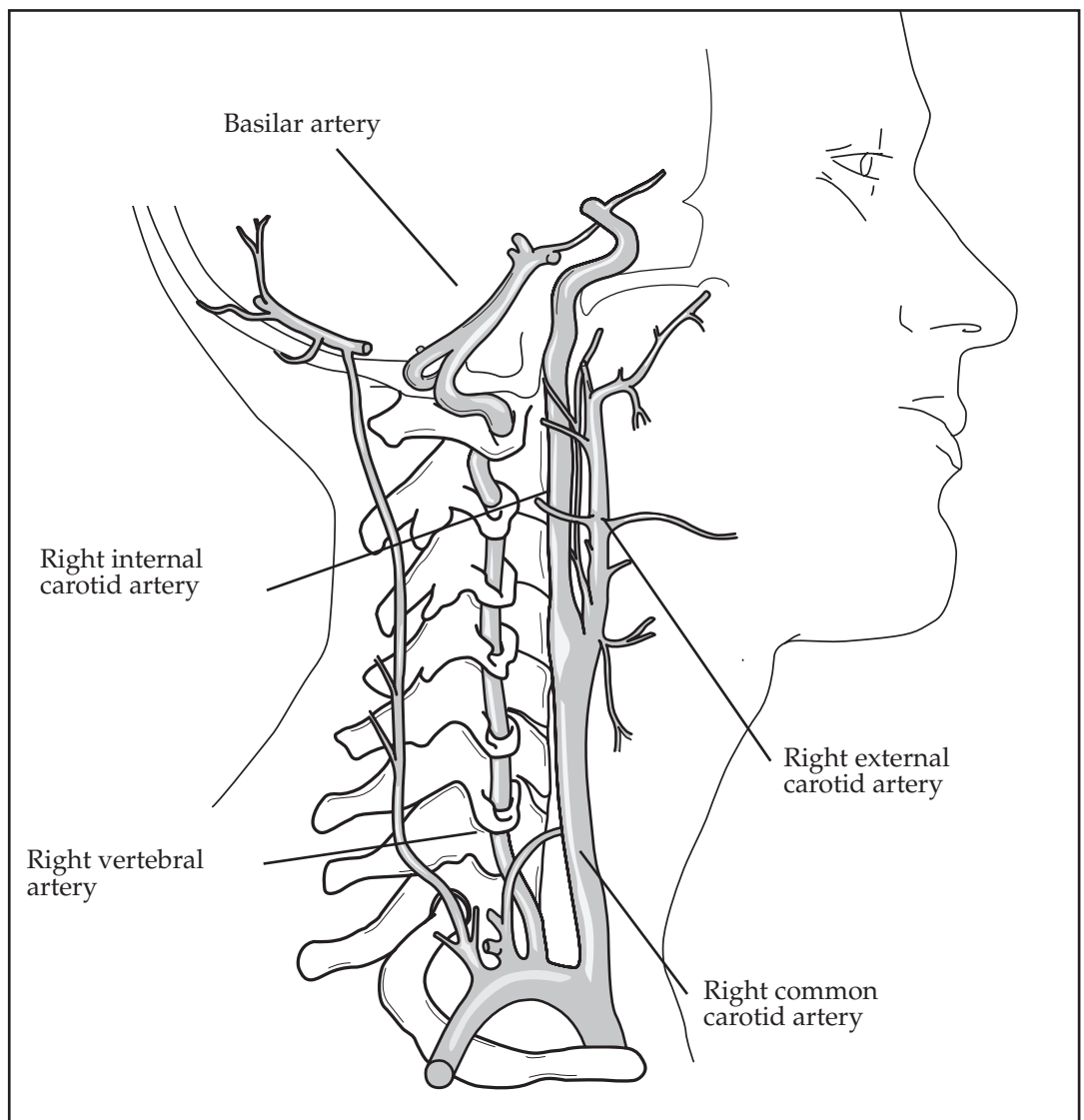
Your brain gets blood mainly through:

- 2 arteries in your neck (carotid arteries)
- 2 arteries near your spine (vertebral arteries).

These 4 arteries branch into other blood vessels that supply your brain with blood.

If blood cannot flow to your brain, your brain cells will start to die. Stroke symptoms will start to appear.

There are two types of stroke: ischemic and hemorrhagic.



© Allina Health System

A stroke may occur if an artery bursts or is blocked. This may prevent blood flow to the brain.

Medical Term

A **blood clotting disorder** occurs when you have abnormal amounts of different proteins in your blood that can:

- change the way your blood clots
- increase your risk of stroke.

Certain diseases and medicines can also affect how blood clots.

Medical Term

Atrial fibrillation is an irregular heartbeat. Your heart's upper chambers quiver instead of beat in a regular rhythm. Blood pools in your heart and can form blood clots. This increases your risk of having a stroke.

Ischemic strokes

This type of stroke happens when a blood vessel in the brain is blocked. This may be caused by a blood clotting disorder. There are two types of ischemic stroke:

❑ Thrombotic

Over time, fatty deposits (plaque) attach inside the artery walls. The plaque may narrow or close the artery. This may reduce blood flow to the brain.

A thrombotic stroke is caused by plaque build up and the sudden formation of a blood clot.

- **Large vessel:** This is the most common type of stroke. This stroke occurs when a larger artery in the brain is blocked.
- **Small vessel (lacunar):** This type of stroke occurs deep in the brain when a smaller artery in the brain is blocked.

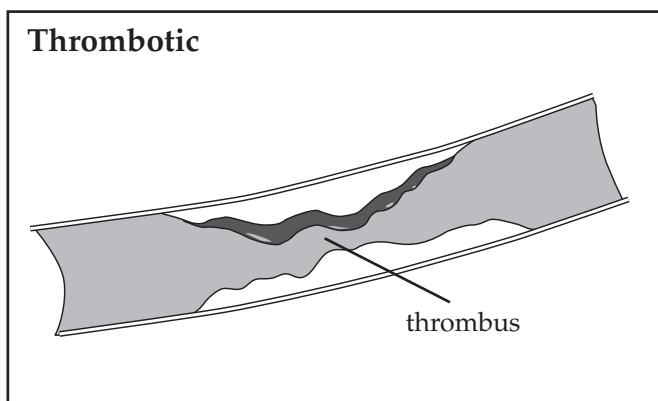
❑ Embolic

This occurs when a small blood clot forms in any part your body and travels in the bloodstream to the brain. This clot becomes stuck and blocks a blood vessel.

The blood clot often travels from the heart. A common cause of an embolic stroke is atrial fibrillation.

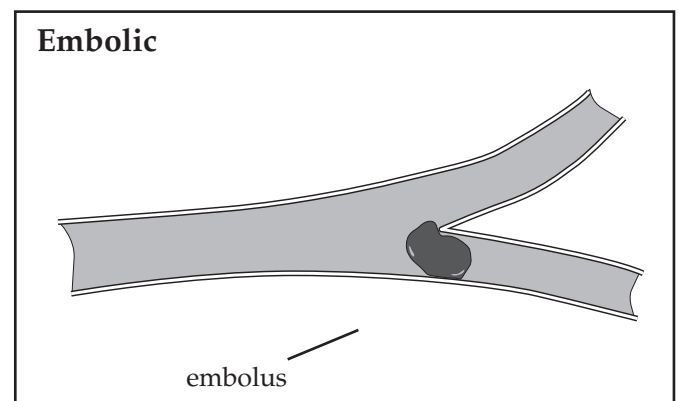
In more severe strokes, the large arteries in your brain or neck may be blocked. This blockage may cause permanent injury to a large part of the brain.

Ischemic strokes may lead to widespread brain injury. This injury can cause swelling in the brain. This swelling may lead to severe disability or death.



© Allina Health System

A thrombotic stroke occurs when plaque narrows artery walls and reduces blood flow to the brain.



© Allina Health System

An embolic stroke occurs when a small blood clot blocks a blood vessel.

Warning

Do not ignore symptoms of a TIA.

Call 911 right away.

Transient ischemic attacks (TIAs)

A thrombotic or embolic ischemic stroke may be called a TIA.

TIAs have the same symptoms as a stroke but they do not cause brain injury. They are sometimes called mini-strokes. If you had a TIA, your stroke risk is higher.

Important: TIAs require the same immediate attention as a stroke.

Hemorrhagic strokes

This type of stroke happens when a blood vessel in the brain ruptures and bleeds. This may be caused by a blood clotting disorder. There are two types of hemorrhagic stroke:

❑ Subarachnoid hemorrhage

It happens when blood leaks into the space between the brain and middle membrane that covers it. This is called the subarachnoid space.

Common causes include:

— Aneurysm

This happens when an artery or blood vessel becomes weak and bulges. A brain aneurysm is found on the arteries that supply blood to the brain. The aneurysm may become large and break (rupture).

— Arteriovenous malformation (AVM)

This occurs when blood flows directly from the arteries to veins, rather than passing through the capillaries first.

❑ Intracerebral hemorrhage

This occurs when a small blood vessel in the brain bursts and leaks. This causes bleeding in the brain. This is often caused by high blood pressure.