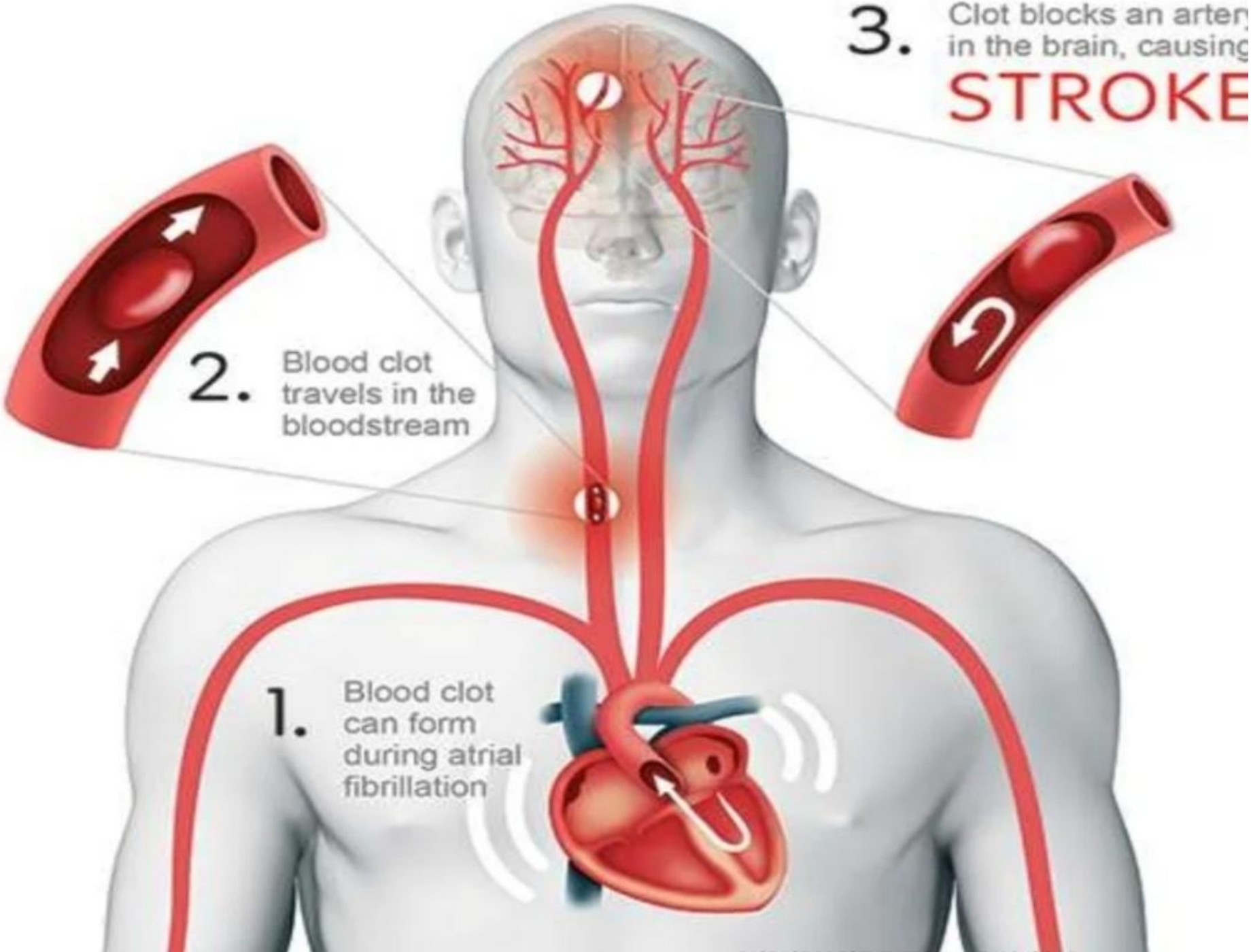
STROKE

By: Dr / Ahmed Mohamed Hussein, MD
Lecturer of internal medicine
Faculty of medicine
Helwan University

DEFINITION

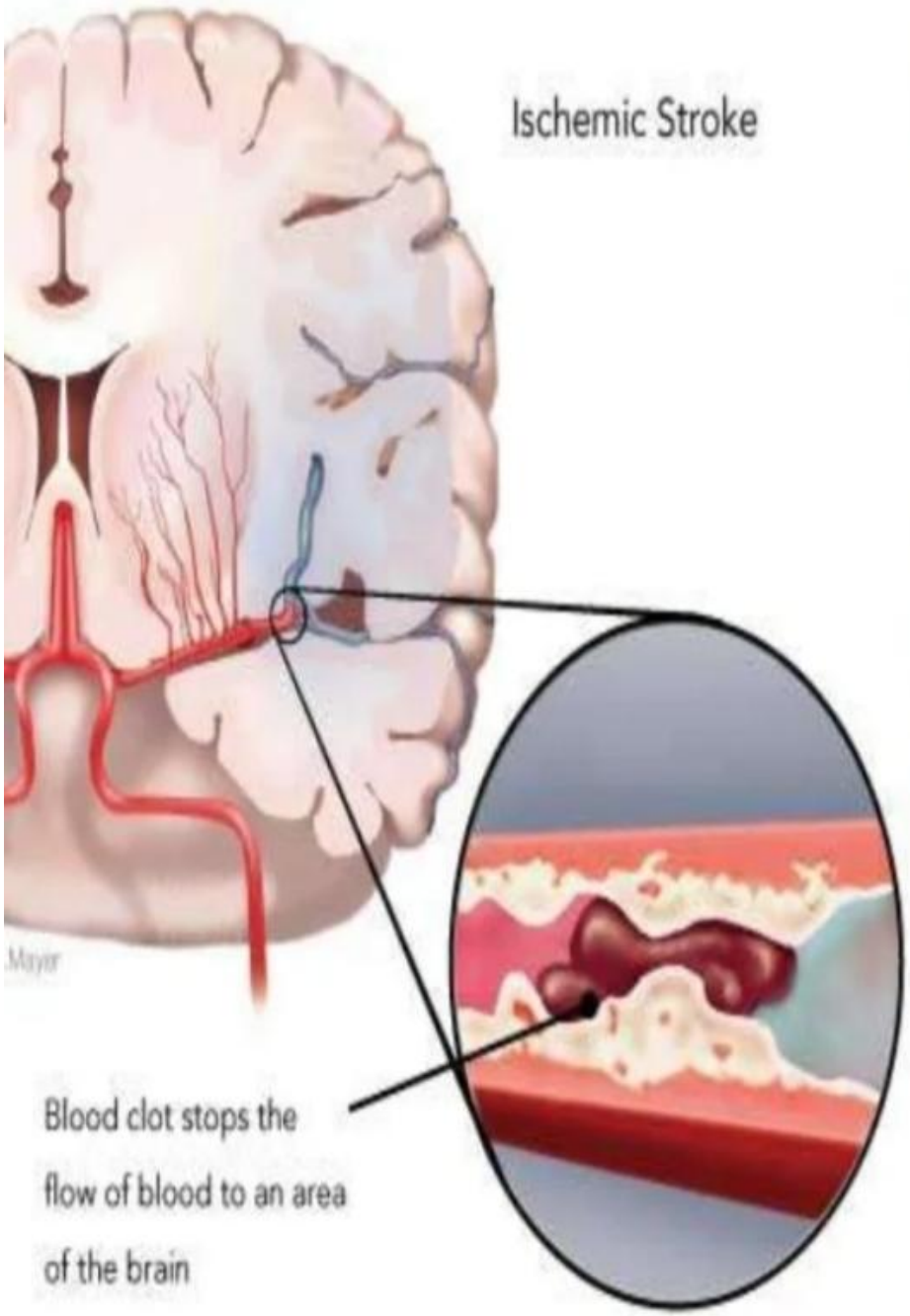
- A stroke is defined as the clinical syndrome of rapid onset of cerebral deficit lasting more than 24 hours or leading to death with no apparent cause other than a vascular one.
- A stroke is a rapid loss of brain function due to the disturbance in the blood supply to brain. A stroke happens when blood flow to a part of the brain stops and it is sometimes called a “brain attack”

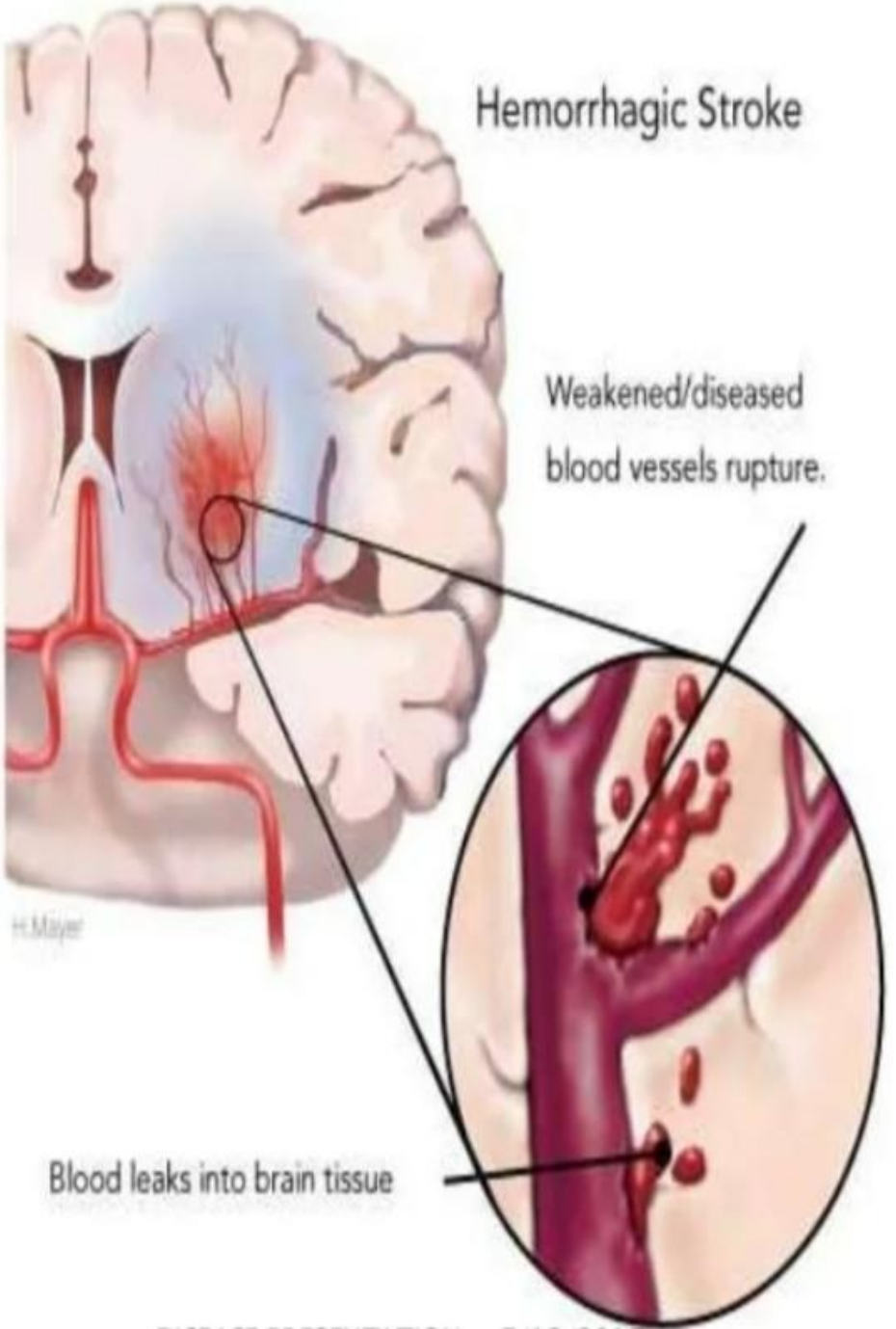

3.
Clot blocks an artery
in the brain, causing
STROKE
2.
Blood clot
travels in the
bloodstream
1.
Blood clot
can form
during atrial
fibrillation

TYPES

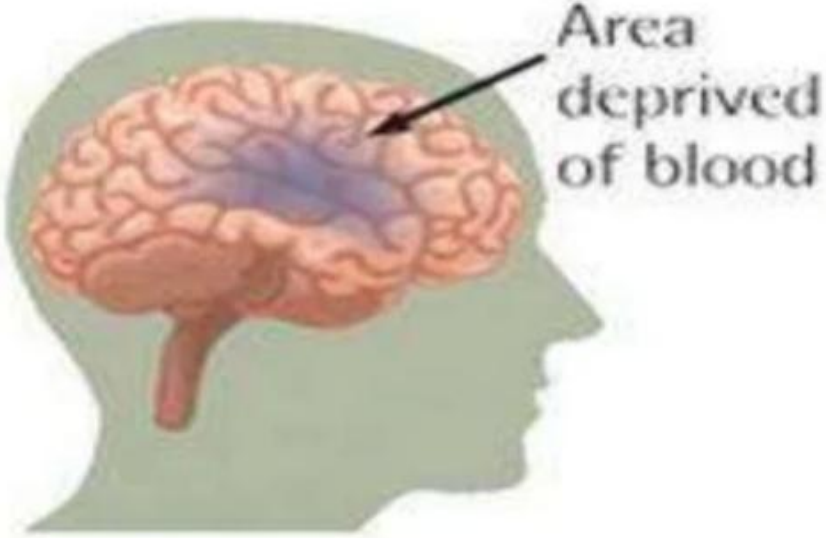
There are three main kinds of stroke:

- Ischemic strokes
- Hemorrhagic strokes
- Transient ischemic attacks (TIAs), also referred to as mini-strokes


Ischemic Stroke
Blood clot stops the
flow of blood to an area
of the brain

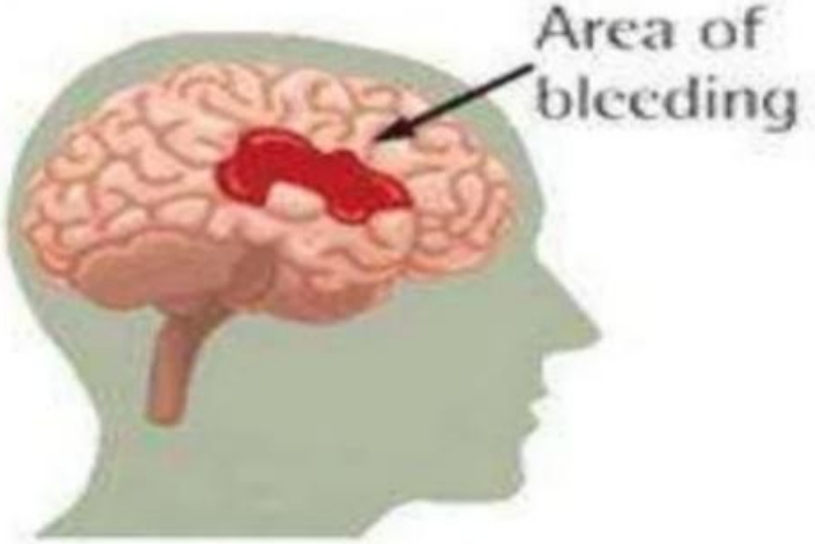

Hemorrhagic Stroke
Weakened/diseased
blood vessels rupture.
Blood leaks into brain tissue

Ischemic Stroke

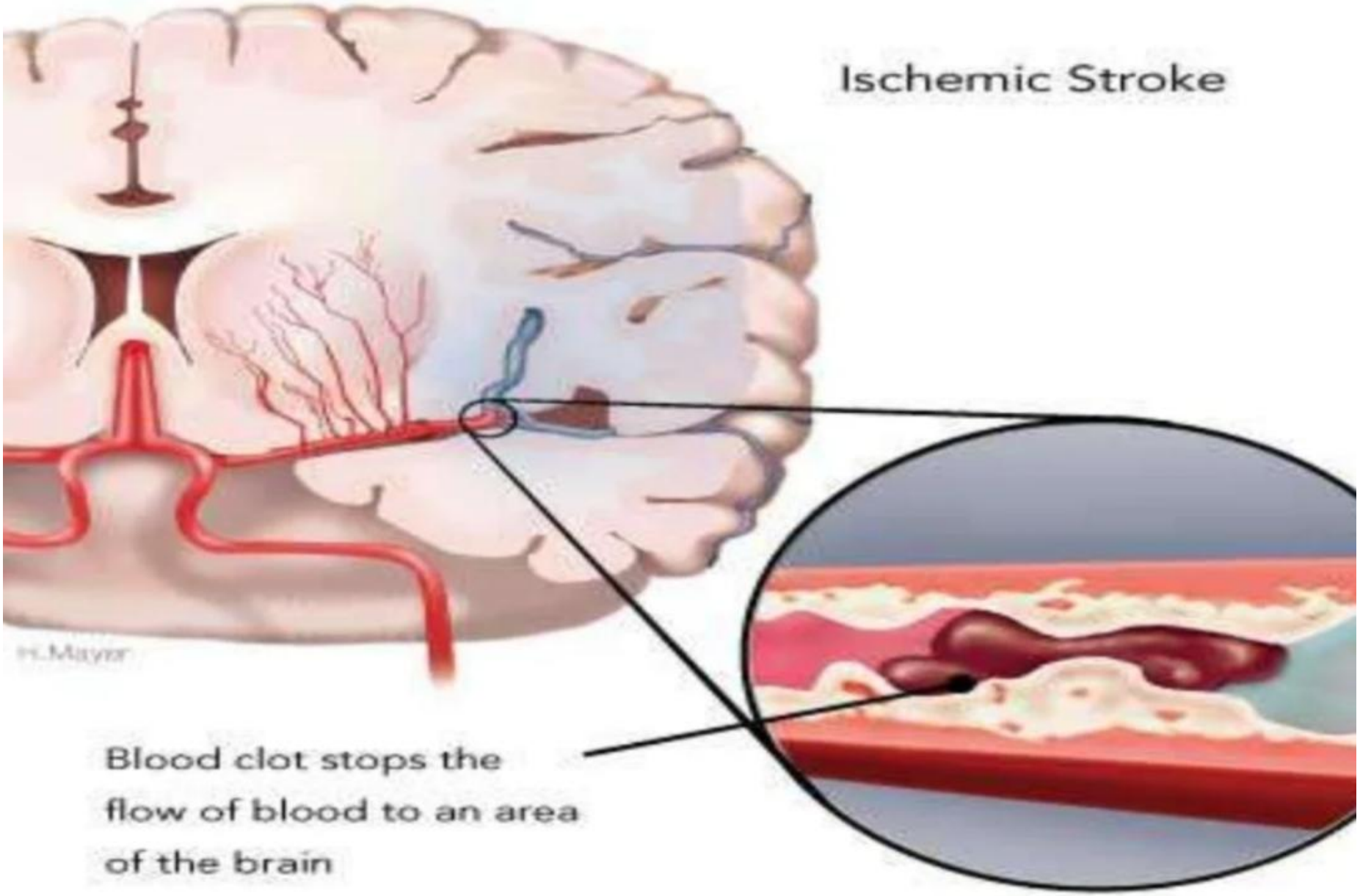


Obstruction blocks blood flow to part of the brain

Hemorrhagic Stoke



Weakened vessel wall ruptures, causing bleeding in the brain



©Heart and Stroke Foundation of Canada

ISCHEMIC STROKE

- Ischemic stroke is the most common form of stroke, accounting for around 85% of strokes.
- This type of stroke is caused by blockages or narrowing of the arteries that provide blood to the brain, resulting in ischemia - severely reduced blood flow.

- These blockages are often caused by blood clots. Clots can be caused by fatty deposits within the arteries called plaque.

HEMORRHAGIC STROKE:

- Hemorrhagic stroke are caused by arteries in the brain either leaking blood or bursting open.

- The ruptures can be caused by conditions such as hypertension, trauma, blood-thinning medications and aneurysms (weaknesses in blood vessel walls).

- Intra cerebral hemorrhage is the most common type of hemorrhagic stroke and occurs when brain tissue is flooded with blood after an artery in the brain bursts.

- Subarachnoid hemorrhage is the second type of hemorrhagic stroke and is less common. In this type of stroke, bleeding occurs in the subarachnoid space - the area between the brain and the thin tissues that cover it.

TRANSCIENT ISCHEMIC ATTACK (TIA)

- TIAs are different from the aforementioned kinds of stroke because the flow of blood to the brain is only briefly interrupted. TIAs are similar to ischemic strokes in that they are often caused by blood clots or other debris.

- TIAs should be regarded as medical emergencies.

- They serve as warning signs for future strokes and indicate that there is a partially blocked artery or clot source in the heart.
- According to the Centers for Disease Control and Prevention (CDC), over a third of people who experience a TIA go on to have a major stroke within a year if they have not received any treatment. Between 10-15% will have a major stroke within 3 months of a TIA.

What are the signs of Stroke?

STROKE
KNOW THE WARNING SIGNS

If you experience any of these symptoms, CALL 9-1-1 or your local emergency number immediately.

Weakness
Sudden loss of strength or sudden numbness in the face, arm or leg, even if temporary.

Trouble speaking
Sudden difficulty speaking or understanding or sudden confusion, even if temporary.

Vision problems
Sudden trouble with vision, even if temporary.

Headache
Sudden severe and unusual headache.

Dizziness
Sudden loss of balance, especially with any of the above signs.

SEE WHAT HAPPENS WHEN YOU PUT YOUR HEART INTO IT.™

HEART & STROKE FOUNDATION
Finding answers. For life.

❑SYMPTOMS

Strokes occur quickly and, as such, symptoms of stroke often appear suddenly without warning.

The main symptoms of stroke are as follows:

- Confusion, including trouble with speaking and understanding

- Headache, possibly with altered consciousness or vomiting

- Numbness of the face, arm or leg, particularly on one side of the body
- Trouble with seeing, in one or both eyes
- Trouble with walking, including dizziness and lack of co-ordination.

In addition to the persistence of the problems listed previously, patients may also experience the following:

- Bladder or bowel control problems
- Depression
- Pain in the hands and feet that gets worse with movement and temperature changes
- Paralysis or weakness on one or both sides of the body
- Trouble controlling or expressing emotions.

❑DIAGNOSIS

- Strokes happen fast and will often occur before an individual can be seen by a doctor for a proper diagnosis.

- The acronym **F.A.S.T.** is a way to remember the signs of stroke, and can help identify the onset of stroke more quickly:

LEARN THE SIGNS OF STROKE

YOU COULD SAVE A LIFE OR HELP PREVENT DISABILITY

FACE

Does the face look uneven?

ask the person to smile.

ARM

Does one arm drift down?

ask the person to raise both of their arms.

SPEECH

Does their speech sound strange?

ask the person to repeat a simple phrase, such as,

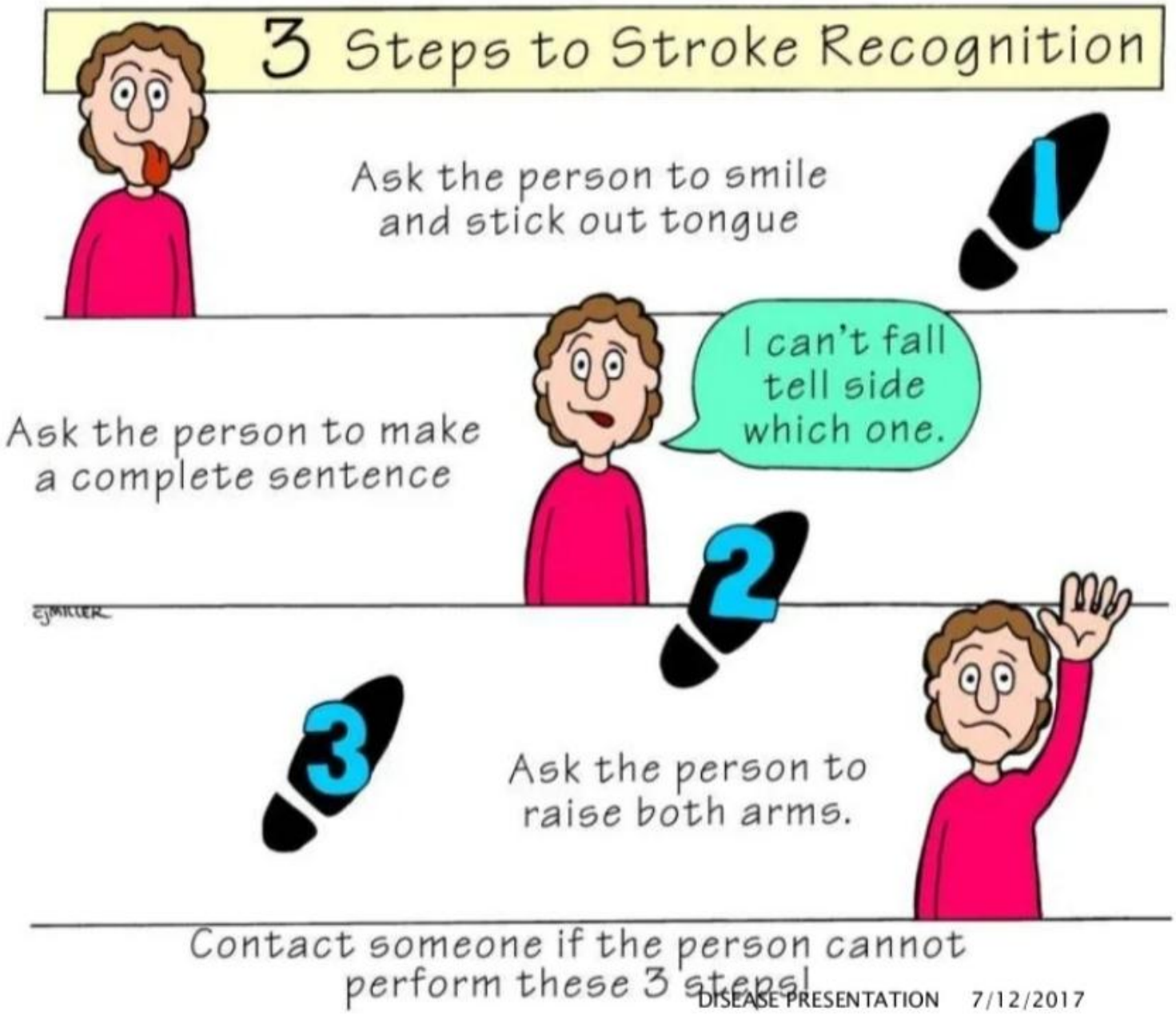
TIME

If you notice any of these signs, it's time to call 9-1-1!

call 9-1-1 if any of these signs are observed.

- **F**ace drooping: if the person tries to smile does one side of the face droop?
- **A**rm weakness: if the person tries to raise both their arms does one arm drift downward?
- **S**peech difficulty: if the person tries to repeat a simple phrase is their speech slurred or strange?
- **T**ime to call 911(In USA) and 108 (In India): if any of these signs are observed, contact the emergency services.

Stroke Recognition:



©2007 Nursing Education Consultants, Inc.

There are several different types of diagnostic tests that doctors can use in order to determine which type of stroke has occurred:

- *CT scans of the brain are one of few ways to determine which type of stroke a person has had.*

- Physical examination: a doctor will ask about the patient's symptoms and medical history. They may check blood pressure, listen to the carotid arteries in the neck and examine the blood vessels at the back of the eyes, all to check for indications of clotting

- Blood tests: a doctor may perform blood tests in order to find out how quickly the patient's blood clots, the levels of particular substances (including clotting factors) in the blood, and whether or not the patient has an infection
- CT scan: a series of X-rays that can show hemorrhages, strokes, tumors and other conditions within the brain
- MRI scan: radio waves and magnets create an image of the brain to detect damaged brain tissue

- Carotid ultrasound: an ultrasound scan to check the blood flow of the carotid arteries and to see if there is any plaque present
- Cerebral angiogram: dyes are injected into the brain's blood vessels to make them visible under X-ray, in order to give a detailed view of the brain and neck arteries
- Echocardiogram: a detailed image of the heart is created to check for any sources of clots that could have traveled to the brain to cause a stroke.

TREATMENT OF STROKE

ISCHEMIC STROKES

- Aspirin can be given, as can an injection of a tissue plasminogen activator (TPA).
- A carotid endarterectomy
- Angioplasty

HEMMORHAGIC STROKE

- Treatment can begin with drugs being given to reduce the pressure in the brain, overall blood pressure, prevent seizures and prevent sudden constrictions of blood vessels. If the patient is taking anti-coagulant or anti-platelet medication like Warfarin or Clopidogrel, they can be given drugs or blood transfusions to counter the medication's effects.

- Surgery can be used to repair any problems with blood vessels that have led or could lead to hemorrhagic strokes. Surgeons can place small clamps at the base of aneurysms or fill them with detachable coils to stop blood flow to them and prevent rupture.
- Surgery can also be used to remove small arteriovenous malformations (AVMs) if they are not too big and not too deep within the brain. AVMs are tangled connections between arteries and veins that are weaker and burst more easily than other normal blood vessels

REHABILITATION

- Strokes are life-changing events that can affect a person both physically and emotionally, temporarily or permanently. After a stroke, successful recovery will often involve specific rehabilitative activities such as:
- Speech therapy - to help with problems producing or understanding speech. Practice, relaxation and changing communication style, using gestures or different tones for example, all help
- Physical therapy - to help a person relearn movement and co-ordination. It is important to get out and about, even if it is difficult at first

- Occupational therapy - to help a person to improve their ability to carry out routine daily activities, such as bathing, cooking, dressing, eating, reading and writing
- Joining a support group - to help with common mental health problems such as depression that can occur after a stroke. Many find it useful to share common experiences and exchange information
- Support from friends and family - to provide practical support and comfort. Letting friends and family know what can be done to help is very important.

PREVENTION

The best way to prevent a stroke is to address the underlying causes. This is best done by living healthily, which means:

- Eating a healthy diet
- Maintaining a healthy weight
- Exercise regularly
- Not smoking
- Avoiding alcohol or moderating consumption.

Other measures taken to help reduce the r
stroke include:

- Keeping blood pressure under control
- Managing diabetes well
- Treating obstructive sleep apnea (if present).
- As well as these lifestyle changes, a healt
provider can help to reduce the risk of future s
through prescribing anti-coagulant and anti-p
medication. In addition to this, the arterial s
previously mentioned can also be used to lov
risk of repeat strokes.

THANK YOU