

# STROKE AND NEURO ANATOMY

---

Angela Roots

## Right Brain

Art awareness

Creativity

Imagination

Intuition

Insight

Holistic thought

Music awareness

3-D forms

Left hand control



## Left Brain

Analytic  
thought

Logic

Language

Reasoning

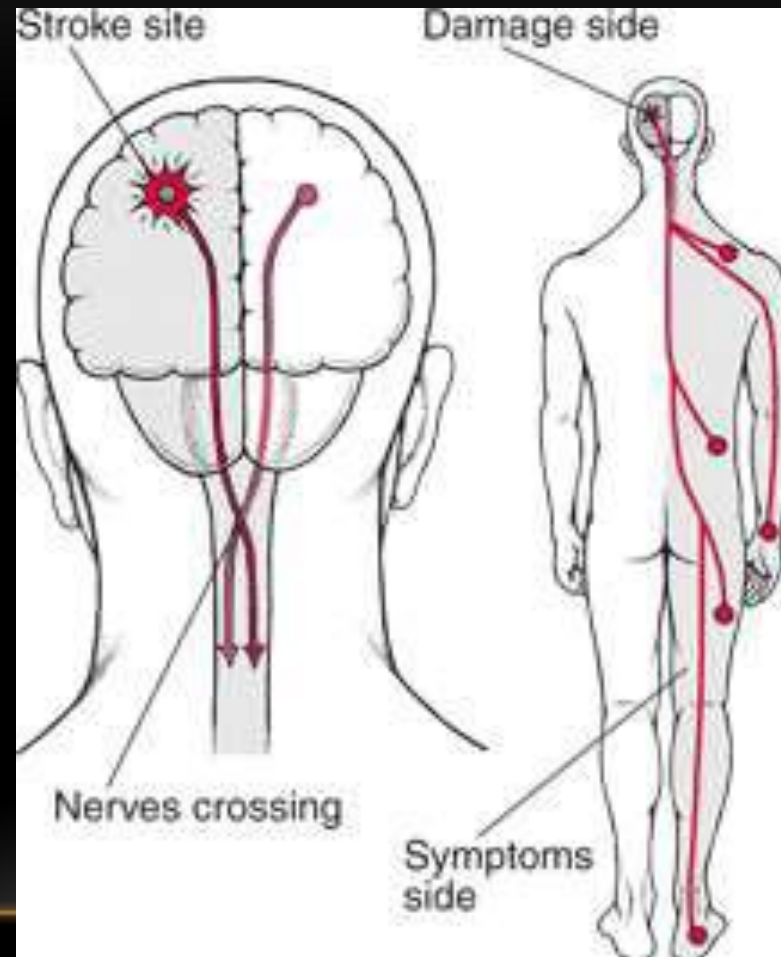
Science and  
Math

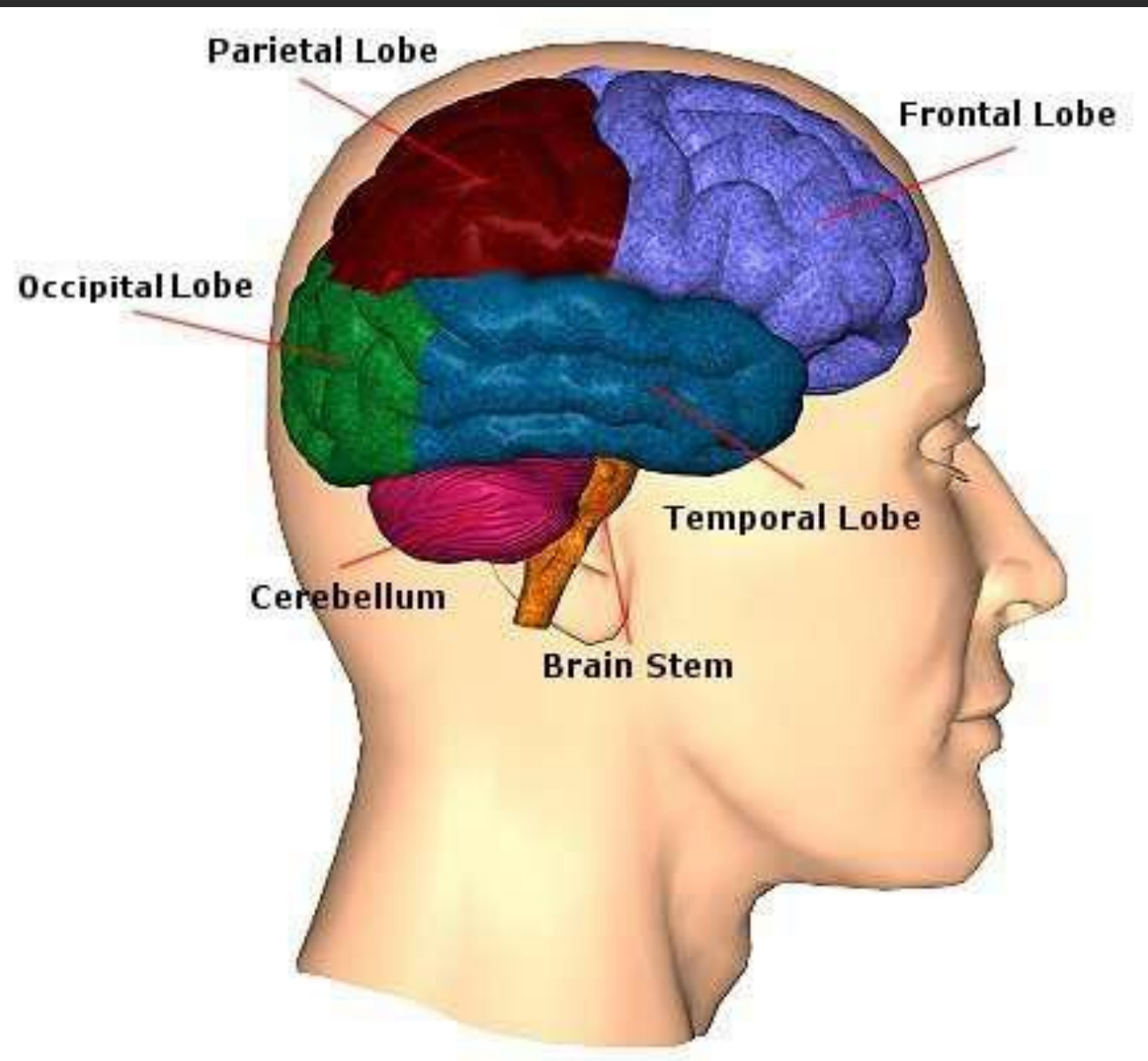
Written

Numbers skills

Right hand  
control

# CONTRALATERAL CONTROL



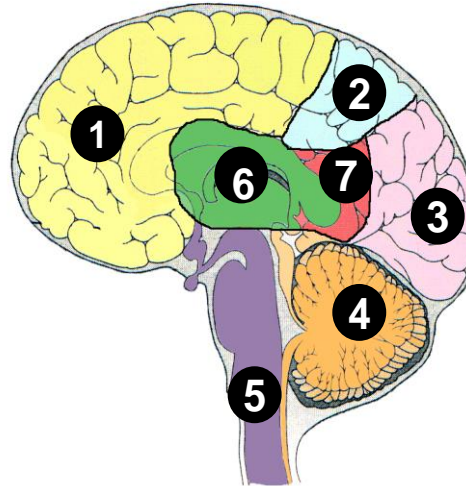


## 1. Frontal Lobe

Controls:

- Behaviour
- Emotions
- Organisation
- Personality
- Planning
- Problem solving

Arteries: ACA, MCA



## 2. Parietal Lobe

Controls:

- Judgement of shape, size, texture, and weight
- The sensation of pressure and touch
- Understanding of spoken/written language

Arteries: ACA, MCA



## 4. Cerebellum

Controls:

- Balance
- Muscle co-ordination
- Posture maintenance

Arteries: Basilar  
PICA, AICA, SCA

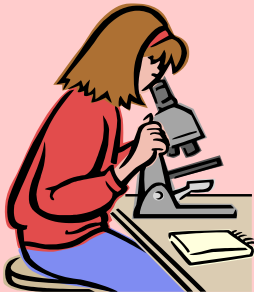


## 3. Occipital Lobe

Controls:

- Colour recognition
- Shape recognition

Arteries:  
PCA



## 5. Brainstem

Controls:

- Alertness
- Blood pressure
- Digestion
- Breathing
- Heart rate

Arteries: Vertebral Basilar



## 6. Hippocampus

Controls:

- Object recognition
- Stores meaningful words or place

Arteries: PCA

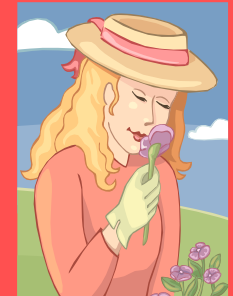


## 7. Temporal lobe

Controls:

- Smell Identification
- Sound Identification
- Short-term Memory
- Hearing

Arteries: MCA, PCA



ACA = Anterior Cerebral Artery  
MCA = Middle Cerebral Artery  
PCA = Posterior Cerebral Artery  
PICA = Posterior Inferior Cerebellar Artery  
AICA = Anterior Inferior Cerebellar Artery  
SCA = Superior Cerebellar Artery

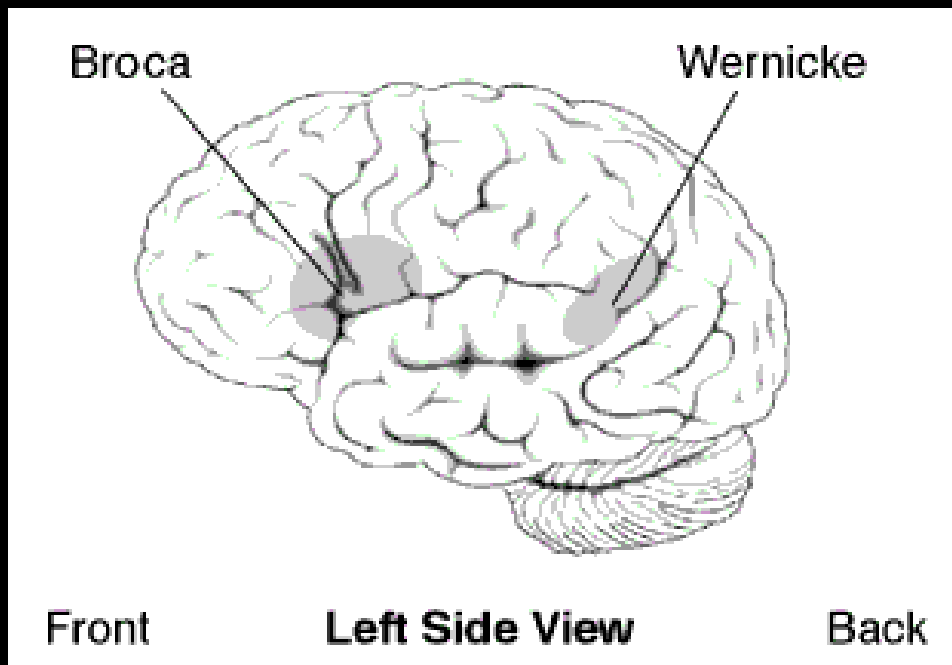
# SPEECH CENTRES

## Broca

controls the  
muscles of the larynx,  
pharynx and mouth  
that enable us to speak

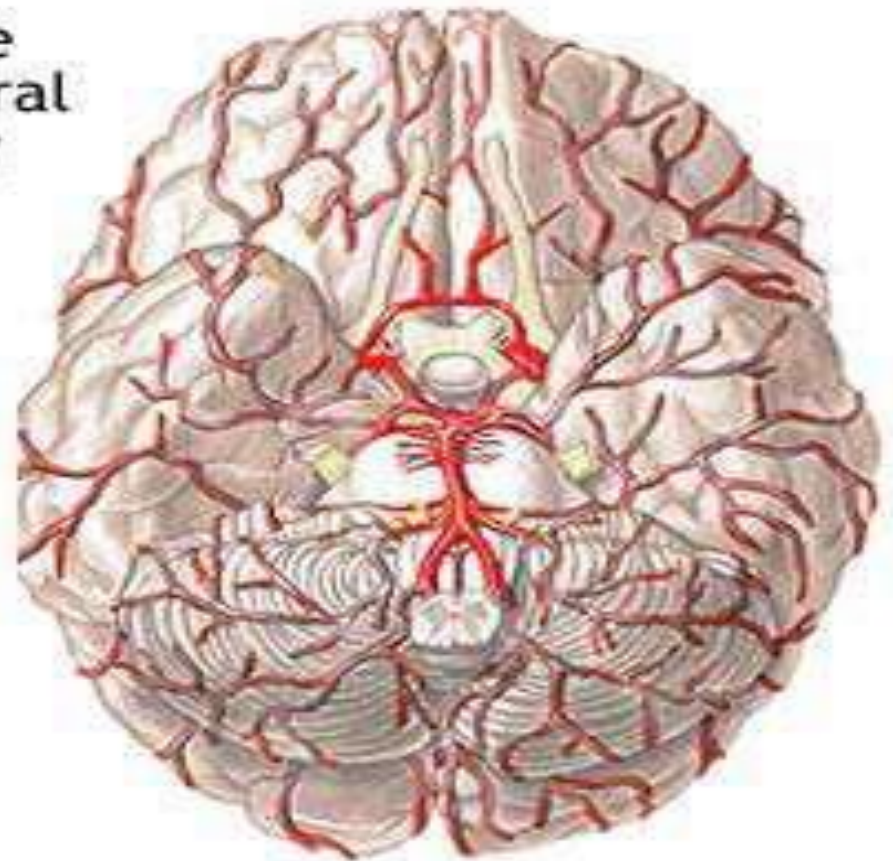
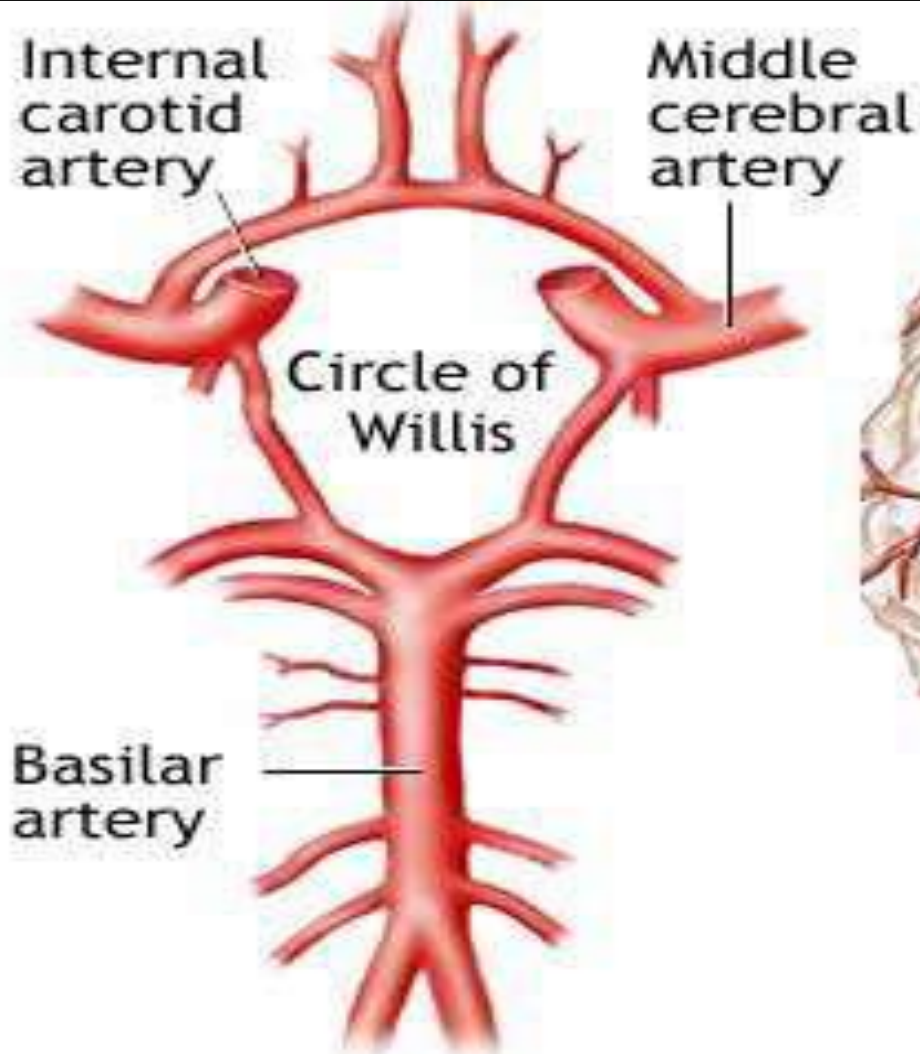
## Wernicke's area

Controls our understanding of  
language.





# BLOOD SUPPLY TO THE BRAIN



Bottom view of brain





# WHAT IS A STROKE?

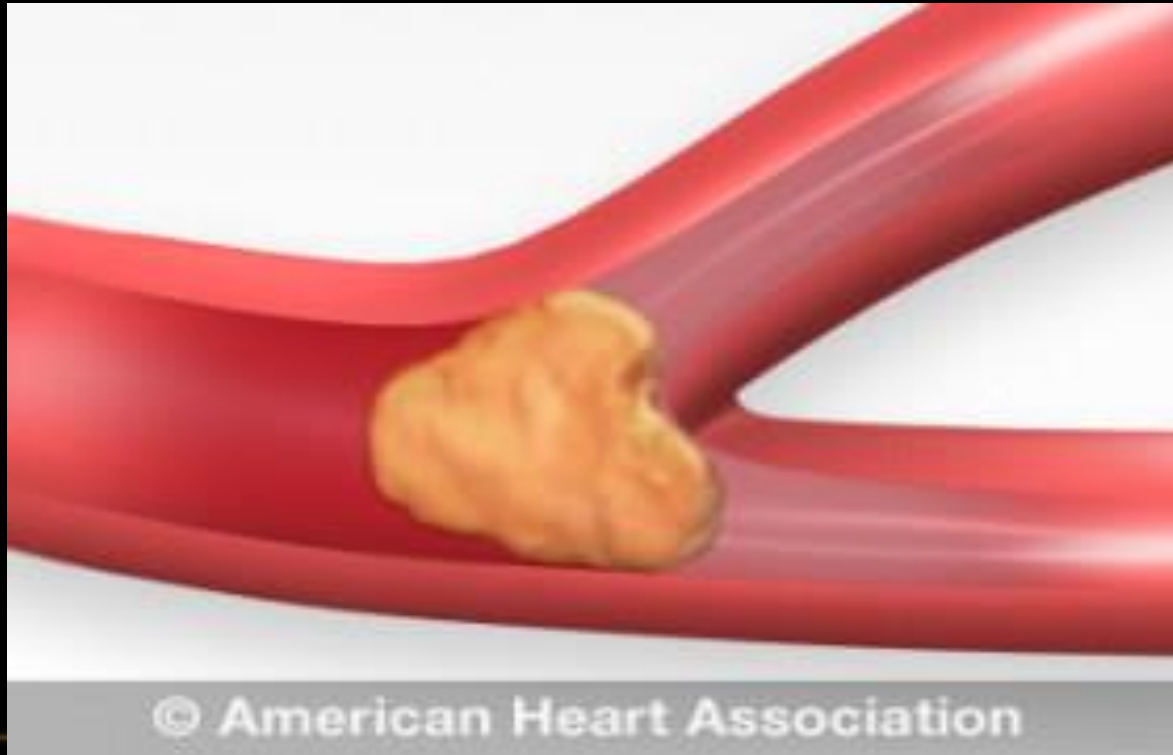
interruption of the blood supply to the brain,  
caused by a blocked or burst blood  
vessel...cuts off the supply of oxygen and  
nutrients, causing damage to the brain tissue.  
(World Health Organisation 2010)

---

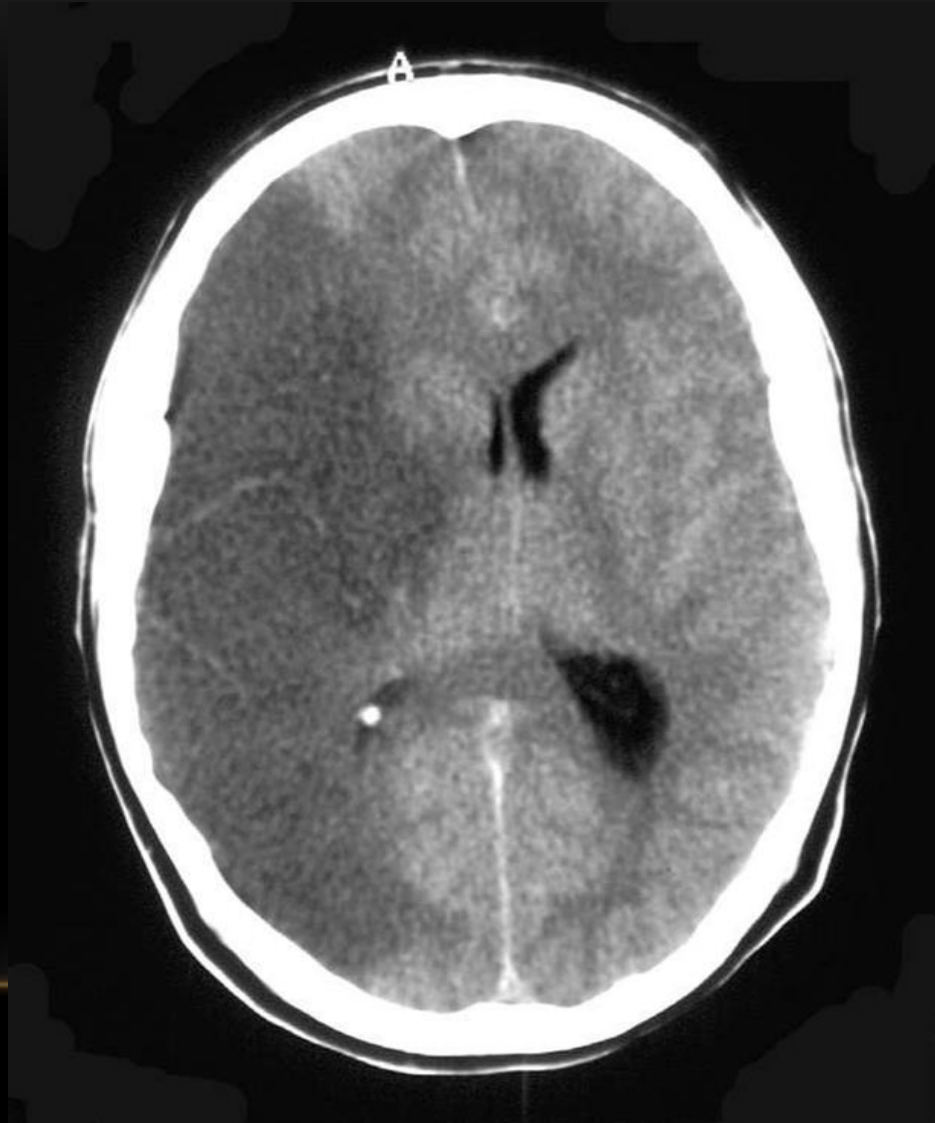
# Ischemic stroke

obstruction within a blood vessel

84% of all stroke cases.



# ISCHAEMIC STROKE

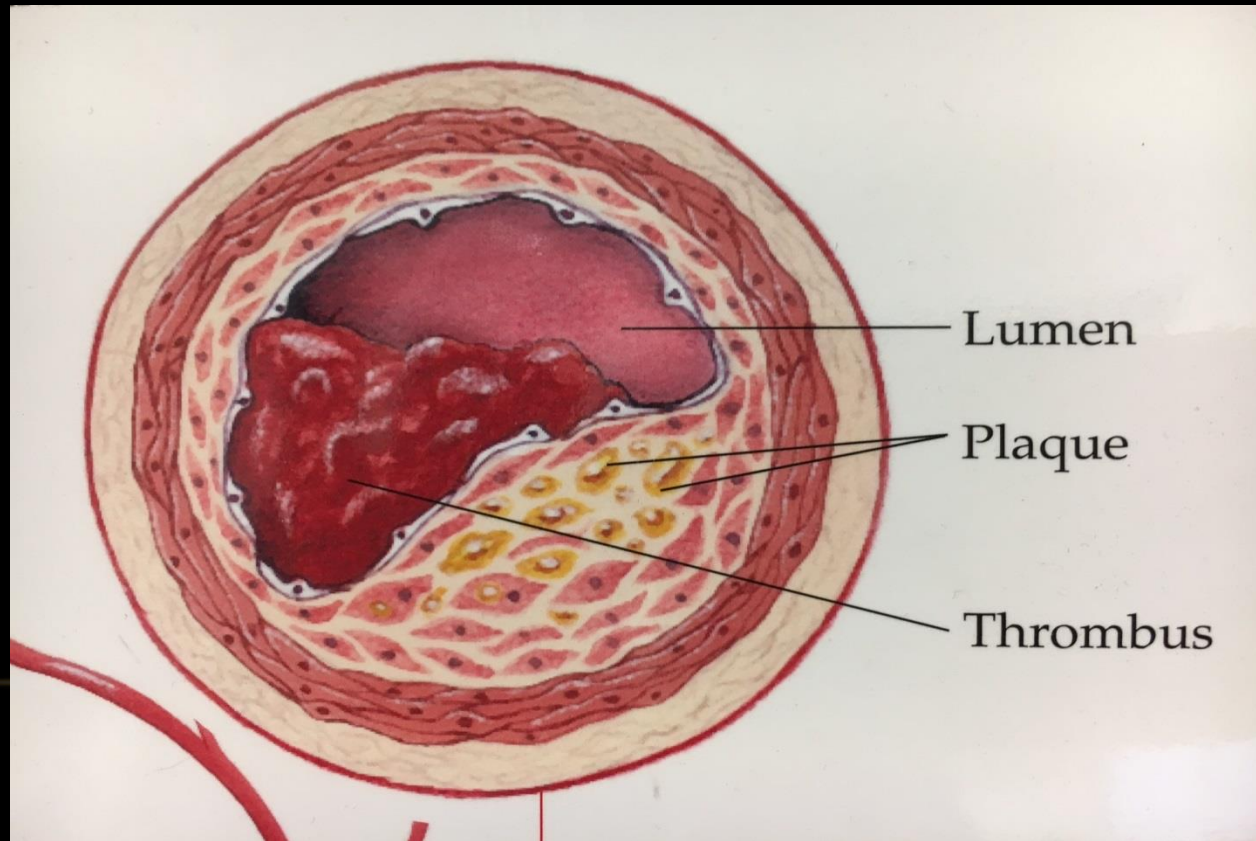


## Atherosclerosis

- Deposit of cholesterol and plaque within the walls of arteries
- Narrow lumen
- Reduce Blood flow

## Thrombus

- Clot can form on roughened edges of plaque
- May block lumen



# Emboli

- When a thrombus breaks off it becomes an embolus
- Travel through the blood stream until they reach a vessel too narrow to pass through
- Commonly form in the heart
- AF

# Primary Intracerebral Haemorrhage (ICH)

when a weakened blood vessel ruptures

11% of all stroke cases





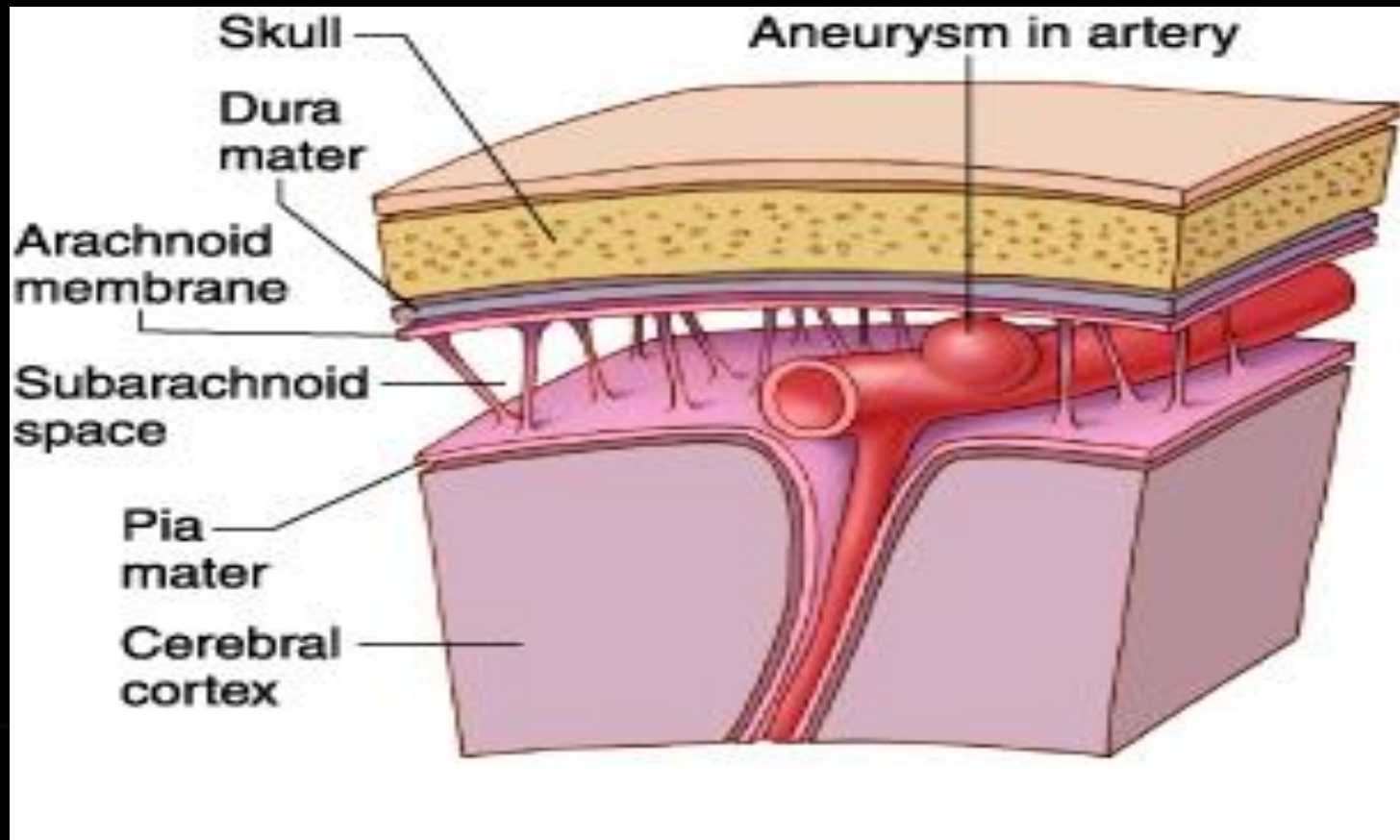
# INTRACEREBRAL HAEMORRHAGE



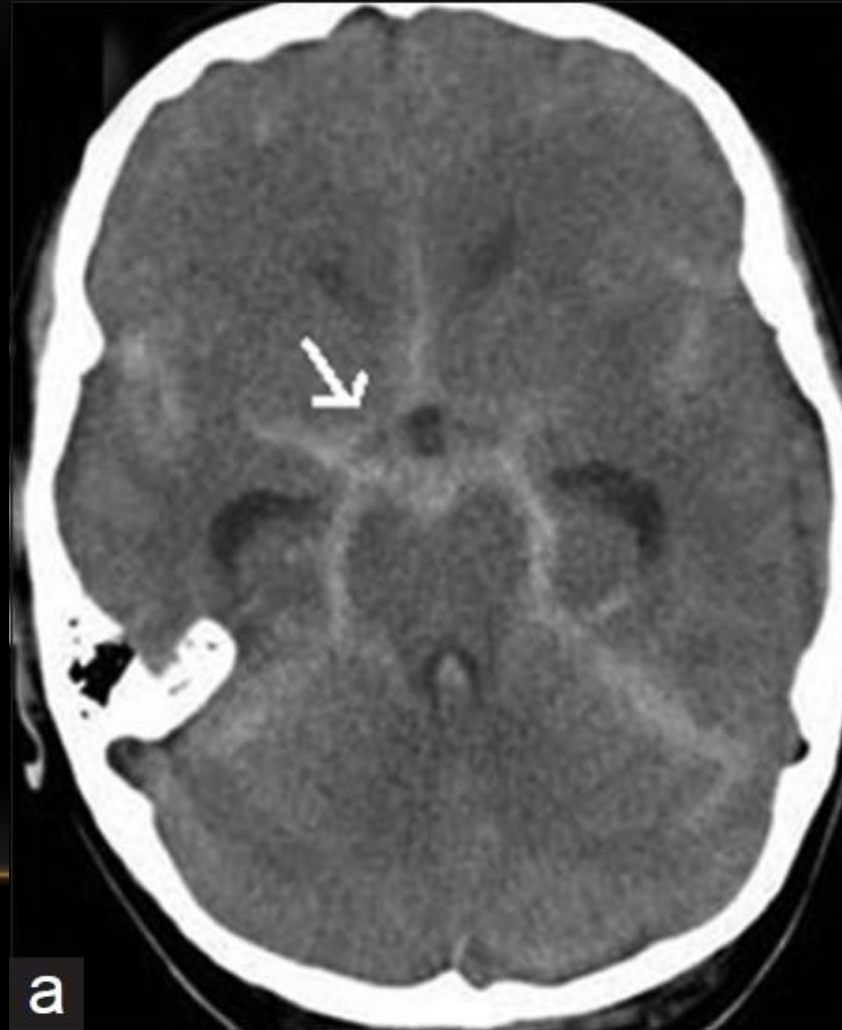
# Subarachnoid Haemorrhage (SAH)

When a weakened blood vessel ruptures in the subarachnoid space.

5% of all stroke cases



# SUBARACHNOID HAEMORRHAGE



## Dissection

Carotid/vertebral artery

Tend to be younger patients

Preceding neck trauma

## Cerebral Venous Thrombosis

Prothrombotic tendency eg. Contraceptive pill/ inflammatory illness/infection/pregnancy

# TIA

- Transient Ischaemic Attack
- Symptoms 100% resolved
- Half are mimics
- 6.5% risk of stroke within 7 days
- 300mg aspirin
- Urgent assessment of risk factors

# Illustration of GCS

