



Hemiplegia

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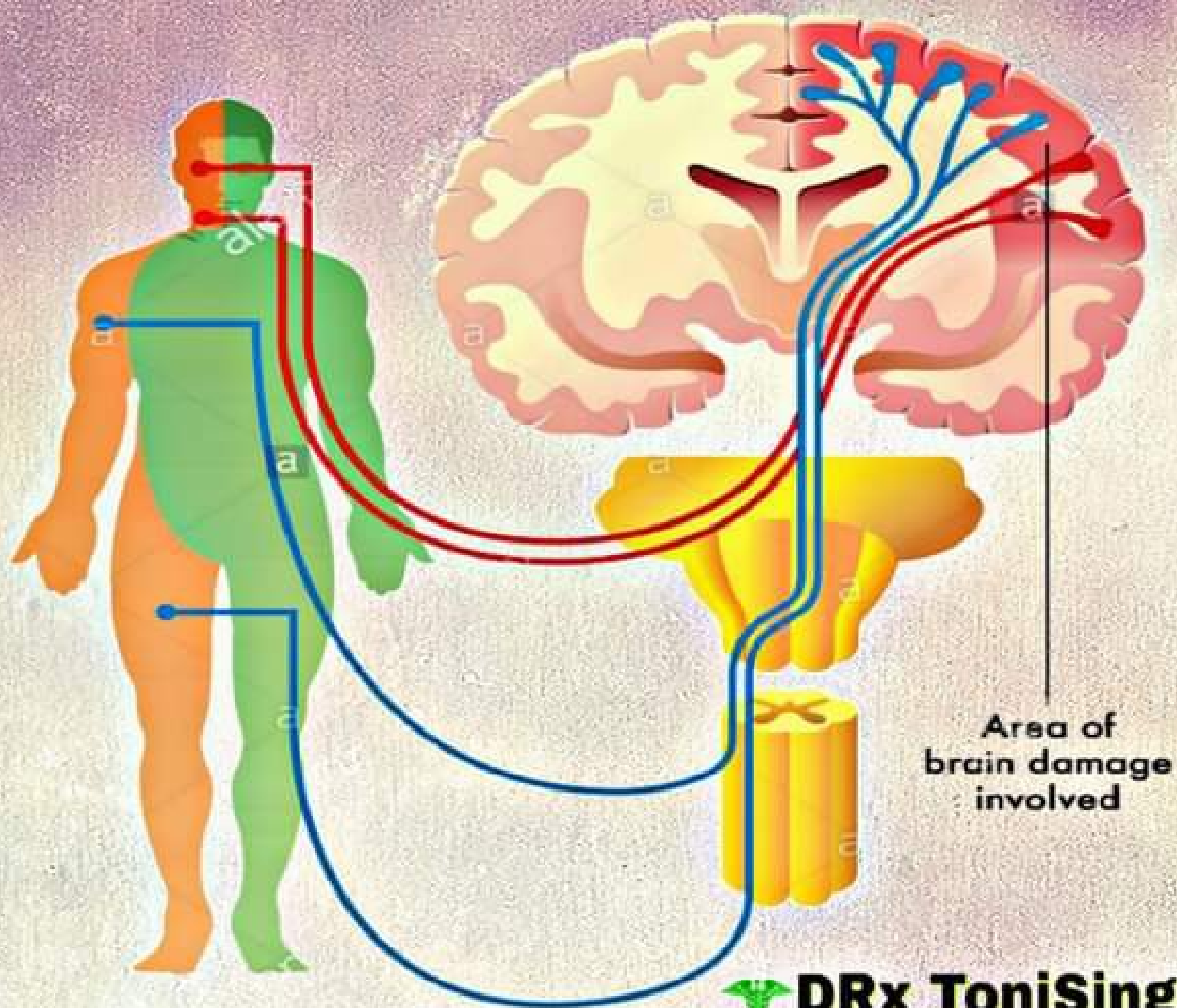
Introduction

- Hemiplegia is **total paralysis** of the arm, leg, and trunk on the same side of the body.
- Severe or complete **loss of motor function** on one side of the body.
- Hemiplegia is **more severe** than hemiparesis, wherein one half of the body has less marked weakness.
- Hemiplegia may be **congenital** or **acquired** from an illness or stroke.



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Area of
brain damage
involved

 **Affected area**  **Normal area**

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Types of Paralysis

Hemiplegia



Paraplegia



Quadriplegia



Monoplegia



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Signs And Symptoms

- Vary tremendously from person to person.
- Difficulty with gait
- Difficulty with balance while standing or walking
- Having difficulty with motor activities like holding, grasping or pinching
- Increasing stiffness of muscles
- Muscle spasms
- Difficulty with speech



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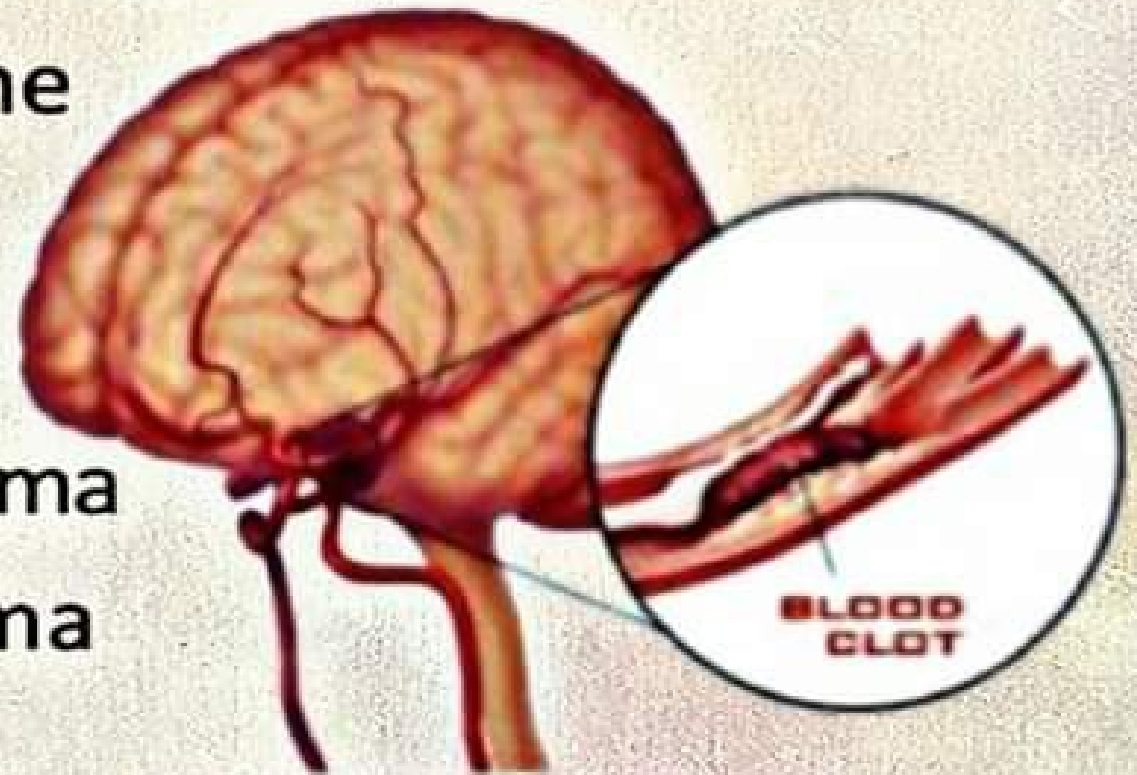
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- Difficulty swallowing food
- Significant delay during standing, smiling, crawling or speaking
- The majority of children who develop hemiplegia also have abnormal mental development.
- Behaviour problems like anxiety, anger, irritability, lack of concentration or comprehension
- Emotions — depression
- Shoulder pain



Causes

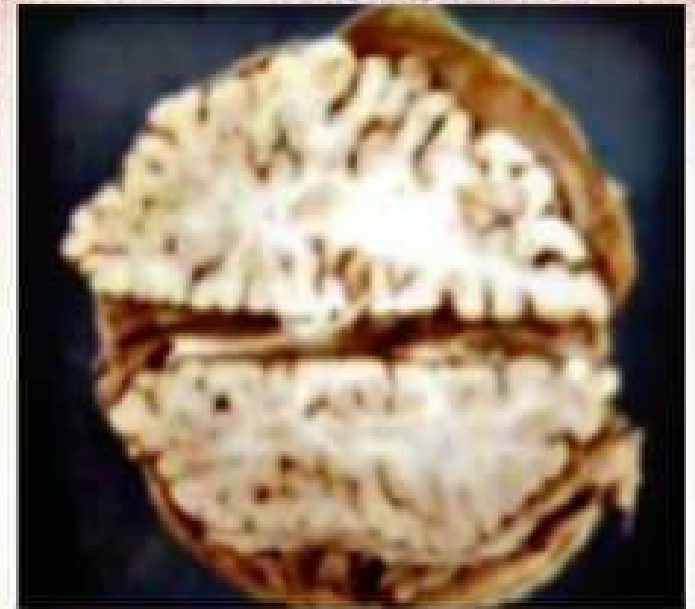
- Cerebrovascular Accident (CVA)
- Thrombosis, Embolism or hemorrhage
- Transient Ischemic Attack (TIA)
- Migraine syndrome
- Head Trauma
- Brain Contusion
- Subdural Hematoma
- Epidural Hematoma
- Todd's Paralysis
- Diabetes Mellitus



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- Brain Tumor
- Infection
- Subdural empyema
- Meningitis
- Nonketotic hyperosmolar coma
- Vasculitis
- Acute necrotizing myelitis
- Hereditary disease
- Leukodystrophies



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Common Causes By Etiology

- Vascular: cerebral hemorrhage, stroke, diabetic neuropathy
- Infective: encephalitis, meningitis, brain abscess
- Neoplastic: glioma-meningioma
- Demyelination: disseminated sclerosis, lesions to the internal capsule



- Traumatic: cerebral lacerations, subdural hematoma rare cause of hemiplegia is due to local anaesthetic injections given intra-arterially rapidly, instead of given in a nerve branch.



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- Congenital: cerebral palsy
- Disseminated: multiple sclerosis
- Psychological: parasomnia (nocturnal hemiplegia)

Pathogenesis

The exact cause of hemiplegia is not known in all cases.

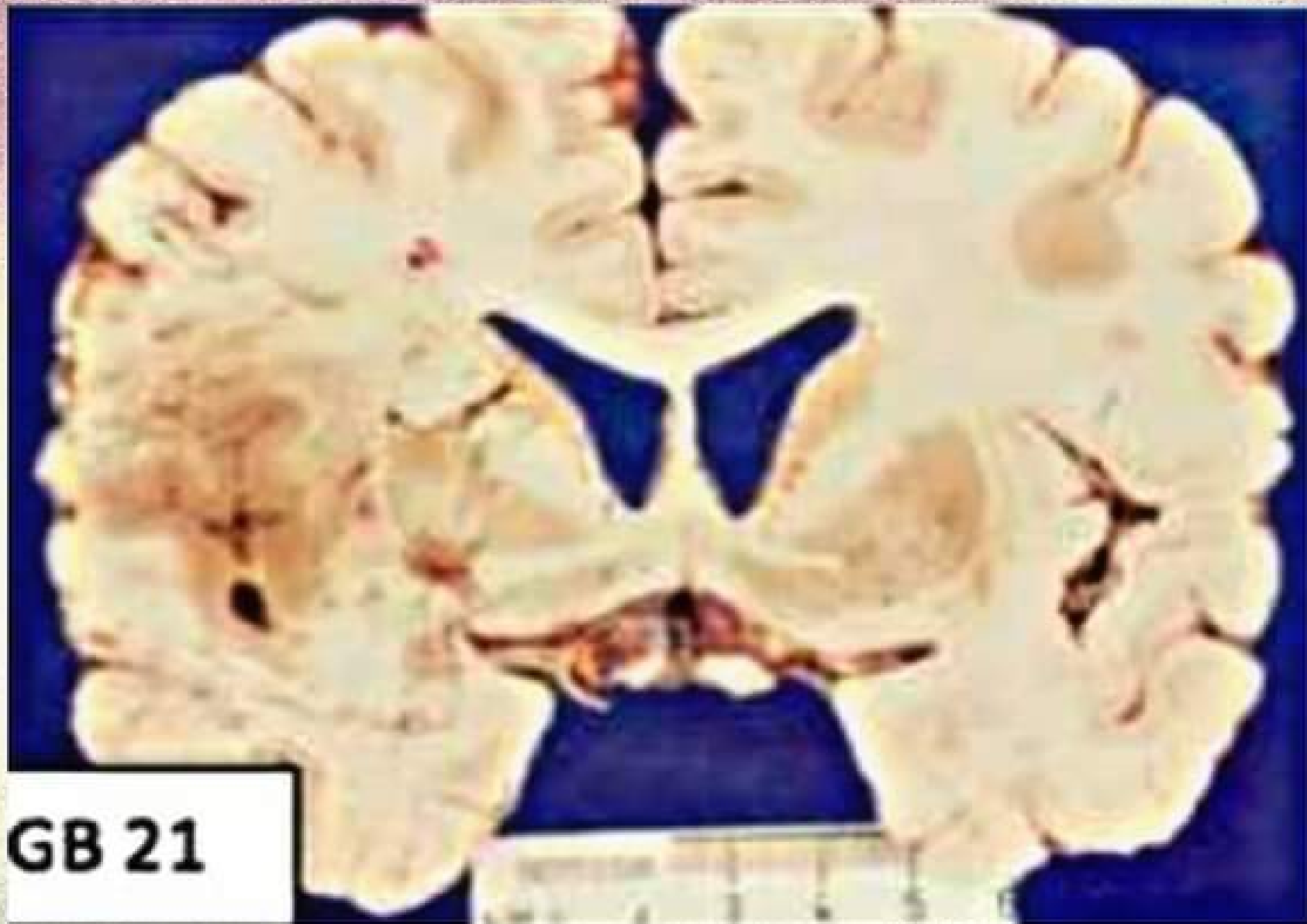


- ❖ Brain is deprived of oxygen and this results in the death of neurons.
- ❖ When the corticospinal tract is damaged, the injury is usually manifested on the opposite side of the body. This happens because the motor fibres of corticospinal tract, which take origin from the motor cortex in brain, cross to the opposite side in the lower part of medulla oblongata and then

descend down in spinal cord to supply their respective muscles.

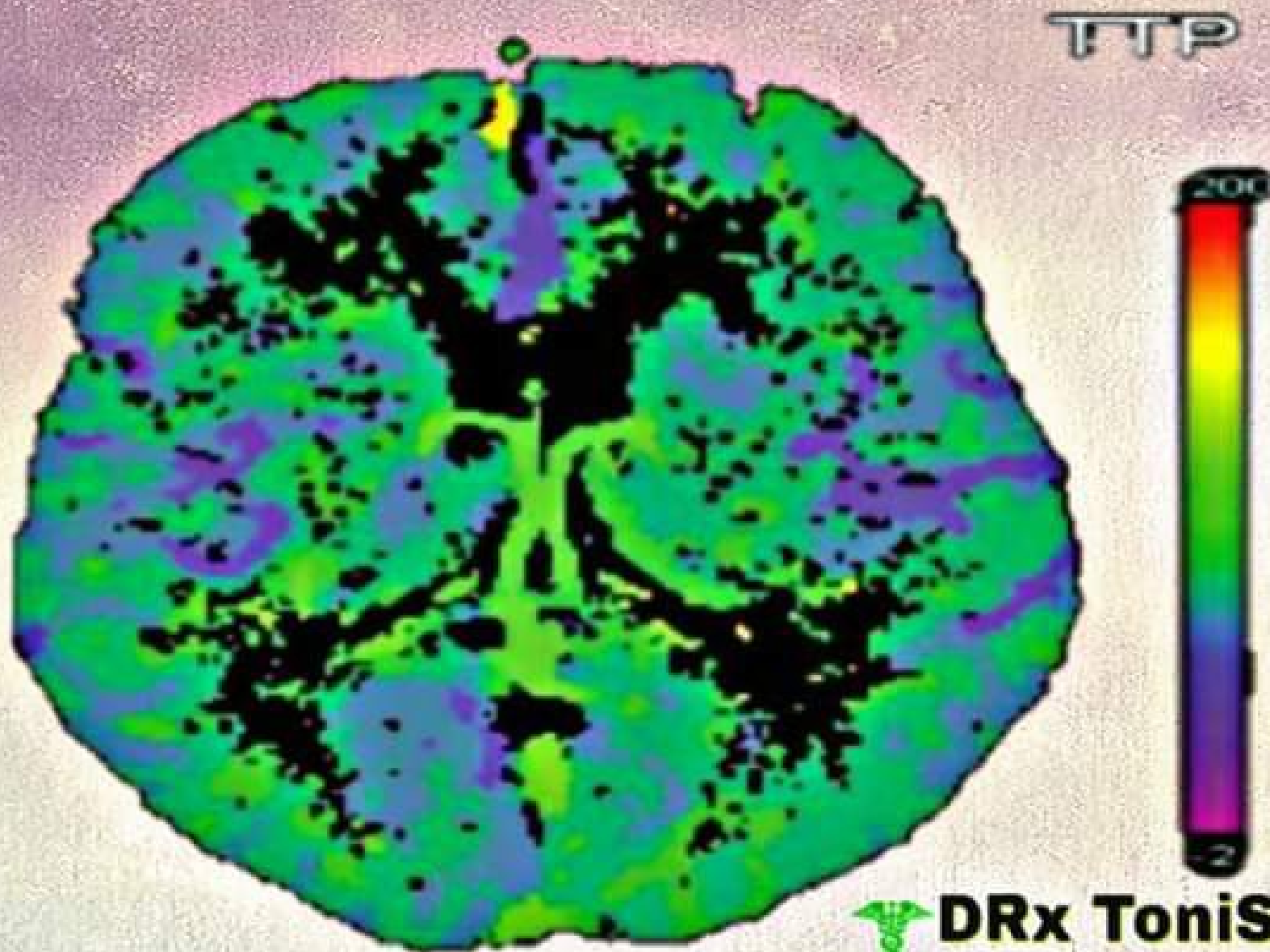
- ❖ Depending on the **site of lesion** in brain, the severity of hemiplegia varies.
- ❖ A lesion in internal capsule where all the motor fibres are condensed in a small area, will cause **dense hemiplegia** i.e complete loss of power of all muscles of one half of body while a lesion at cortical or subcortical level will cause varied amount of weakness of one half of the body.





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Right hemiplegia & hemianaesthesia (damage to
L hemisphere



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CT-scan obtained 2 hours after the onset of symptoms
in a 65-year-old woman with left hemiplegia

Clinical Picture

Onset and course :-

- Acute onset and regressive course (vascular, infective & traumatic lesions).
- Gradual onset & progressive course (neoplastic lesions).
- Remittent & relapsing course (D.S.)



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Diagnosis

Hemiplegia is identified by clinical examination by a health professional, such as a physiotherapist or doctor.

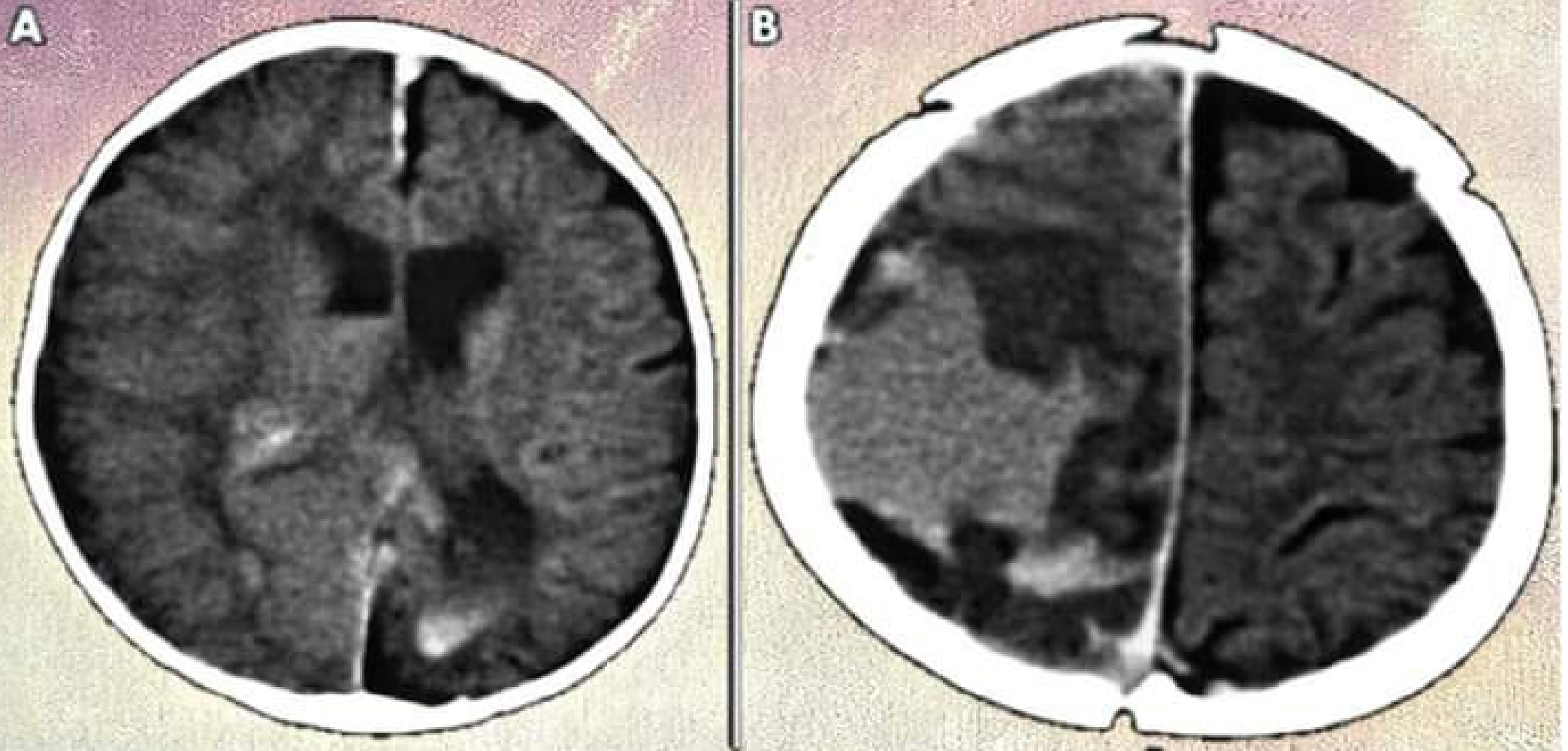
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Radiological studies like a CT scan or magnetic resonance imaging of the brain should be used to confirm injury in the brain and spinal cord, but alone cannot be used to identify movement disorders. Individuals who develop seizures may undergo tests to determine where the focus of excess electrical activity is.



Flaccid Hemiparesis

Spastic Hemiparesis



9 month old boy with postoperative left – sided hemiplegia and left sided local seizures



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52-year-old woman with right hemiplegia and aphasia. Left internal carotid artery injection with blood pressure at baseline, early arterial phase, shows that the left middle cerebral artery is occluded (white arrow).

Hemiplegia patients usually show a characteristic **gait**. The leg on the affected side is extended and internally rotated and is swung in a wide, lateral arc rather than lifted in order to move it forward. The upper limb on the same side is also adducted at the shoulder, flexed at the elbow, and pronated at the wrist with the thumb tucked into the palm and the fingers curled around it.



Treatment

- Treatment should be based on assessment by the relevant health professionals. Muscles with severe motor impairment including weakness need these therapists to assist them with specific exercise.
 - Pharmacological
 - Surgery
 - Rehabilitation
 - Assessment tools(FMA, CSMA, STREAM)





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Standing- balancing training

Prognosis

- It is not a progressive disorder, except like in a growing brain tumour. Once the injury has occurred, the symptoms should not worsen. But lack of mobility, other complications can occur. Complications may include muscle and joint stiffness, loss of aerobic fitness, muscle spasms, bed sores, pressure ulcers & blood clots. Sudden recovery from hemiplegia is very rare with limited recovery, but the majority will improve from intensive, specialised rehabilitation.





Any Questions ?

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thank you