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PATHOPHYSIOLOGY- NERVOUS SYSTEM- Epilepsy convulsive disorder

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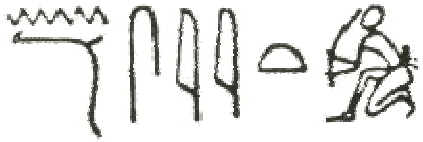


Epilepsy

“Once sacred disease“

Learning Objectives

Upon completion of this topic learner should be able to learn :

About Seizures and Epilepsy, their types, pathogenesis and management

Topic outline

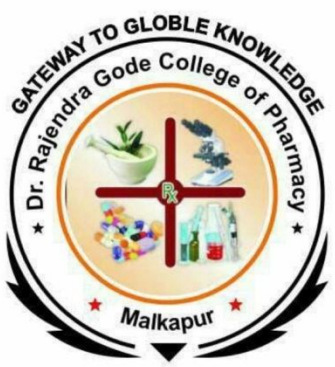
Includes :

- Introduction
- Etiology
- Types
- Sign and symptoms
- Complication

Epilepsy: Introduction

- It is a common, sudden and transit episodes of loss consciousness, unusually by not always with characterized body movement and sometime with autonomic hyperactivity
- The clinical manifestations range from a major motor convulsion to a brief period of lack of awareness.
- The stereotyped and uncontrollable nature of the attacks is characteristic of epilepsy.

Definition



- A **chronic neurologic disorder** manifesting by **repeated epileptic seizures** (attacks or fits) which result from **paroxysmal uncontrolled discharges of neurons** within the central nervous system (grey matter disease).

Basic Mechanisms Underlying Seizures and Epilepsy

- **Seizure:** (transit episodes)is the clinical manifestation of an abnormal and excessive excitation and synchronization of a population of cortical neurons
- **Epilepsy:** a tendency toward recurrent seizures unprovoked by any systemic or acute neurologic insults
- Hyper excitation of neuron in brain leading to altered behavior with or without violent motor activity

- In simple way

Epilepsy is repeated occurrence of sudden, excessive and or synchronous discharges in cerebral cortical neurons resulting in disruption of consciousness, disturbance of sensation, movement, impairment of mental function

Repetive seizures leads to jerking and spasm of muscle throughout body called **convulsion**

Seizures trigger by

- Chronic alcoholism
- Lack of sleep
- Stress
- Flashing light
- Medication (excitatory drugs)

Epidemiology

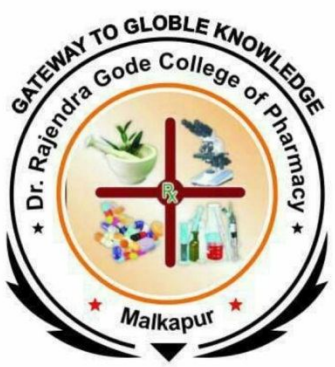
- ♦ **Seizures**
  - Incidence: approximately 80/100,000 per year
  - Lifetime prevalence: 9%
    (1/3 benign febrile convulsions)

- ♦ **Epilepsy**
  - Incidence: approximately 45/100,000 per year
  - 45-100 million people worldwide and 2-3 million in U.S.

Etiology

- Head trauma: accident or head injury
- Metabolic disorders
- Brain structure and chemistry: brain tumor, excitatory NT
- Degenerative diseases
- Infection: meningititis, Viral/bacterial Infection
- Prenatal injury: Oxy deficiency during birth, poor nutrition by mother to fetus
- Developmental disorder: associated to autism, brain development, haemorrahage, thrombosis, migrain
- Drug withdrawal
- Drug and chemical abuse: cns stimulant: amphitamine, NE, narcotics
- Other: hot water, physical mental excicise, flickering light, emotional stress, insominia,

Epilepsy - Classification

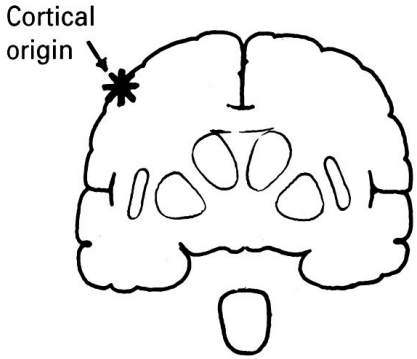


- The modern classification of the epilepsies is based upon the nature of the seizures rather than the presence or absence of an underlying cause.

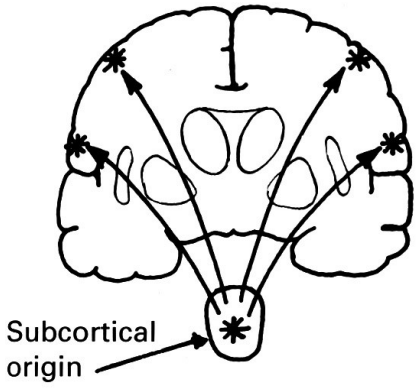
- Focal seizures (partial)
  - •Simple partial seizures (cortical focal epi.)
  - •Complex partial seizures (temporal lobe epi.)
- Generalised seizures
  - •Generalised tonic clonic seizures (grandmal epi.)
  - •Absence seizures (petit mal epi)
  - •Atonic seizures (akinetic epilepsy)

Epilepsy - Classification

- Focal seizures – *account for 80% of adult epilepsies*
  - Simple partial seizures
  - Complex partial seizures
  - Partial seizures secondarilly generalised



- Generalised seizures



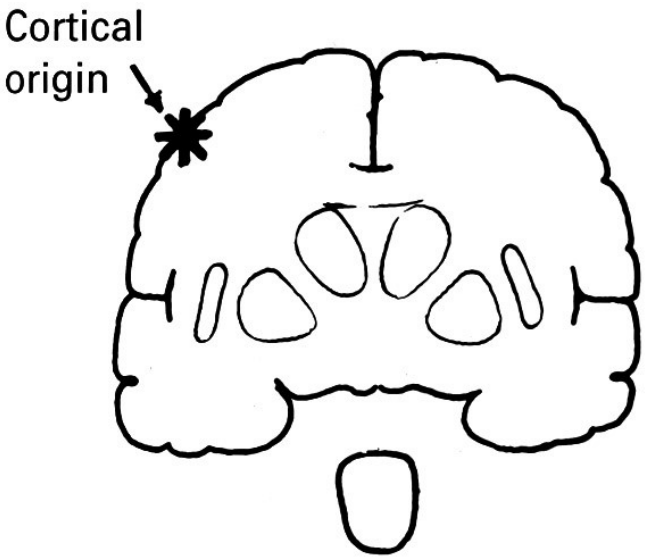
- Unclassified seizures

Focal (partial) seizures

- **Simple** partial seizures last ½ to 1 min

  Motor, sensory, vegetative or psychic symptomato- logy

  Typically consciousness is preserved



Focal (partial) seizures

- **Simple** partial seizures

  Motor, sensory, vegetative or psychic symptomatology

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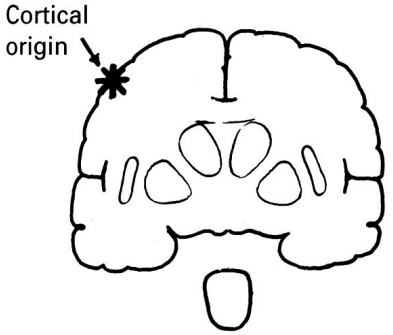
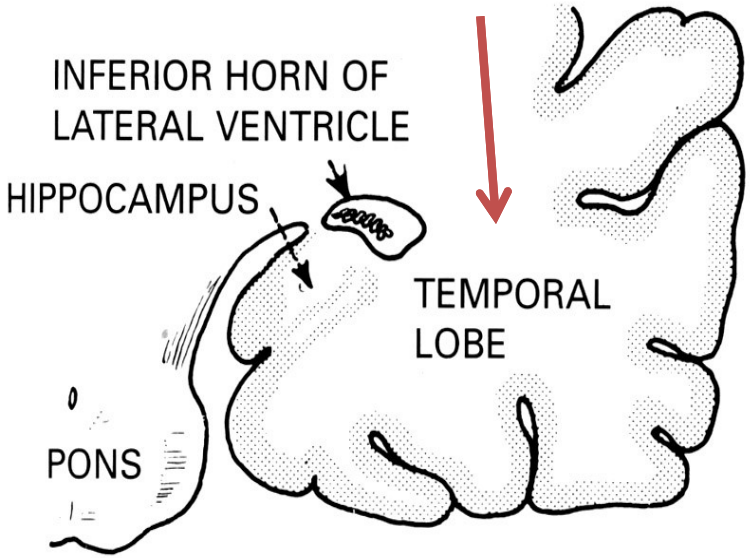


Focal (partial) seizures 1 to 2 min

- **Complex** partial seizures (= psychomotor seizures)

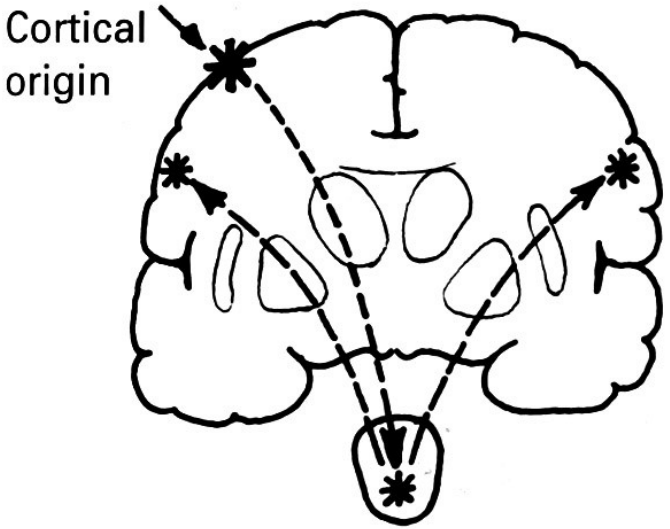
(Temporal lobe epilepsy- Usually originates in TL

Initial subjective feeling (aura), loss of consciousness, abnormal behavior (perioral and hand automatisms)



Generalised tonic/clonic seizures
Grandmal epilepsy

- Partial seizures evolving to tonic/clonic convulsions – secondary generalised tonic/clonic seizures (sGTCS)



Generalised tonic/clonic seizures Grandmal epilepsy

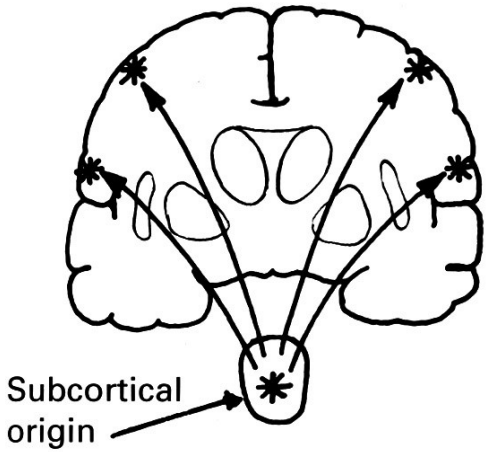
- Major type of epilepsy
- Usual sequence is

First aura-→unconsciousness-→tonic spasm of all part of body muscle-→ clonic jerking followed by→ prolonged sleep and →depression of all cns function.

Generalized seizures

(convulsive or non-convulsive)

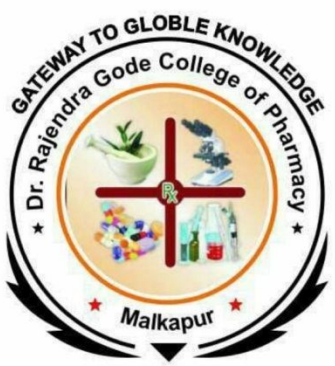
- Absences
- Myoclonic seizures
- Clonic seizures
- Tonic seizures
- Atonic seizures



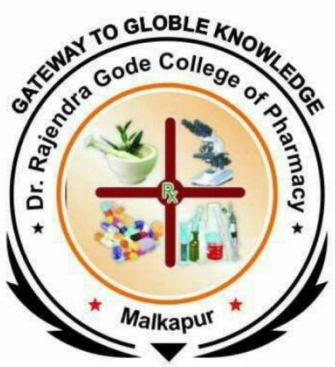
Absences seizures
petit mal epilepsy

- Minor
- Prevalent in children last about ½ min
- Loss of consciousness, patient complete freezes, little bilateral jerking

Atonic seizures



- Akinetic epilepsy
- Unconsciousness with relaxation of all muscle due to excessive discharge of inhibitory neurotransmitter



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Complication

- Degenerative disease
- Vascular malnutrition
- Body jark
- Depression