Cerebral Poisons (Affect the Brain)

Poisons that cause **mental impairment**, **coma**, **or death**.

A. Somniferous Poisons (Opioids, Morphine, etc.)

- 💊 Mnemonic: "MORPHIne Makes People Sleepy"
- Examples: Morphine, Heroin, Codeine, Fentanyl
- Fatal Dose:
- Morphine: 200 mg
- Heroin: 75–100 mg
- <u> Fatal Period</u>: 2–6 hours
- 🔥 Presentation (Triad of Opioid Toxicity):
- Pinpoint pupils (miosis)
- Respiratory depression (main cause of death)
- Coma

🚑 Management:

- Naloxone IV (Opioid antagonist) Repeat if needed
- Airway support & mechanical ventilation
- Activated charcoal (if ingested within 1 hour)

B. Deliriant Poisons (Dhatura, Cannabis, etc.)

- 💀 Mnemonic: "Dhatura's Mad Hallucinations"
- Examples:
- Dhatura (Datura stramonium)
- Belladonna (Atropa belladonna)
- Cannabis (Marijuana, Hashish)

Fatal Dose:

- Dhatura: 10–12 seeds (20–25 mg atropine)
- Belladonna: 10–15 berries
- Fatal Period: 24–48 hours

🔥 Presentation:

- Dry mouth, dilated pupils (mydriasis), hallucinations
- High fever ("Hot as a hare")
- Red, dry skin ("Red as a beet")
- Urinary retention ("Full as a flask")

🚑 Management:

- Physostigmine (antidote) IV
- Benzodiazepines for agitation
- Cold sponging for hyperthermia

C. Inebriant Poisons (Alcohol, Kerosene, etc.)

- 🍷 Mnemonic: "Alcohol Makes Drunks Slur Words"
- Examples:
- Ethanol (Alcohol)

- Methanol (Wood alcohol)
- Kerosene (Hydrocarbon poisoning)

Fatal Dose:

- Ethanol: 300–400 mL (pure alcohol)
- Methanol: 60–100 mL
- Kerosene: 30–50 mL (aspiration leads to death)
- <u> Fatal Period</u>: 12–24 hours

🚹 Presentation:

- Alcohol: Drunkenness, nausea, vomiting
- Methanol: Blindness, metabolic acidosis, Kussmaul breathing
- Kerosene: Aspiration pneumonia, breath smells like petroleum

🚑 Management:

- Ethanol poisoning: IV fluids, supportive care
- Methanol poisoning:
 - Antidote = Ethanol or Fomepizole
 - Sodium bicarbonate for acidosis
 - Hemodialysis if severe
- Kerosene poisoning:
 - Avoid gastric lavage (risk of aspiration pneumonia)
 - Oxygen therapy & bronchodilators

Spinal Poisons (Affect Reflexes & Paralysis

Poisons that **disrupt spinal cord activity** \rightarrow Convulsions or paralysis.

A. Strychnine (Rat Poison) 🐀

- Mnemonic: "STRychnine = STRong convulsions"
- Source: Strychnos nux-vomica seeds
- **Fatal Dose**: 30–50 mg
- <u> Fatal Period</u>: 2–6 hours
- 🚹 Presentation:
- Tonic convulsions triggered by stimuli (light, sound)
- Opisthotonus (body arched backward)
- Risus sardonicus (grinning facial spasm)
- Death due to respiratory failure

🚑 Management:

- Diazepam or Phenobarbital IV (to control seizures)
- Artificial respiration
- Activated charcoal to prevent absorption

B. Curare (Arrow Poison) 🏹

- 💀 Mnemonic: "Curare CUrbs Muscle Contraction"
- Source: Plant-derived alkaloid (South American arrow poison)
- 🛑 Fatal Dose: 100–150 mg
- <u> Fatal Period</u>: 30 min 2 hours

🔥 Presentation:

- Flaccid paralysis (starts from face \rightarrow limbs \rightarrow respiratory muscles)
- Consciousness remains intact
- Respiratory failure

🚑 Management:

- Antidote = Neostigmine (Cholinesterase inhibitor)
- Artificial respiration

C. Conium (Hemlock) 🐹

🌿 Mnemonic: "Socrates' Slow Death"

- Source: Conium maculatum (Hemlock plant)
- **Fatal Dose**: 6–8 leaves
- <u> Fatal Period</u>: 1–3 hours
- 🚹 Presentation:
- Ascending paralysis (Starts from legs → respiratory muscles)
- No pain, but complete loss of movement
- Death due to respiratory failure
- 🚑 Management:
- Artificial respiration
- Supportive care (IV fluids, oxygen therapy)

<u> </u>Forensic Psychiatry Topics 🧠

A. Legal Aspects of Insanity (McNaughton's Rule)

🞅 Mnemonic: "MAD McNaughton Rule"

- Mental disorder must be present
- Act must be due to disease of the mind
- Did not know it was wrong

B. OCD Counseling (Hand-Washing Compulsion)

- 🧴 Mnemonic: "STOP Rituals"
- Slowly reduce hand-washing time
- Teach relaxation techniques
- Offer cognitive therapy
- Provide SSRIs (Fluoxetine, Fluvoxamine)

Final Quick Mnemonic Recap!

🧠 Cerebral Poisons:

- Opioids: "MORPHIne Makes People Sleepy"
- Deliriants: "Dhatura's Mad Hallucinations"
- Inebriants: "Alcohol Makes Drunks Slur Words"

🦴 Spinal Poisons:

- Strychnine: "STRychnine = STRong convulsions"
- Curare: "Curare CUrbs Muscle Contraction"
- Conium: "Socrates' Slow Death"

M Forensic Psychiatry:

- Insanity: "MAD McNaughton Rule"
- OCD: "STOP Rituals"

CNS Tumors (Classification & Histology)

- 💡 Mnemonic: "MAGIC PEN" for Brain Tumors
- Meningioma
- Astrocytoma
- Glioblastoma
- Intramedullary ependymoma
- Craniopharyngioma
- Pituitary adenoma
- Ependymoma
- Neuronal tumors (Medulloblastoma, Neurocytoma)

A. Gliomas (Most common primary CNS tumors)

1. Astrocytoma

- **Types**: Pilocytic astrocytoma (Grade I), Diffuse astrocytoma (Grade II), Anaplastic astrocytoma (Grade III), Glioblastoma (Grade IV)
- Histology:
 - **Pilocytic astrocytoma: Rosenthal fibers** (eosinophilic corkscrew-shaped fibers)
 - Glioblastoma: Pseudopalisading necrosis, high mitotic activity
- Key Feature: Glioblastoma is the most aggressive (Grade IV).

2. Oligodendroglioma

• Histology: "Fried egg" appearance (round nuclei with clear cytoplasm)

• Key Feature: Common in frontal lobes, slow-growing.

3. Ependymoma

- Histology: Perivascular pseudorosettes
- Key Feature: Arises in ventricles, associated with hydrocephalus.

B. Meningiomas (Extra-axial, benign)

- Histology: Whorled pattern with psammoma bodies
- **Key Feature**: Arises from **arachnoid cap cells**, compresses but does not invade brain tissue.

C. Medulloblastoma (Common in children)

- Histology: Homer-Wright rosettes
- **Key Feature**: Highly malignant cerebellar tumor, can cause **drop metastases** to spinal cord.

D. Craniopharyngioma (Suprasellar, derived from Rathke's pouch)

- Histology: Wet keratin, calcifications ("tooth enamel-like")
- Key Feature: Causes bitemporal hemianopia due to optic chiasm compression.

Spinal Cord Lesions (Lesions & Level-wise Presentation)

Mnemonic: "DAMN CORD" for Spinal Cord Lesions

- Dorsal column lesions (Tabes dorsalis)
- Anterior horn lesions (Polio, ALS)
- Mixed lesions (Syringomyelia)
- Neurogenic bladder (Spinal shock, Cauda Equina)
- Corticospinal tract lesions (UMN signs)
- Other tracts (Spinothalamic, Posterior column)
- Radiculopathies (Compression, Herniated disc)
- Demyelination (MS, Subacute Combined Degeneration)

A. Tabes Dorsalis (Dorsal Column Loss, Syphilis)

- Loss of proprioception & vibration sense
- Histology: Degeneration of dorsal columns
- Key Feature: Positive Romberg sign, lancinating pains.

B. Anterior Horn Cell Lesions (Polio, ALS)

- Polio: LMN weakness, flaccid paralysis, hyporeflexia
- ALS: Combined UMN & LMN lesions

C. Syringomyelia (Central Cord Lesion)

- Loss of pain & temperature (cape-like distribution)
- Histology: Fluid-filled cavity in central canal

D. Subacute Combined Degeneration (Vitamin B12 Deficiency)

- Dorsal column + Corticospinal tract degeneration
- Histology: Myelin loss, vacuolization

Meningitis (Bacterial vs Viral vs Fungal)

💡 Mnemonic: "BBC for Meningitis"

- **B**acterial: Neutrophils, ↓ glucose, ↑ protein
- Viral: Lymphocytes, normal glucose, ↑ protein
- Fungal/TB: Lymphocytes, ↓ glucose, ↑ protein

Common Causes by Age

- Neonates: Group B Streptococcus, E. coli, Listeria
- Children: S. pneumoniae, N. meningitidis
- Adults: S. pneumoniae, N. meningitidis
- Elderly: S. pneumoniae, Listeria

Cerebrovascular Disease (Stroke Types & Features)

- 💡 Mnemonic: "THROB" for Stroke Types
- Thrombotic (Atherosclerosis)
- Hemorrhagic (Ruptured aneurysm)
- Related to embolism (AFib, Carotid plaque)
- Other causes (Venous infarcts)
- Basilar artery occlusion (Locked-in syndrome)

Ischemic vs Hemorrhagic Stroke

- Ischemic: Pale infarcts, liquefactive necrosis
- Hemorrhagic: Hypertension, Charcot-Bouchard aneurysms



- Concussion: Transient LOC, no structural damage
- Contusion: Coup & contrecoup injury
- Diffuse Axonal Injury: Shearing of white matter tracts

Demyelinating Disorders (MS, ADEM, PML)

💡 Mnemonic: "Myelin Gone"

- Multiple Sclerosis
- Acute Disseminated Encephalomyelitis (ADEM)
- Progressive Multifocal Leukoencephalopathy (PML)

Multiple Sclerosis (MS)

- Histology: Periventricular plaques, oligodendrocyte loss
- Clinical: Relapsing-remitting, optic neuritis, internuclear ophthalmoplegia
- CSF: Oligoclonal bands

🔟 Dementia & Degenerative Disorders

- 💡 Mnemonic: "AD, PD, HD"
- Alzheimer's Disease (AD)
- Parkinson's Disease (PD)

• Huntington's Disease (HD)

A. Alzheimer's Disease

- Histology: Neurofibrillary tangles, β-amyloid plaques
- Key Feature: Progressive memory loss

B. Parkinson's Disease

- Histology: Lewy bodies (α-synuclein inclusions)
- Key Feature: Bradykinesia, rigidity, resting tremor

C. Huntington's Disease

- Histology: Caudate atrophy, intranuclear inclusions
- Key Feature: Chorea, psychiatric symptoms

Final Mnemonic Recap 🎯

- 🧠 CNS Tumors: "MAGIC PEN"
- Spinal Cord Lesions: "DAMN CORD"
- 🔬 Meningitis: "BBC"
- Stroke Types: "THROB"
- 💀 Demyelination: "Myelin Gone"
- 🧓 Dementia: "AD, PD, HD"