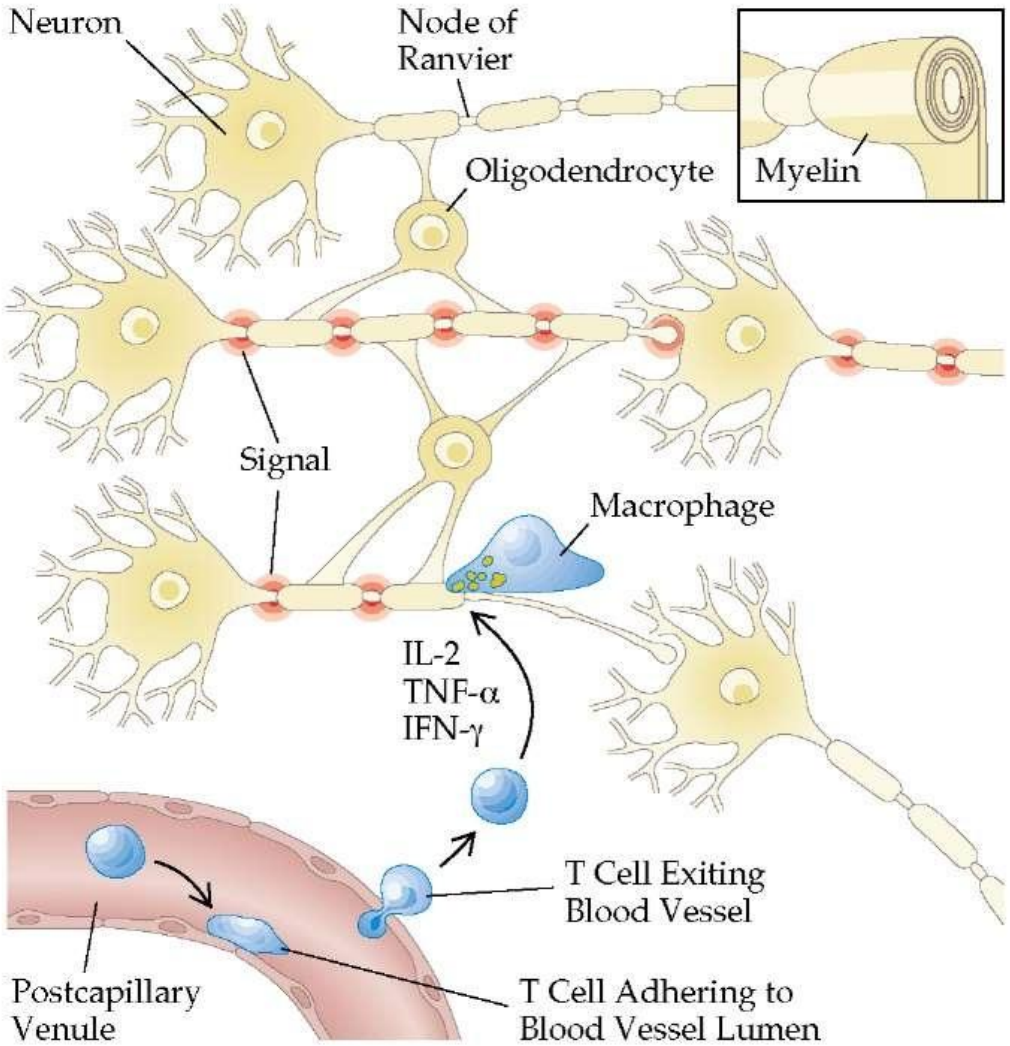
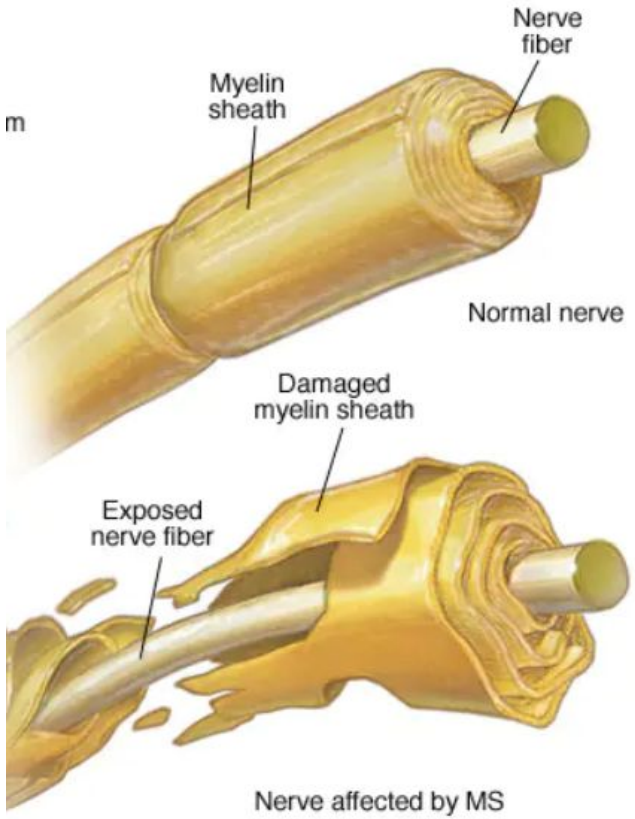
NEUROLOGY

MS, meningitis, encephalitis, incranial & cerebral abscesses, neurosyphilis, CJD

MULTIPLY SCLEROSIS



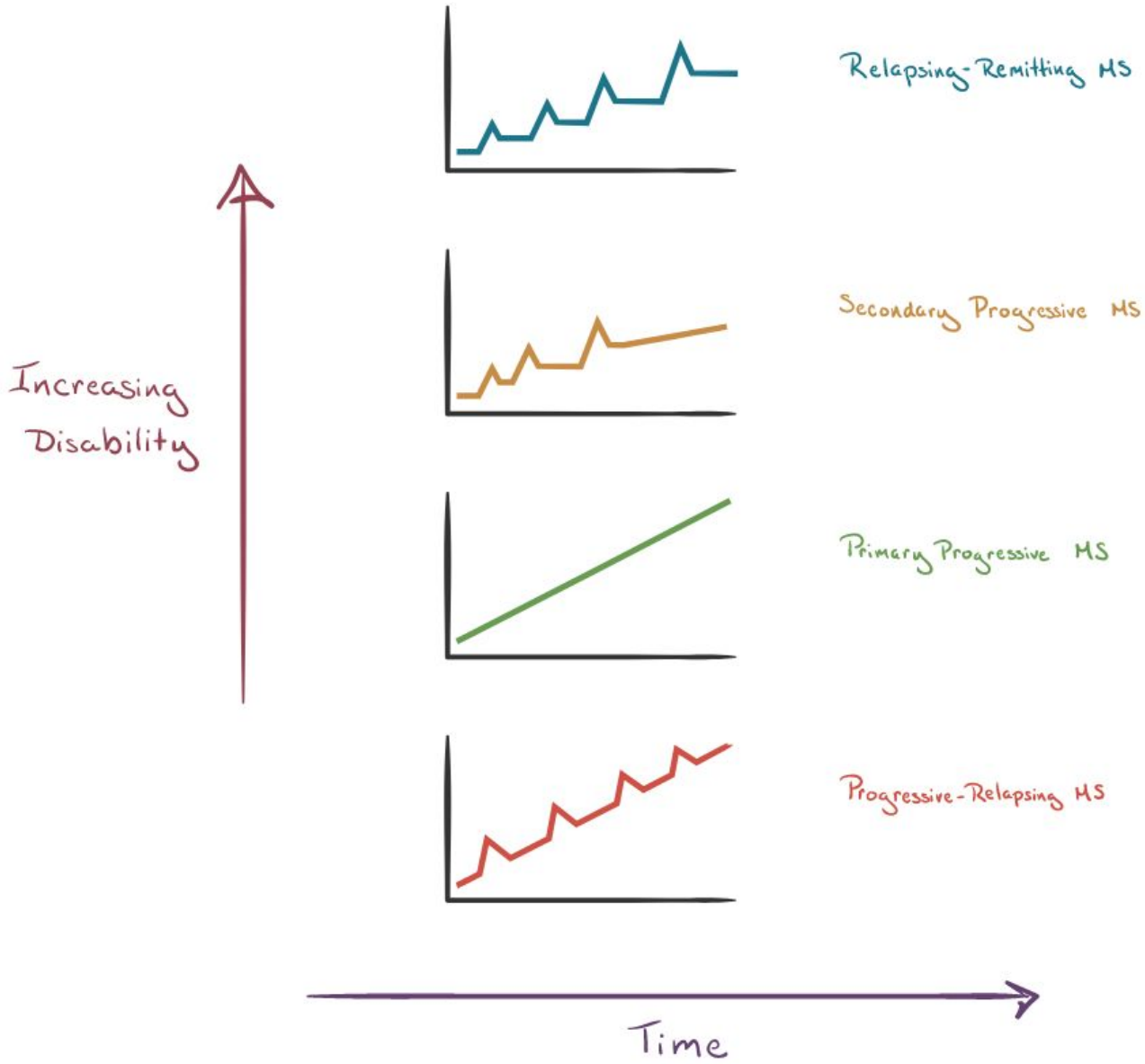


MULTIPLY SCLEROS

Cause is unknown

It’s linked to:

- Genetic: female (20-40 years); genes encoding for HLA-DR2
- Infections
- Vitamin D deficiancy



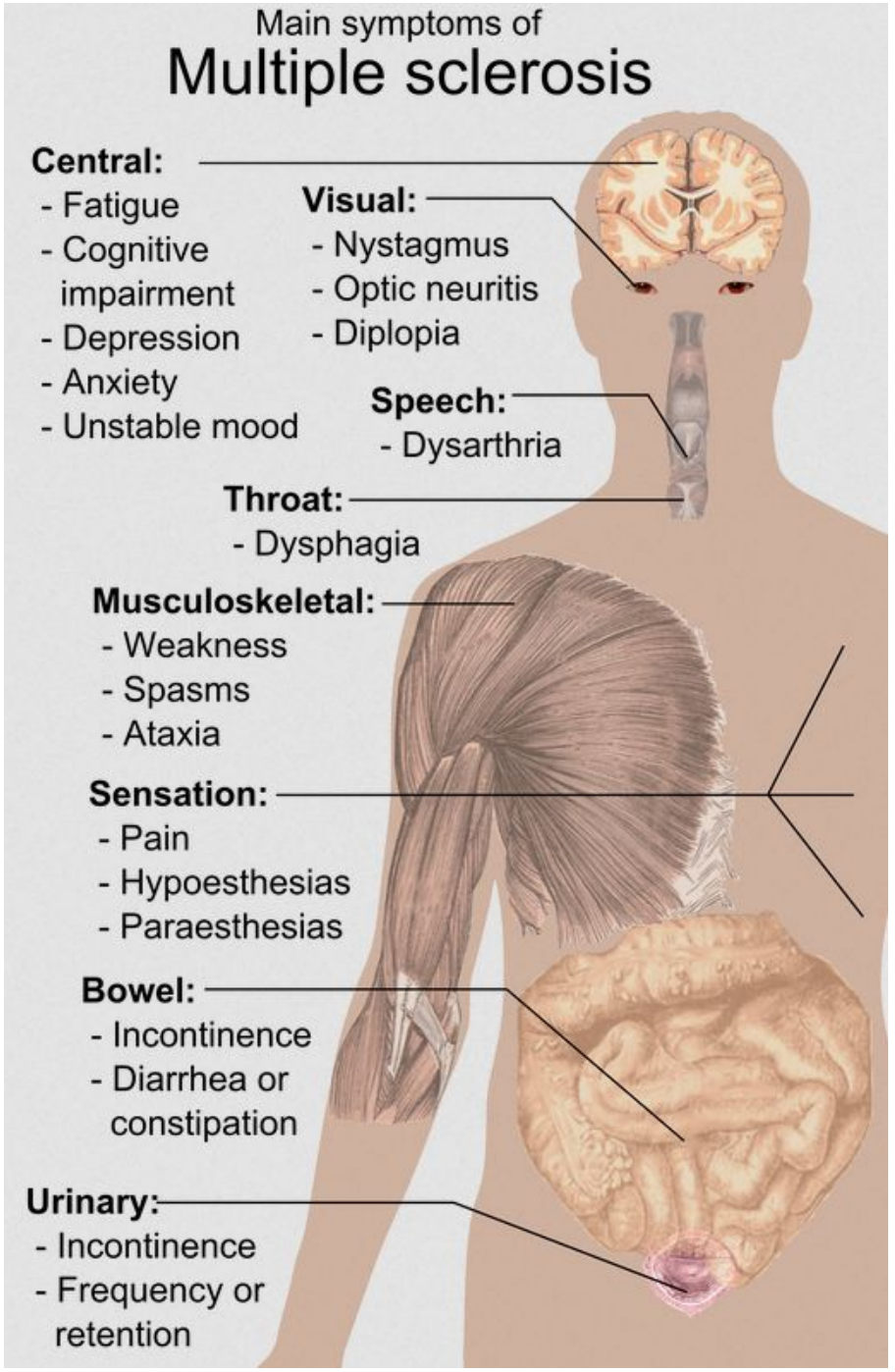
MULTIPLY SCLEROSIS

Charcot's neurologic triad

- Dysarthria
- Nystagmus
- Intension tremor

Specific signs:

- Uhthoff's sign
- Lhermitte's sign



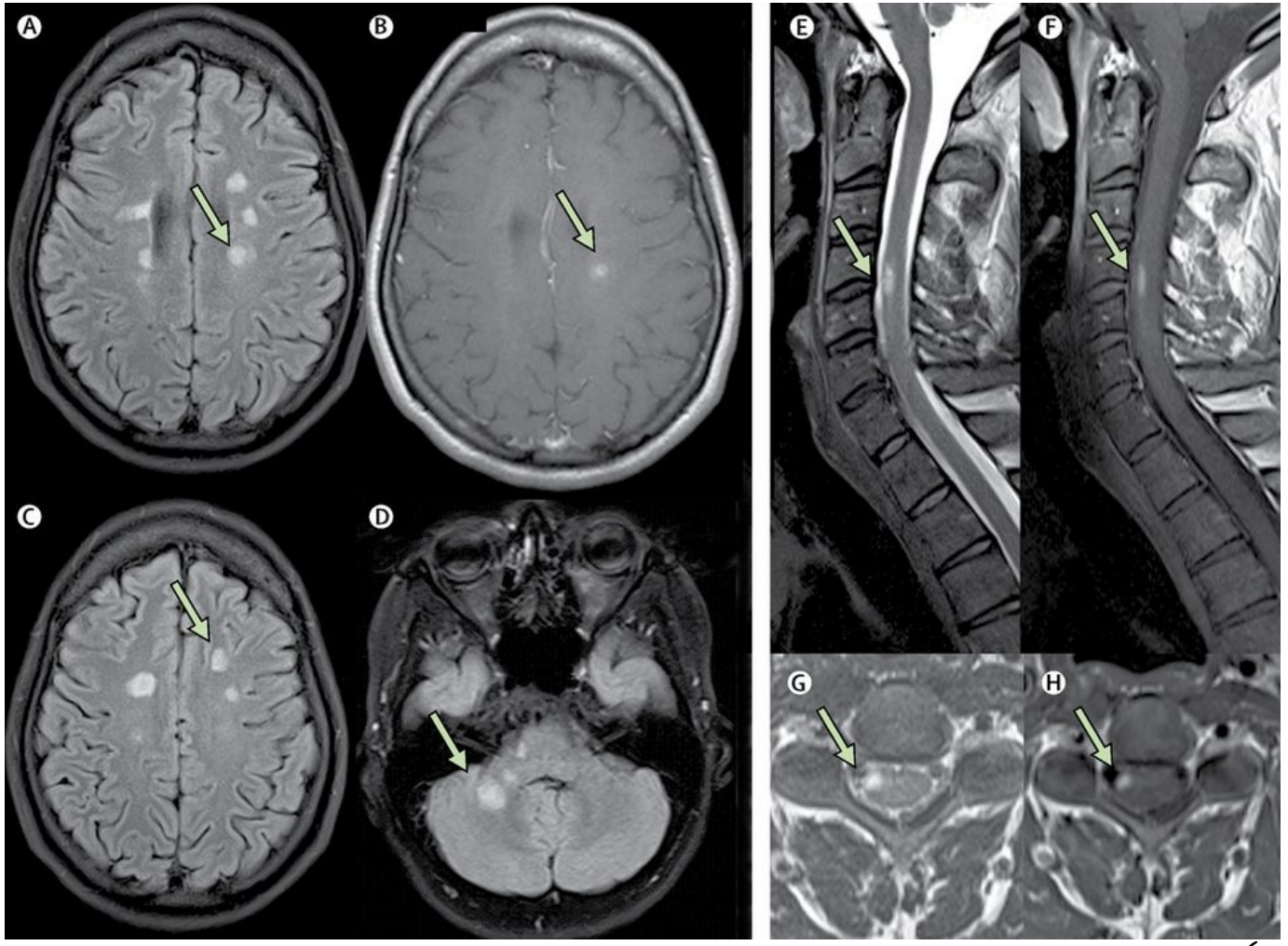
LHERMITTE'S SIGN

Electric shock sensation which occurs with neck flexion and often radiates down the spine

MULTIPLY SCLEROSIS

Diagnosis

- MRI
- Cerebrospinal fluid
- Visual evoked potential



MULTIPLY SCLEROSIS

Treatment

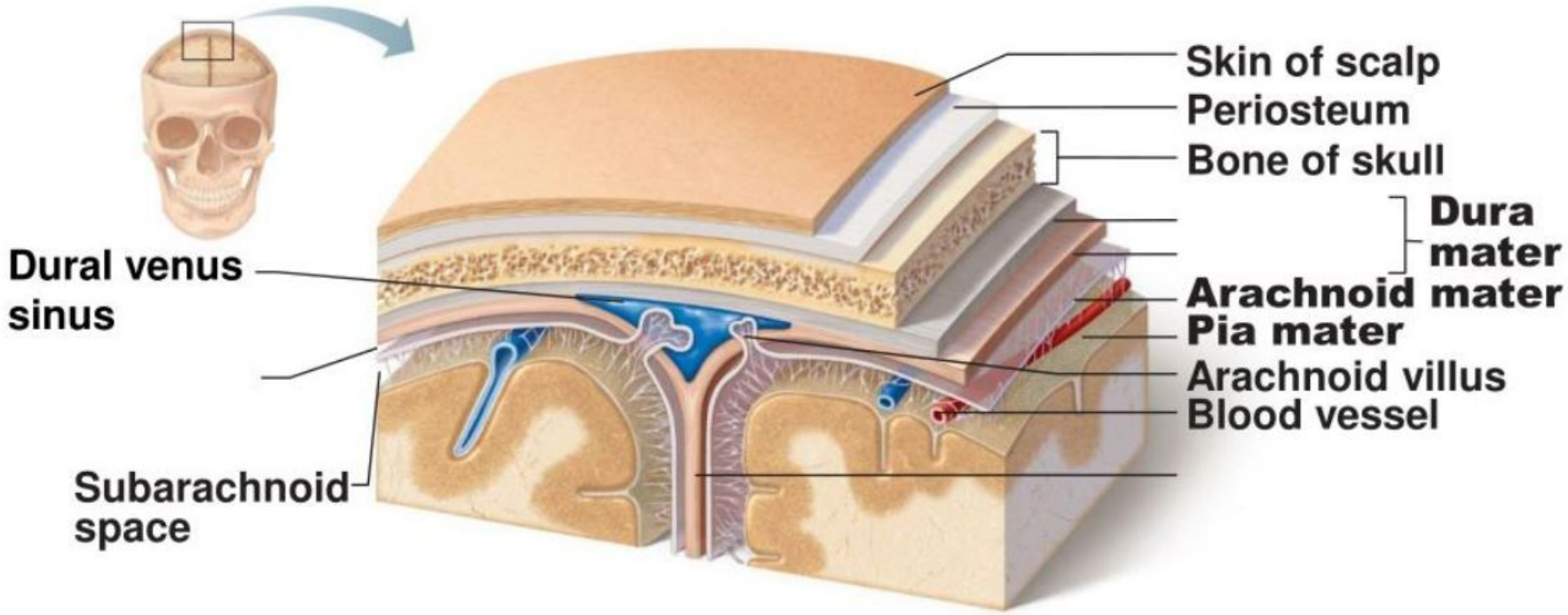
RRMS

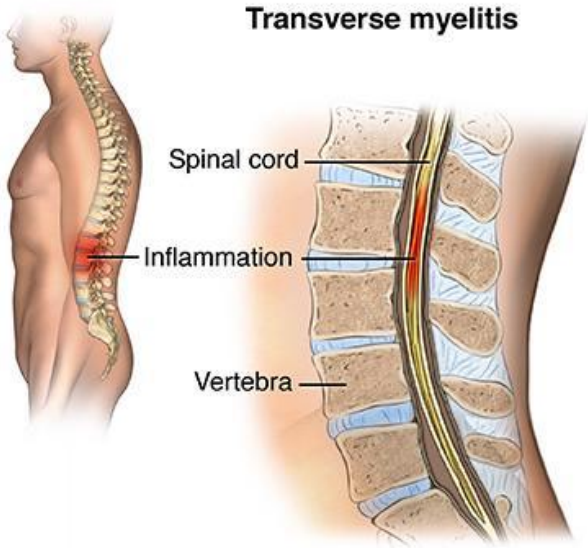
- Corticosteroids, cyclophosphamide, intravenous immunoglobulin
- Plasmapheresis
- Immunosuppressant: recombinant b-IFN

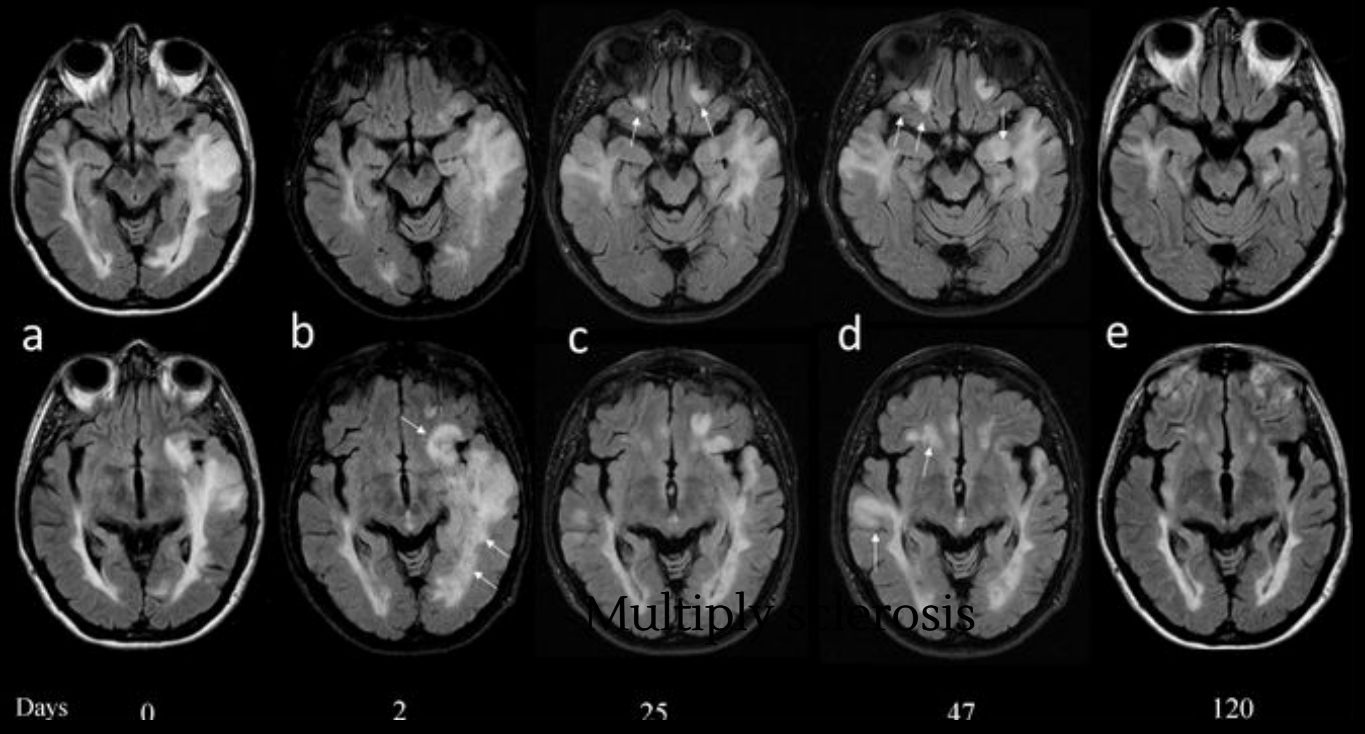
Progressive MS

- Manage symptoms
- Physical therapy
- Cognitive rehabilitation therapy

MENINGITIS
ENCEPHALITIS
MYELITIS







ENCEPHALITIS
MYELITIS

MENINGITIS

Inflammation triggers

- Autoimmune disease
- Adverse reaction to medication
- Infection

Two ways of spreading

Direct spread

- Through overlying skin
- Up through nose
- Anatomical defect

Hematogenous spread

- Through binding to surface receptor
- Areas of damage
- Vulnerable spot

CAUSES

Bacteria

- Newborns: group B streptococci, E coli, Listeria monocytogenes
- Children and teens: Neisseria meningitidis, Streptococcus pneumonia
- Adults and elderly: Streptococcus pneumonia, Listeria monocytogenes

Tick-borne: Borrelia burgdorferi

Viruses:

- Enteroviruses, Herpes simplex, HIV
- Mumps, Varicella zoster, Lymphocytic Choriomeningitis

Fungi: Cryptococcus genuses, Coccidioides genuses

Tubercular meningitis

Parasitic cause: Plasmodium falciparum

SYMPTOMS

Meningitis

Headache, fever, nuchal rigidity

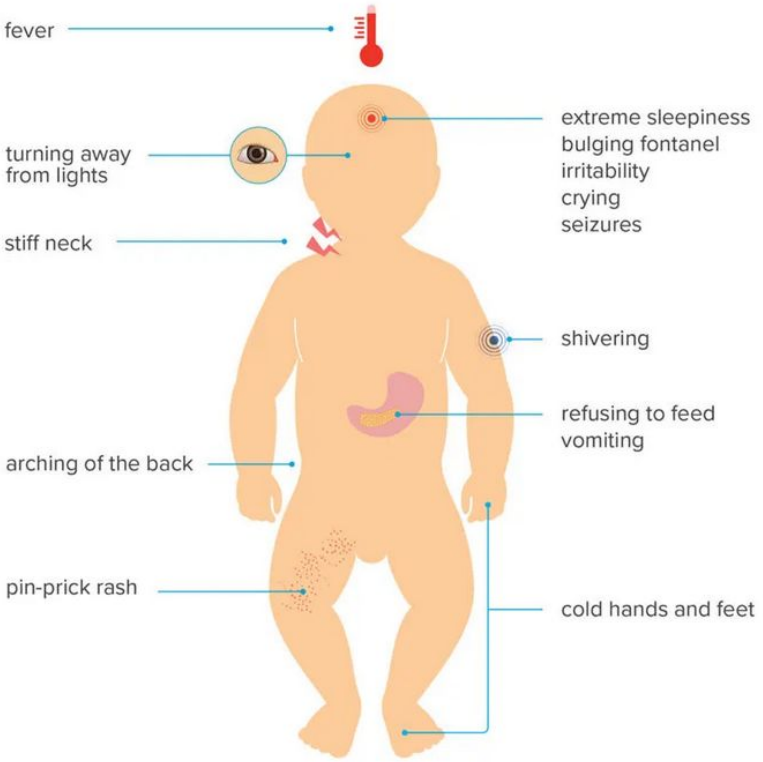
Photophobia and phonophobia

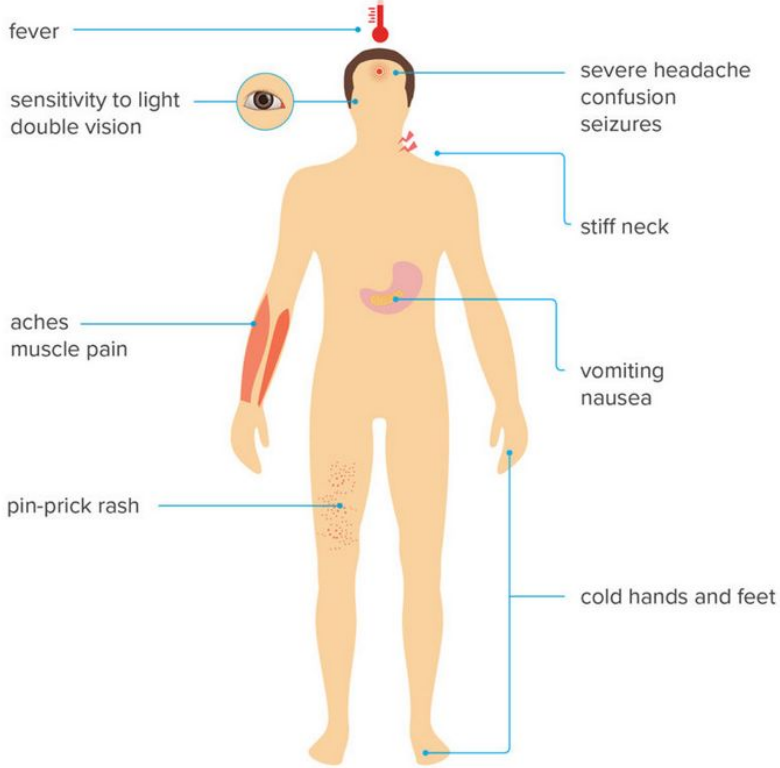
Encephalitis

Fever, altered mental status, seizure or focal neurologic symptoms

Myelitis

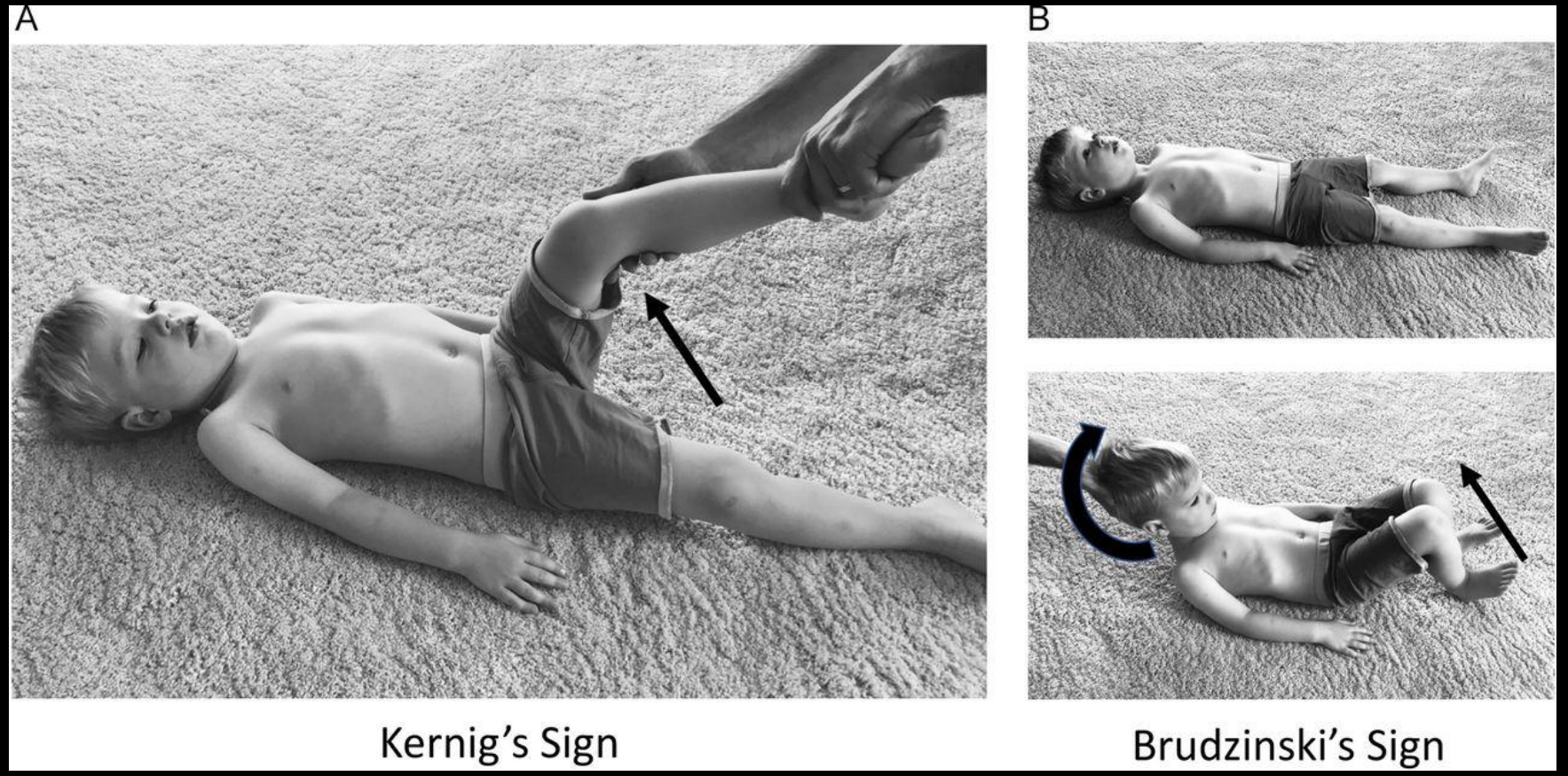
Flaccid paralysis and sensory loss





DIAGNOSIS

OF MENINGITIS



DIAGNOSIS

Lumbar puncture

PCR

Western blot

Thin blood swear

Etiology	Glucose	Protein	White Cell Count	Gram Stain	Bacterial Culture
Bacterial meningitis	Low	High	>100; ↑ PMN	+	+
Aseptic meningitis	Low/NL	NL/High	> NL; variable	-	-
Pre-treated bacterial meningitis	Low	NL/High	>100; ↑ PMN	-	-
Viral meningitis	NL	NL/High	>10-100's; ↑PMN (early) ↑ Lymphs (late)	-	-
Encephalitis	NL	NL	> NL	-	-

TREATMENT

Bacterial: Steroids and antibiotics

Antivirals, antibacterial, antifungals, antiparasitic

Prevention vaccine: Neisseria Meningitidis, Disseminated tuberculosis

BRAIN ABSCESS

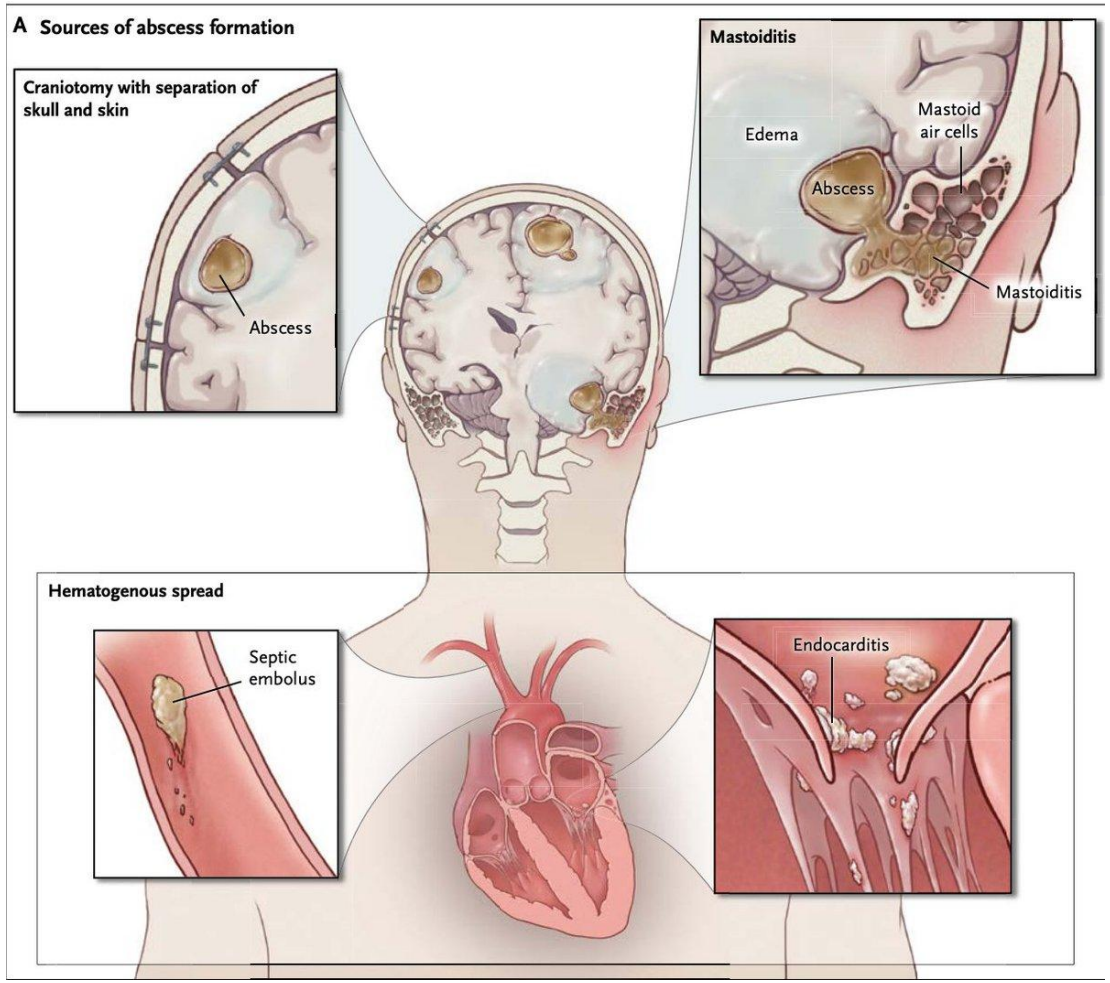
Direct spread

Cause a single brain abscess

Primary infection include:

- Subacute and chronic otitis media and mastoiditis (the inferior temporal lobe and cerebellum)
- Frontal or ethmoid sinuses and dental infection

  (the frontal lobe)



BRAIN ABSCESS

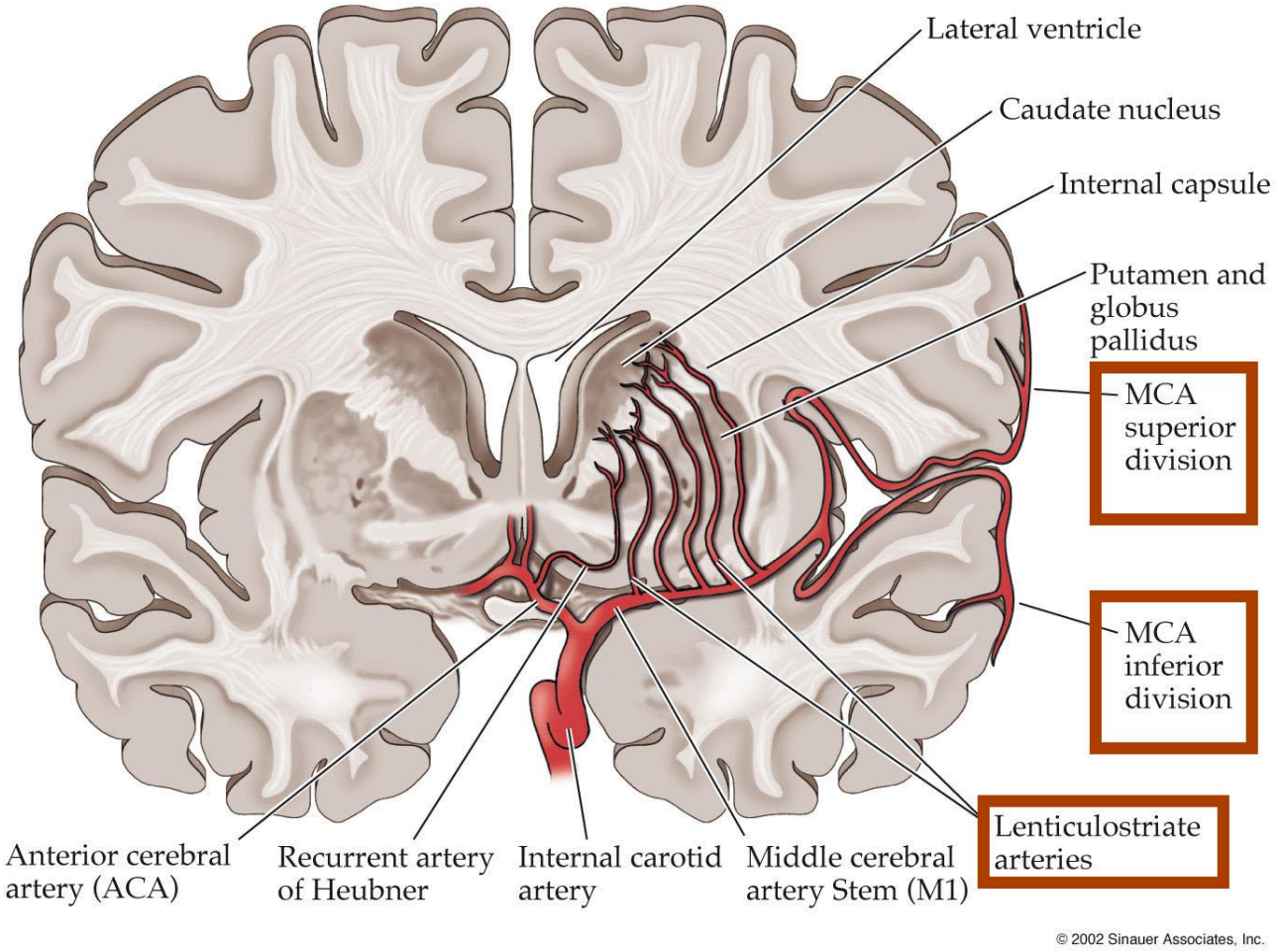
Hematogenous spread

Usually multiply abscess

Most commonly located in the distribution of the middle cerebral artery

Sources:

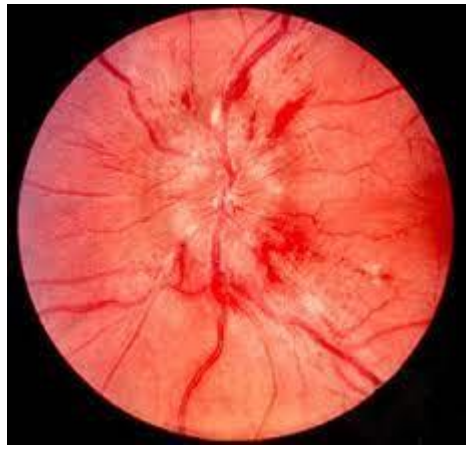
Skin infection, pelvic infection, intraabdominal infection, esophageal dilation, bacterial endocarditis, cyanotic congenital heart disease



BRAIN ABSCESS

Symptoms

- A headache (69% to 70%)
- Mental status changes (65%) lethargy progressing to coma is indicative of severe cerebral edema
- Focal neurologic deficits (50% to 65%)
- Fever (45% to 53%)
- Seizures (25% to 35%).
- Nausea and vomiting (40%)
- Nuchal rigidity (15%)

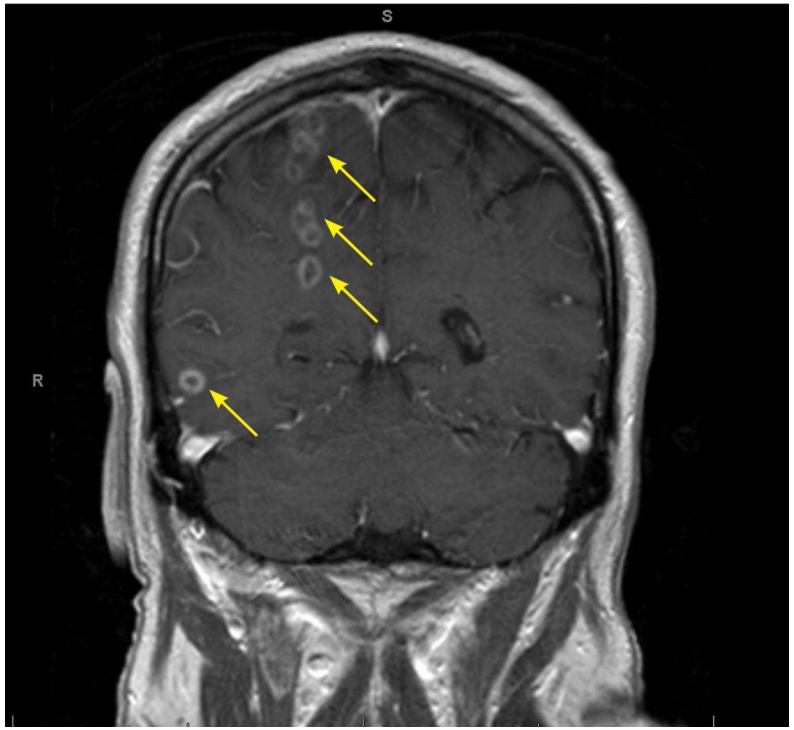


Diagnosis

Clinical: focal symptoms and signs

Papilledema

MRI



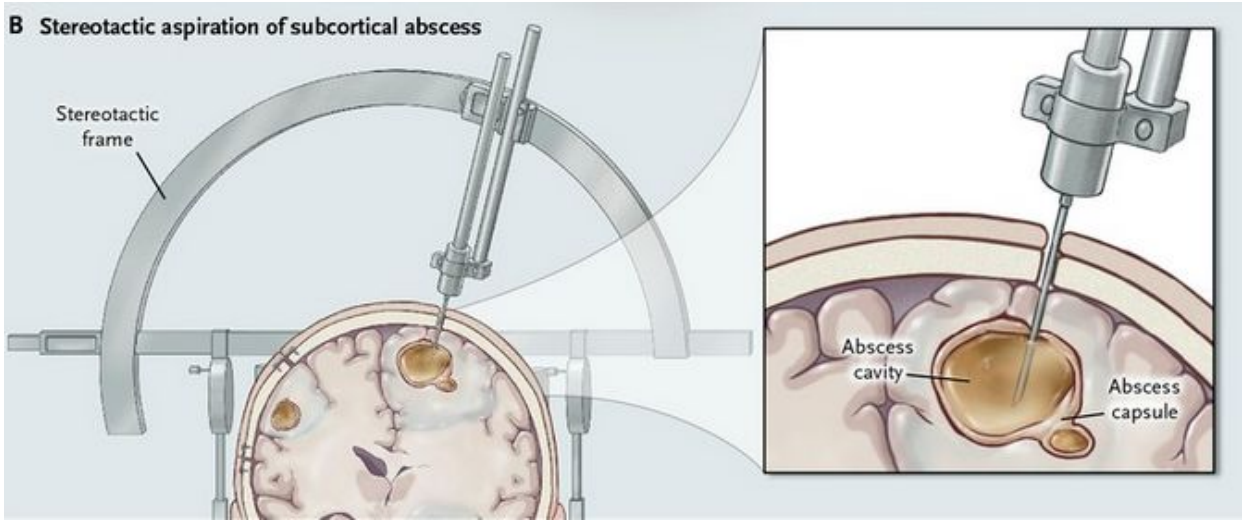
BRAIN ABSCESS

Treatment

- IV antibiotic: PenG + Chloramphenicol or Metronidazole

For MSSA: Nafcillin or Oxacillin

- Surgery
- Aspiration
- Glucocorticoids: dexamethasone

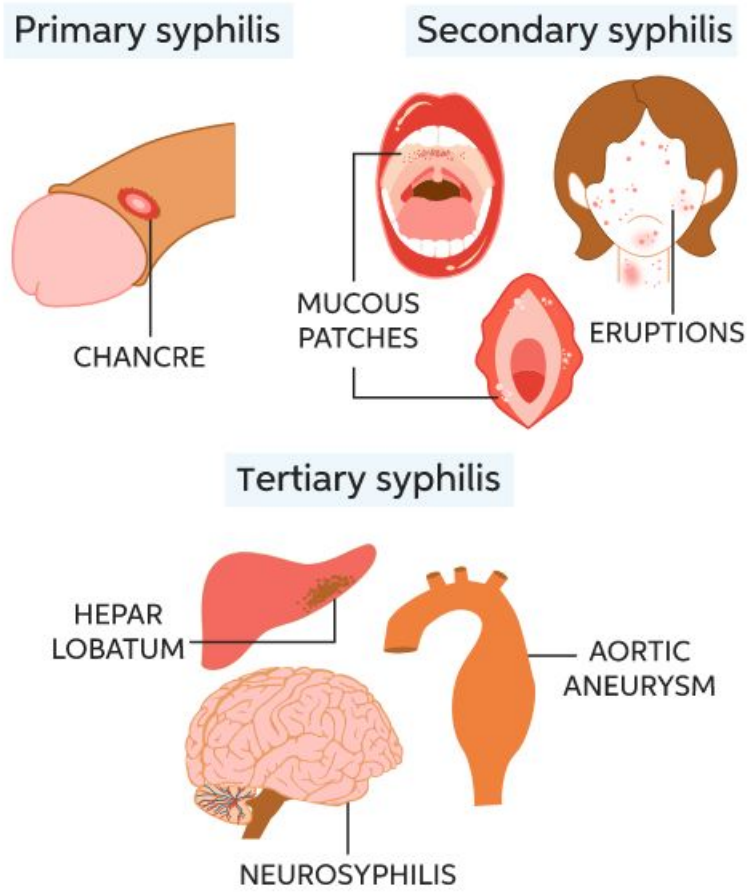


NEUROSYPHILIS

Neurosyphilis is caused by *Treponema pallidum*

There are different forms of neurosyphilis:

- asymptomatic neurosyphilis
- meningeal neurosyphilis
- meningovascular neurosyphilis
- general paresis
- tabes dorsalis



NEUROSIPHYLIS

Early

- Asymptomatic neurosyphilis
- Acute symptomatic syphilitic meningitis: nausea, vomiting, headache, CN 2,4-8 abnormalizes
- Meningovascular syphilis

5-6 years after infection

Focal neurologic signs, vasculitis, stroke, transverse myelitis

Late

- Dementia paralytica

10-20 years after infection

Slow cognitive decline, weakness, tremor, pupillary abnormalities, bowel-bladder incontinence

- Tabes dorsalis

15-20 years after infection

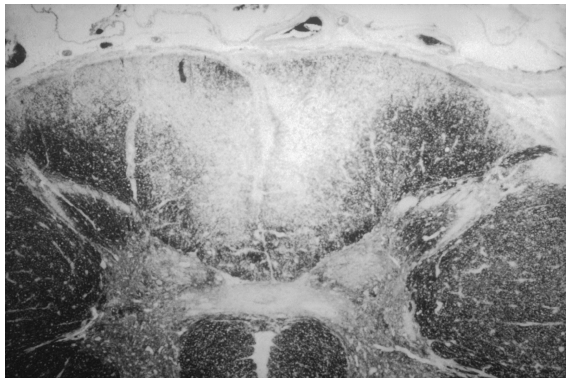
Radicular paresthesia, “thunder bolt” pain in limbs, back or face; broad-based, foot-slapping gain, loss of reflexes in lower limbs, Argyll-Robertson pupils

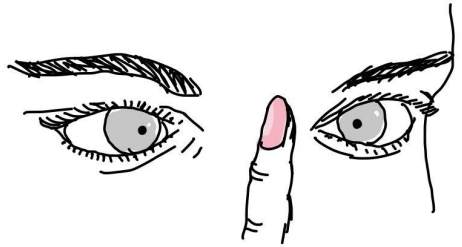
NEUROSYPHILIS

Tabes Dorsalis morphology:

Dorsal column degeneration
Orthopedic pain (Charcot joints)
Reflexes decreased (deep tendon)
Shooting pain
Argyll-Robertson pupils
Locomotor ataxia
Impaired proprioception
Syphilis

Pupils DO **NOT** constrict when exposed to bright light. (“light reflex”)





Pupils DO constrict on a near object. (“accommodation reflex”)

NEUROSYPHILIS

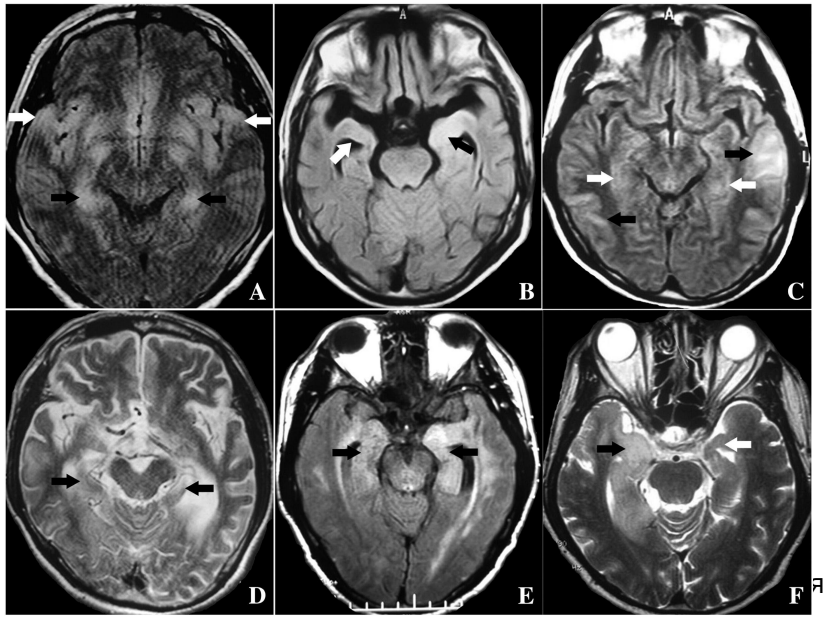
Diagnosis

- Serum nontreponemal tests : RPR, VDRL

Nonreactive in late neurosyphilis

- Serum treponemal test: FTA-ABS, TPA or syphilis EIA
- LP: lymphpcytic pleocytosis

, high protein, low or NM glucose, reactive csf-VDRL



NEUROSYPHILIS

Treatment

- Aqueous crystalline penicillin G (18 to 24 million units per day, administered as 3 to 4 million units intravenous every four hours, or 18 to 24 million units daily as a continuous infusion) for 10 to 14 days, or

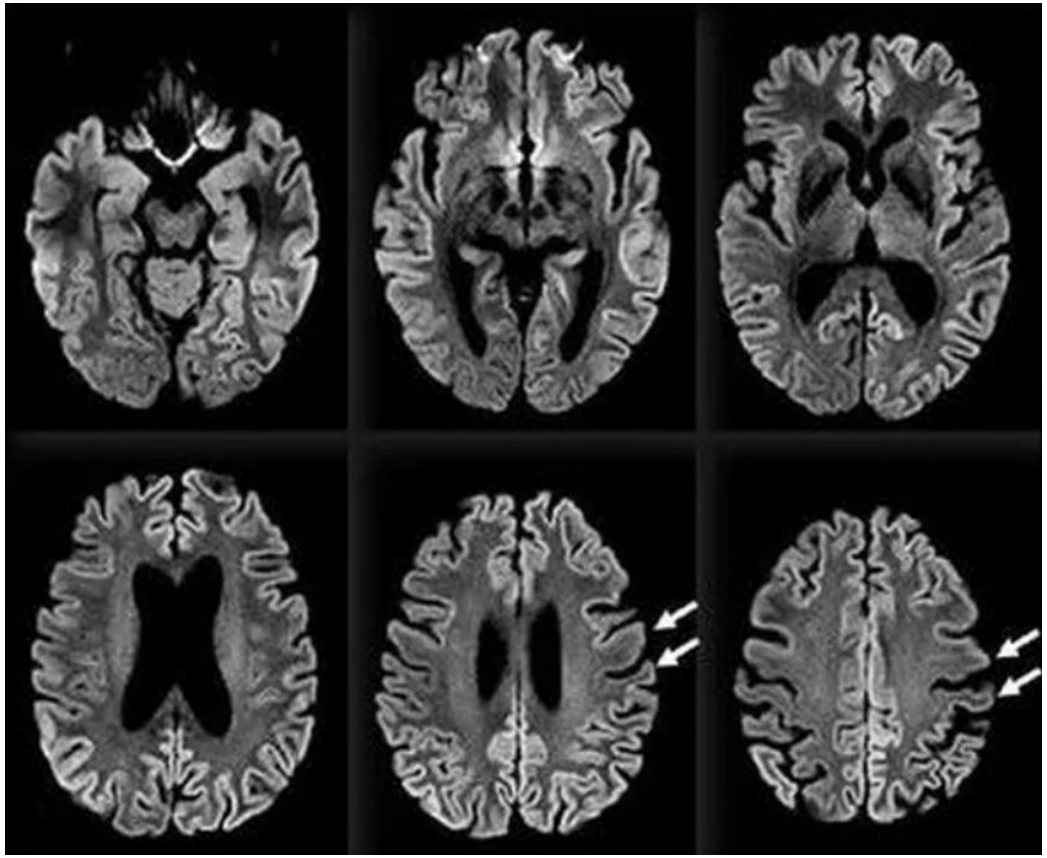
- Procaine penicillin G (2.4 million units intramuscular [IM] once daily) plus probenecid (500 mg orally four times a day), both for 10 to 14 days

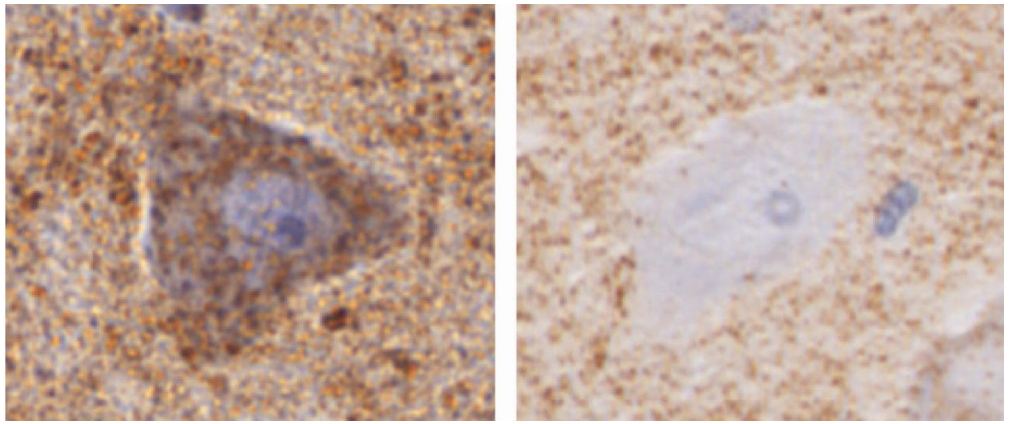
- Ceftriaxone 2 g IV daily 10-12 days

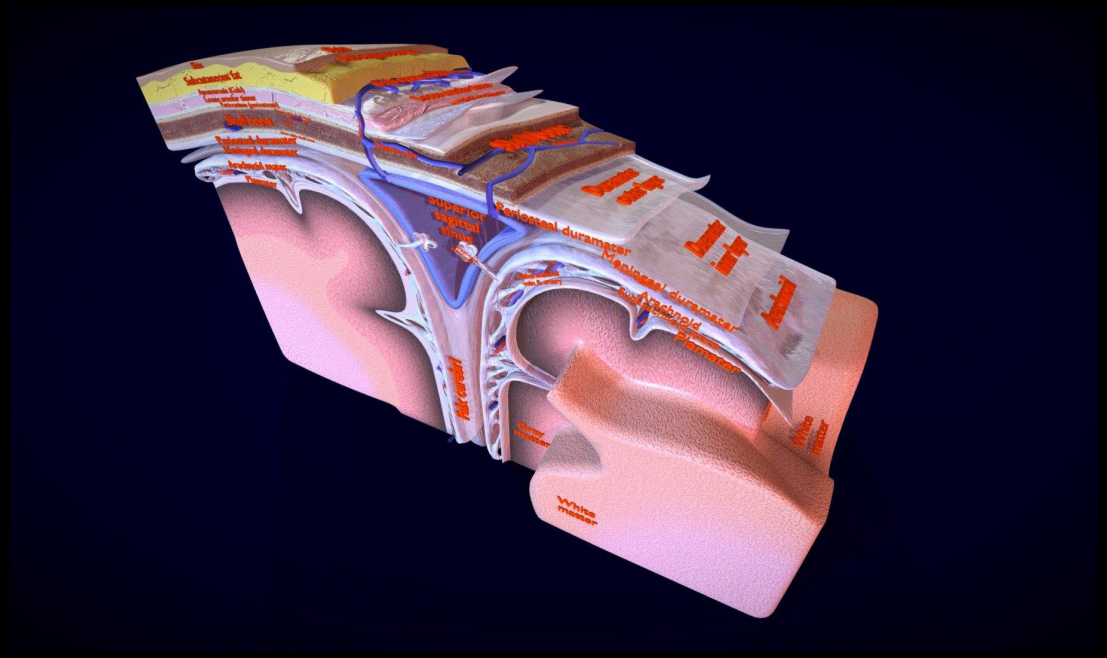
CREUTZFELDT-JAKOB DISEASE

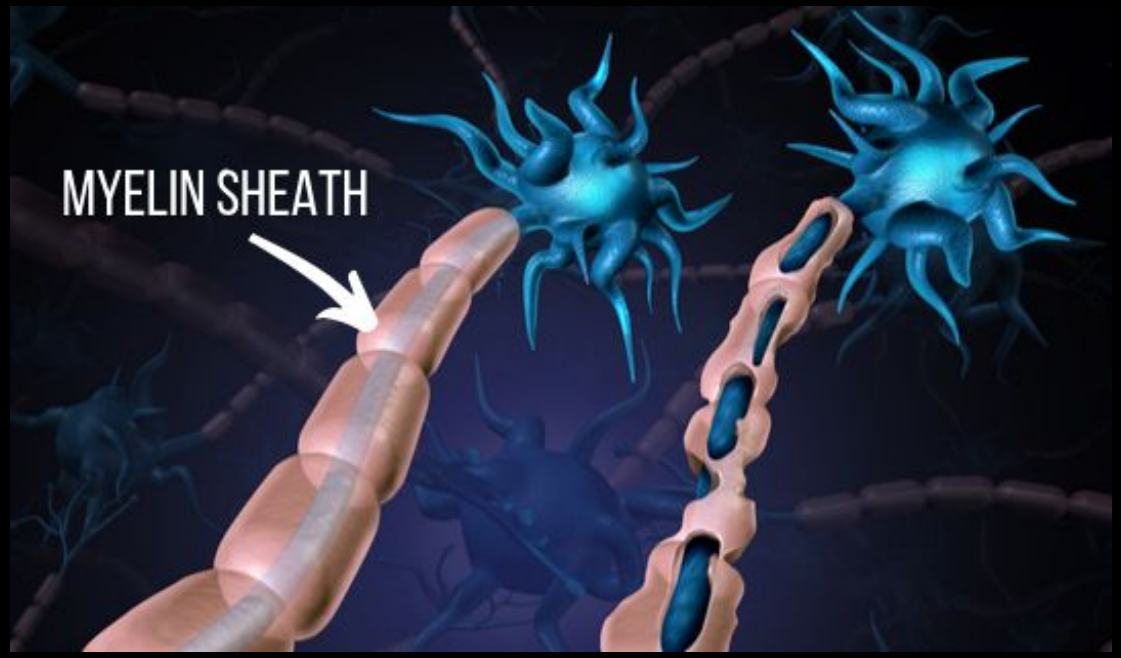
- CJD is a neurodegenerative disease with a rapid onset characterized by progressive dementia, myoclonus and also cerebellar, pyramidal and extrapyramidal signs.
- Abnormal prion protein accumulate in the brain and it can cause irreversible damage. It lead to brain atrophy or wasting; cytoplasmic vacuoles in neurons and astrocytes
- Symptoms: fatigue, sleep problems, reduces appetite; dementia, behavior changes and confusion; cerebellar ataxia, aphasia, visual disturbances and motor weakness
- Diagnostic: exclude infection and toxicity. Brain biopsy
- Treatment: no cure

CREUTZFELDT-JAKOB DISEASE









THANK YOU