


MENINGITIS

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Pachimeningitis



Epidural

serous or suppurative

Subdural (Haemorrhagic Internal P.)

Cervical Hypertrophic P.

Leptomeningitis

Acute (serous, fibrinous, suppurative) or Chronic

Non-specific or specific

Viral, Bacterial, Mycotic, Protozoarian

Subdural Pachimeningitis



Internal Haemorrhagic Pachimeningitis

Site: Dura mater – Inner aspect - Parietal

Etiology: Unkonwn

Associated with cardiovascular, renal, liver diseases,
intoxications

Gross: Rusty-red membranes, 2-3 cm thick

Micro: Capillary proliferation

Haemorrhagic lacunae

Fibrous deposition

Macrophages, lymphocytes, fibroblasts

Pathogenesis: Inflammatory? Traumatic?

Cervical Hypertrophic Pachimeningitis

Specific inflammatory lesion of syphilitic nature

Site: Cervical spine, dura mater with leptomeningeal involvement

Gross: Thick necrotic-fibrous membrane

Adherent to the spine and to the posterior vertebral ligament

Evolution: Reduced venous outflow with congestion

Spinal cord atrophy

Froin Syndrome: Subarachnoidal obliteration

Xanthochromic fluid accumulation

LEPTOMENINGITIS

Acute Serous

Suppurative

Serous acute meningitis

Viral Epidemic Parotitis

Measles

Infectious mononucleosis

Herpes Zoster

Influenza

Viral hepatitis

Coriomeningeal virus

Toxic endogenous uraemia, coma

exogenous As, Pb

Sunstroke → meningism

Heatstroke → “ “

ACUTE SEROUS LEPTOMENINGITIS

Dusty appearance, congestion

Serous fluid accumulation

Scattered lymphocytes

Good prognosis with complete healing



SUPPURATIVE MENINGITIS

Etiology

Meningococcus

Pneumococcus

Staphylococcus

Streptococcus

Haemophilus Influenzae

Salmonellae

Actinomyces

Fungi (necrotizing) →

Cryptococcus

Candida albicans

Aspergillum

Mucormycosis

Penetration

Haematogenous → from suppurative foci located elsewhere

lungs

endometrium

intestines

Contiguity → middle ear

mastoid sinisuses

nasal & maxillary sinuses

Direct → skull traumas

Gross: suppurative exudate in the cranial vault **“green cap”**

Meningococcal Meningitis

Cerebro-spinal, suppurative, epidemic leptomeningitis

Age: *Infantile/juvenile*

Sporadic / epidemic

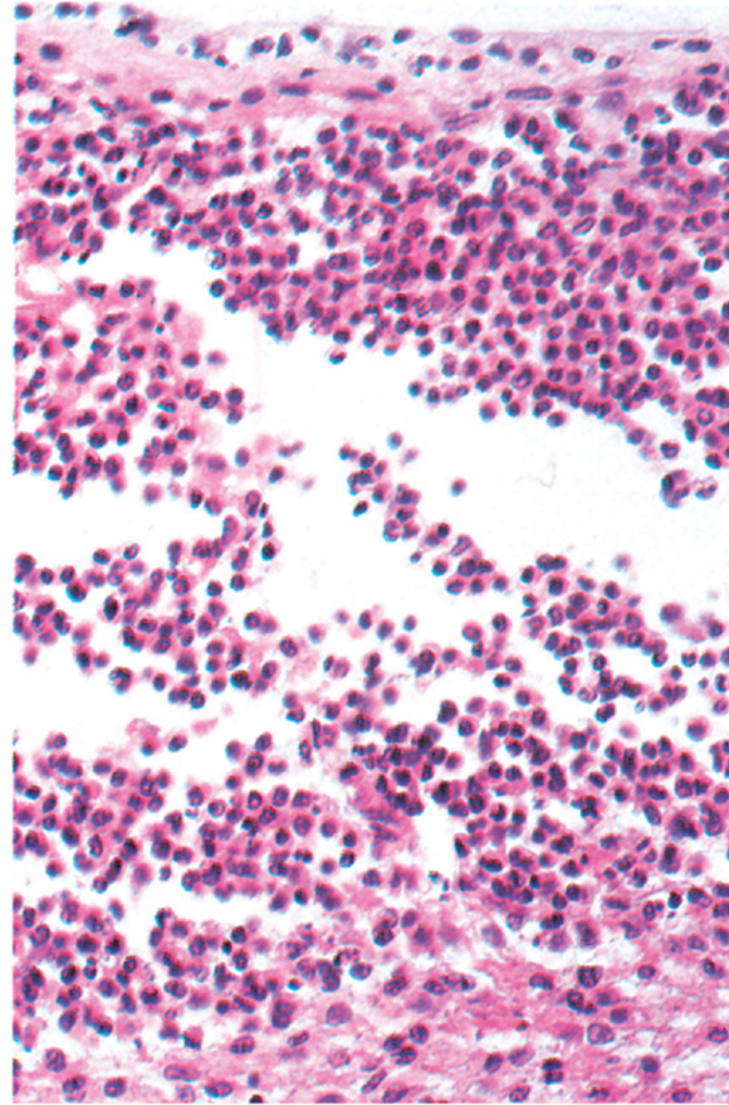
Highly contagious (schools, barracks)

Diplococcus Meningitidis: *intracellular, Gram –*

Hosted in the rhinopharynx of 3% normal adults



A



B

Meningococcal Meningitis

Penetration

Direct → through the lamina cribrosa

Nasopharynx

Haematogenous

Septic fever

Skin haemorrhages

Waterhouse-Friderichsen syndrome

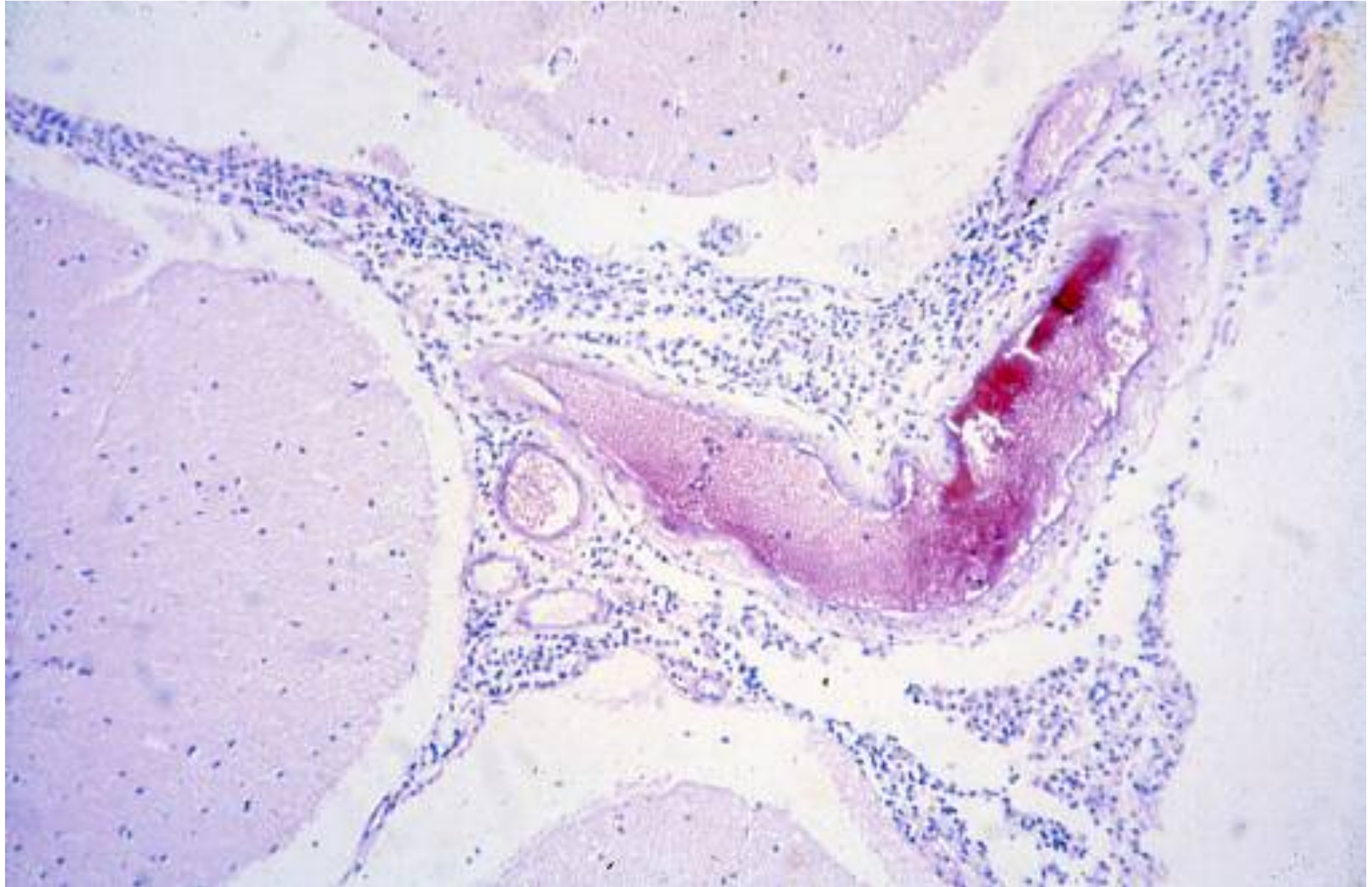
(bilateral adrenal haemorrhage with hyposurrealism)

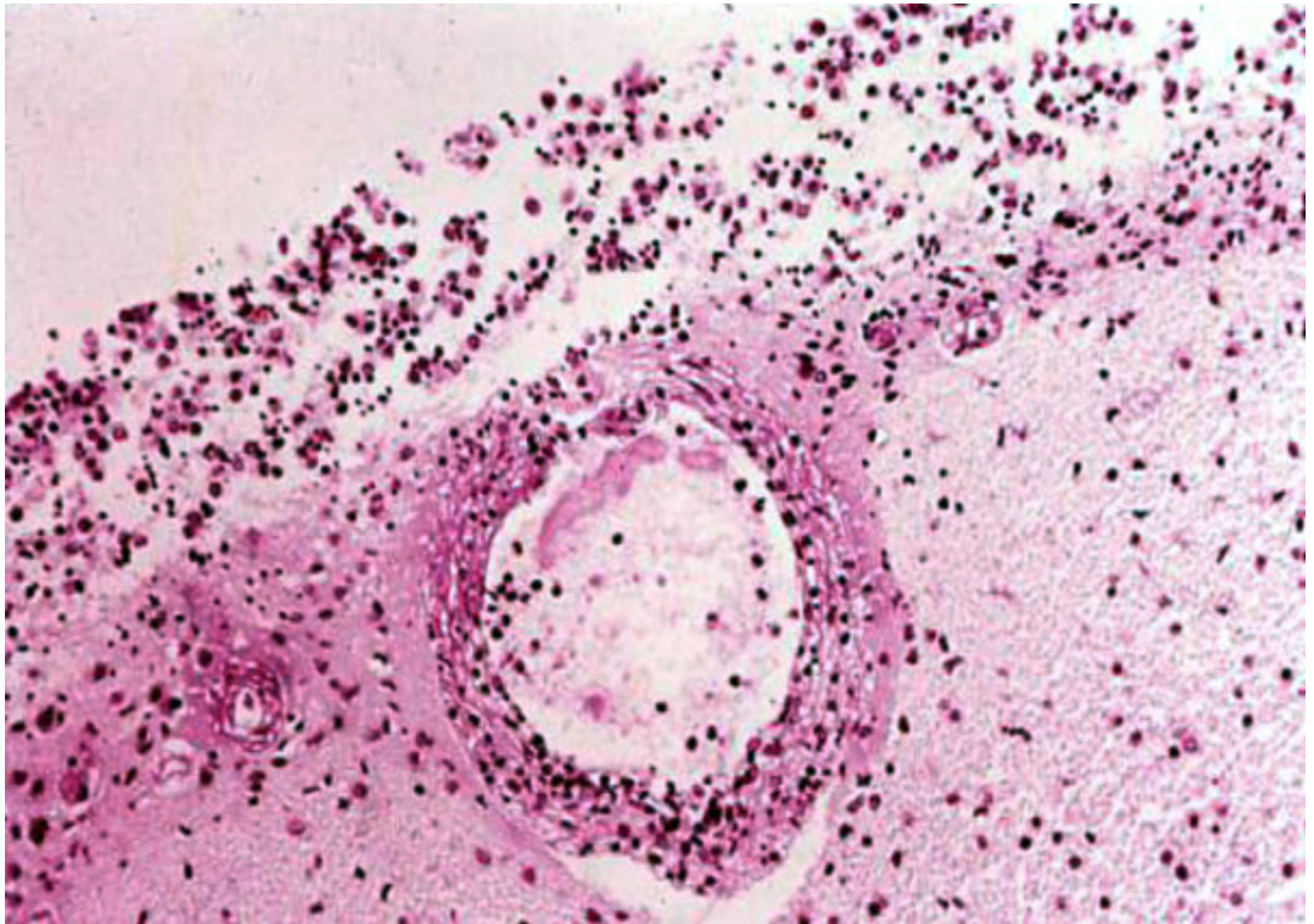
- **Congestion**
- **Suppuration (green-yellowish) with neutrophilic PMN**
- **Cranial vault, ventricles, spinal meninges**

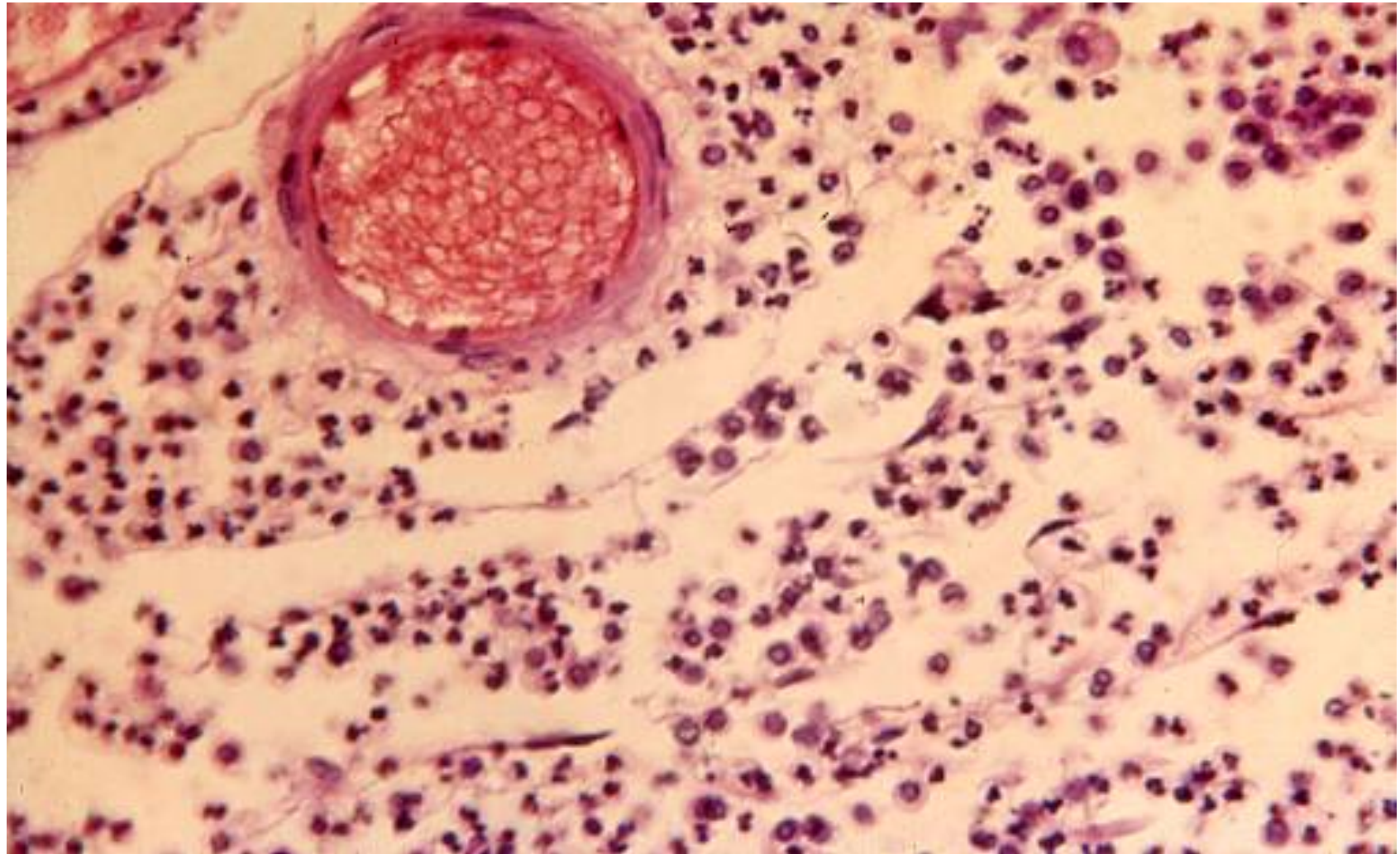


Meningococcal Meningitis

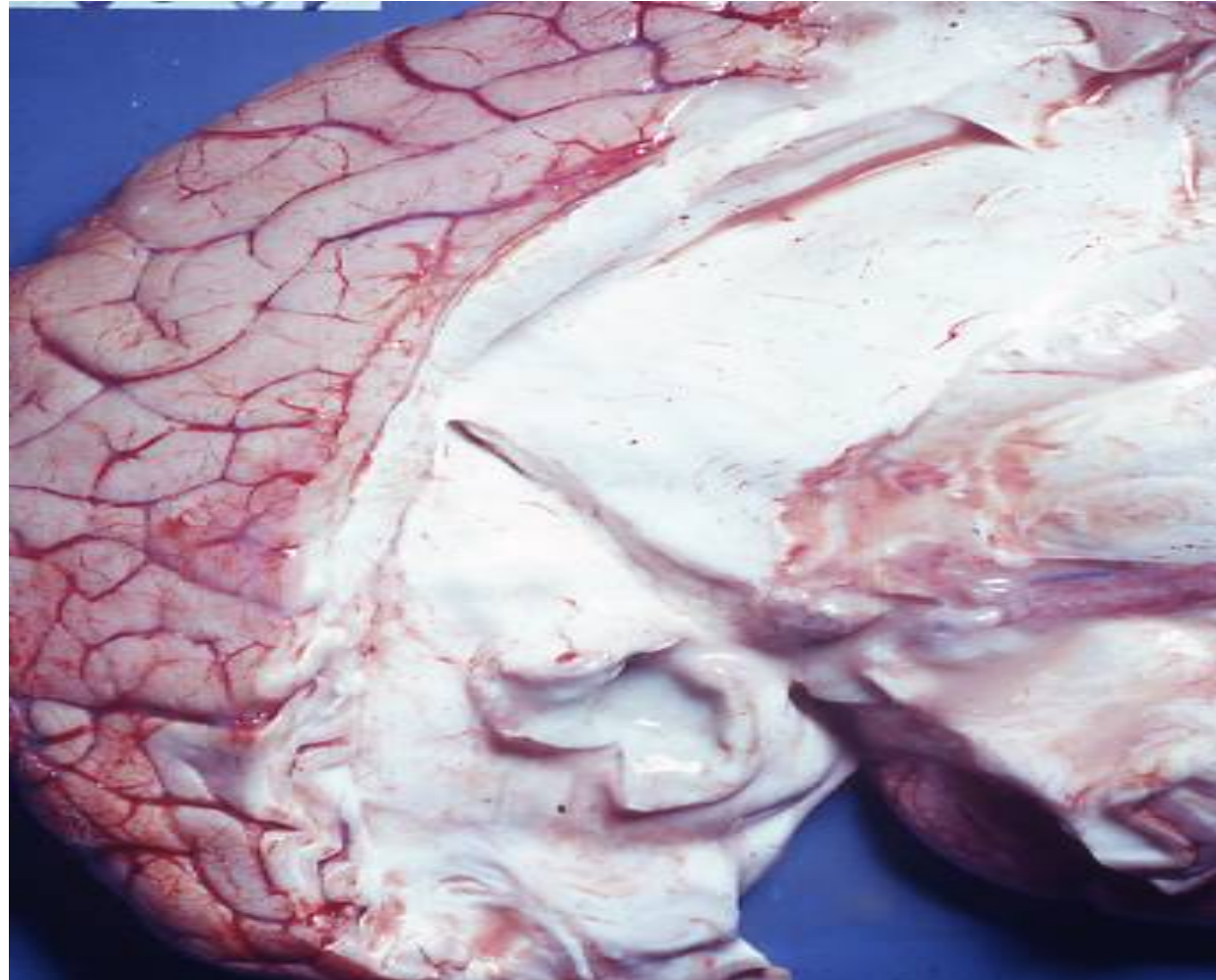








Abscess



Cerebral abscess from suppurative otitis



Meningococcal Meningitis

Complications

Granular ependimopathy

Hydrocephalus

Piocephalus & abscess

Meningo-encephalitis

Waterhouse – Friderichsen Syndrome

Meningococcal Meningitis

Ventricular alterations:

- Ependymal regressive changes
- Reactive glial proliferation Proliferazione gliale
- Glial nodules

Granular ependymopathy

Acqueduct of Sylvius and Luschka & Magendie obstruction

- Hydrocephalus
- Piocephalus

Meningo-encephalitis

- Through leptomeningeal capillaries

Specific Meningitis: TB, Syphilis

Tuberculous Meningitis

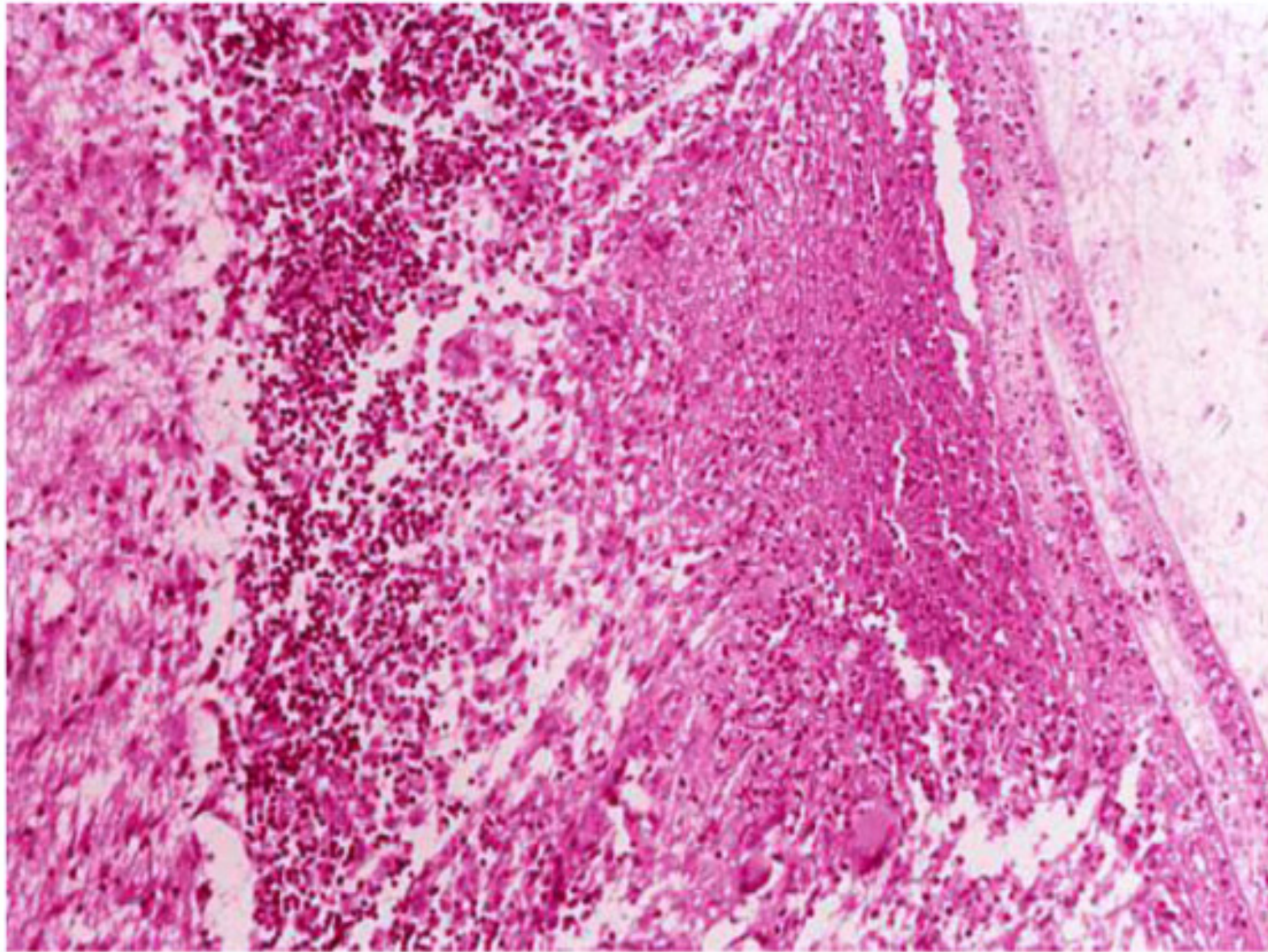
Age: adolescents & young adults

Pathogenesis:

- **haematogenous dissemination**
- **cerebral localisation**
- **drainage of tubercles into the meninges**

Site:

- **Skull base**
- **Optical chiasm**
- **Circle of Willis**
- **Brainstem & cerebellum**



Tuberculous Meningitis

Gross:

- **Pial congestion (with small tubercles)**
- **Jelly yellowish exudate**
- **Sede**

Micro:

- **Fibrinous exudate + lymphocytes, plasmacells**

Complications

- **Granular ependymopathy**
- **Internal hydrocephalus (aqueduct of Sylvius)**
- **Meningoencephalitis**

Evolution:

- **Fibrin resorption**
- ***Granulomatous inflammation***
- ***Fibrosis & scarring***
- ***Cranial nerves deficit***

Syphilitic meningitis

Age: Adults

Site: Skull base

Gross: Leptomeningeal thickening opacation

Micro: Lympho-plasmacytic infiltration

Perivascular localisation

Gummous necrosis

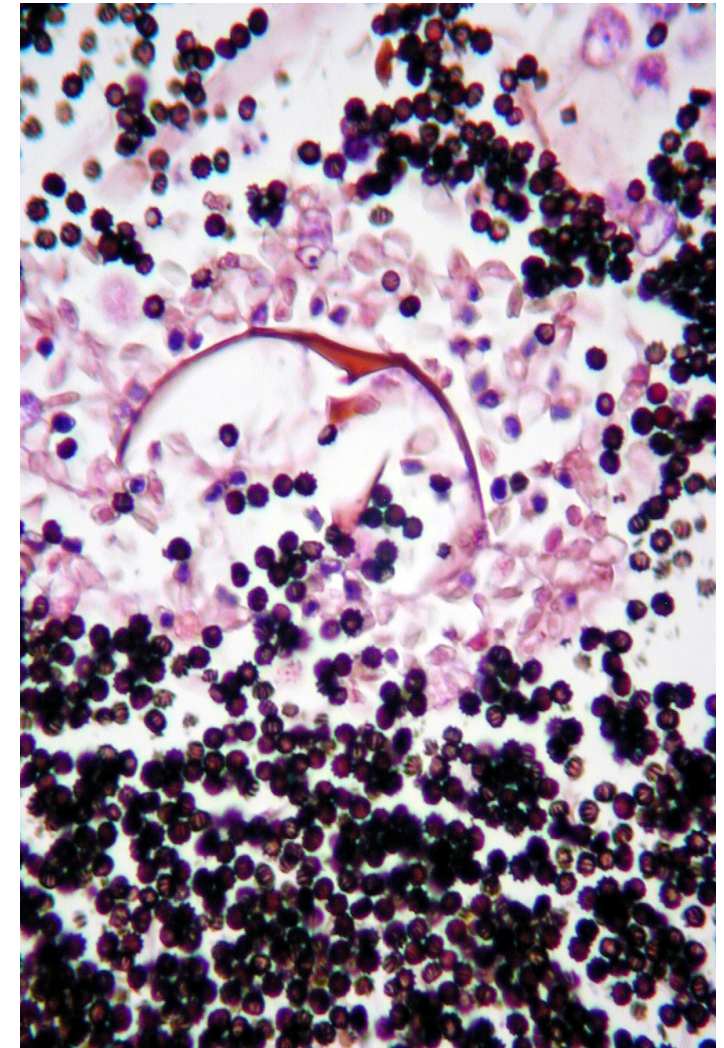
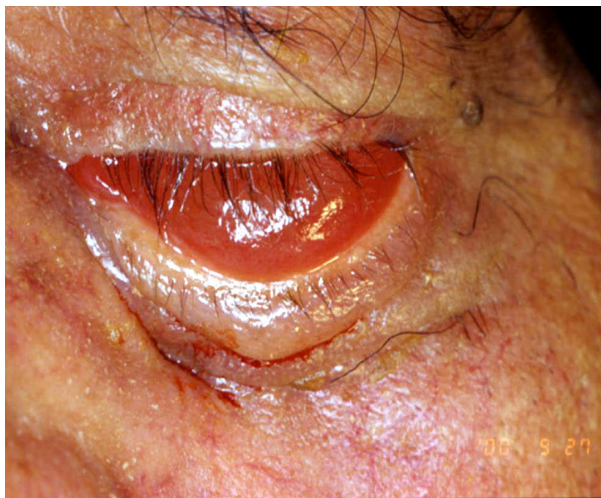
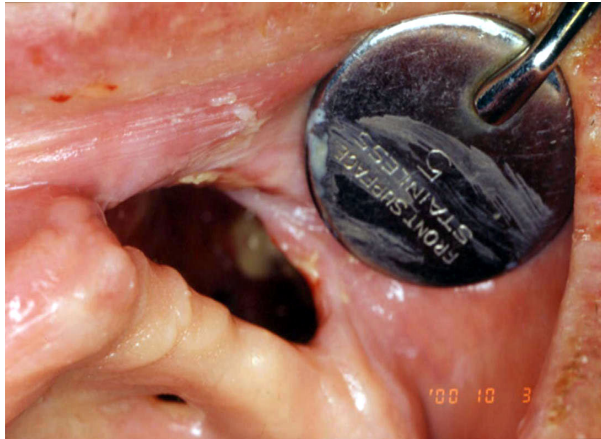
Complications:

- **Meningoencephalitis**
- **Granular ependymopathy**

Aspergillosis

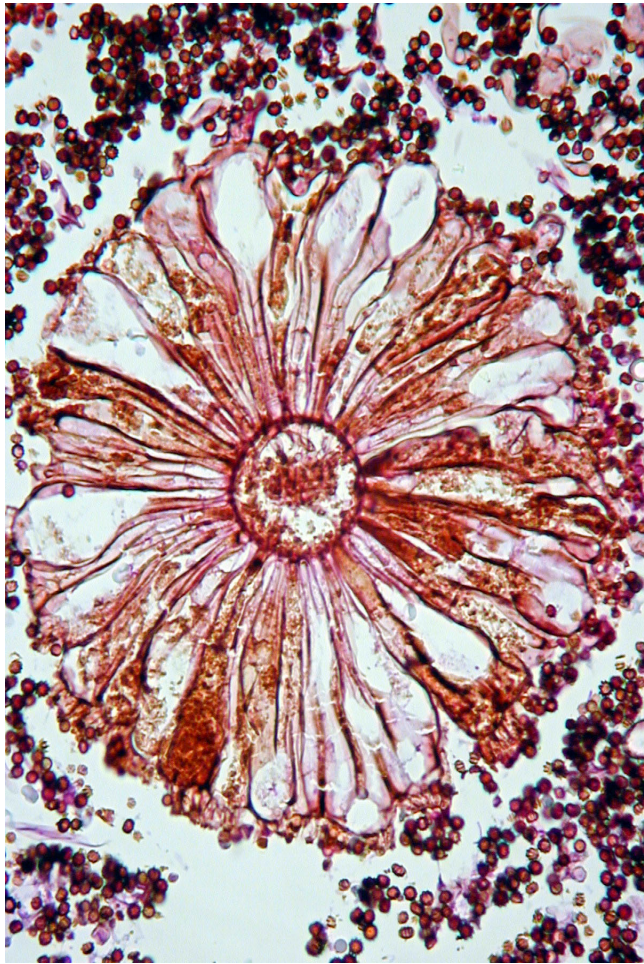


Mucormycosis + Aspergillosis

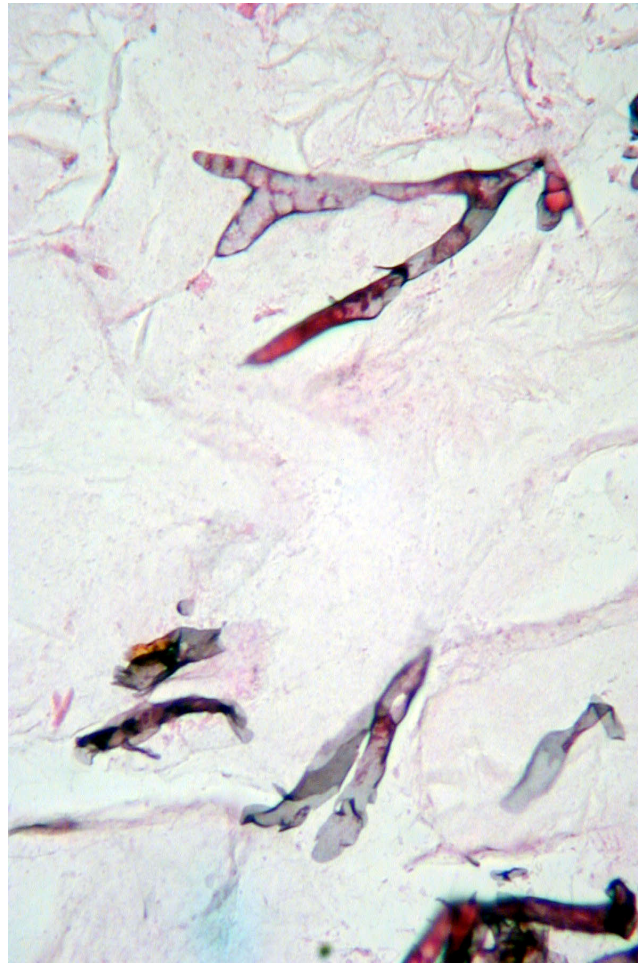


Lugol

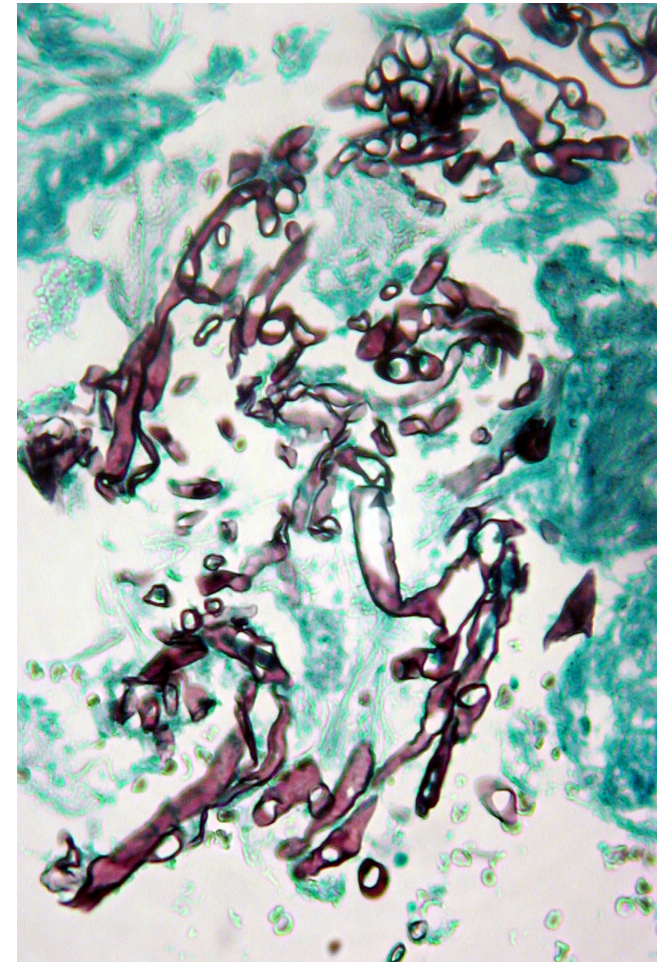
Mucormycosis + Aspergillosis



Lugol



Papanicolau



Grocott