



جامعة المستقبل  
قسم تقنيات البصريات

L5

مشاكل العين بالامراض الباطنية و العصبية

Meninges , Syphilis, Encephalitis

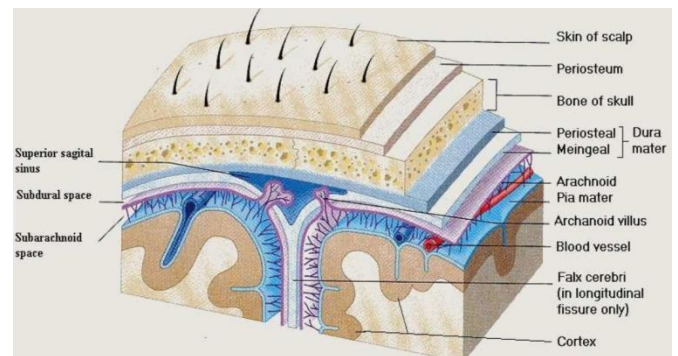
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## Meninges

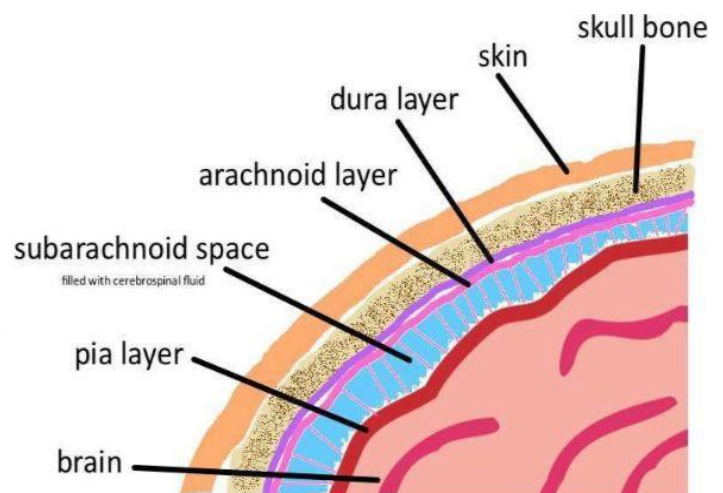
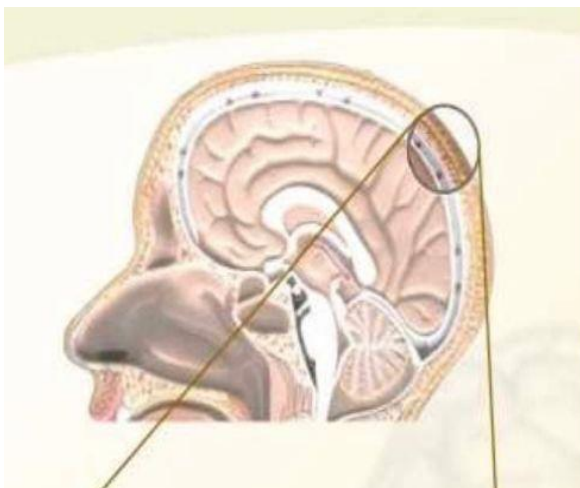
### Meninges

The meninges are the system of membranes which envelops the central nervous system. It has 3 layers:

1. Dura mater
2. Arachnoid mater
3. Pia mater



**Subarachnoid space:** is the space which exists between the arachnoid and the pia mater, which is filled with cerebrospinal fluid



## Definition of Meningitis:

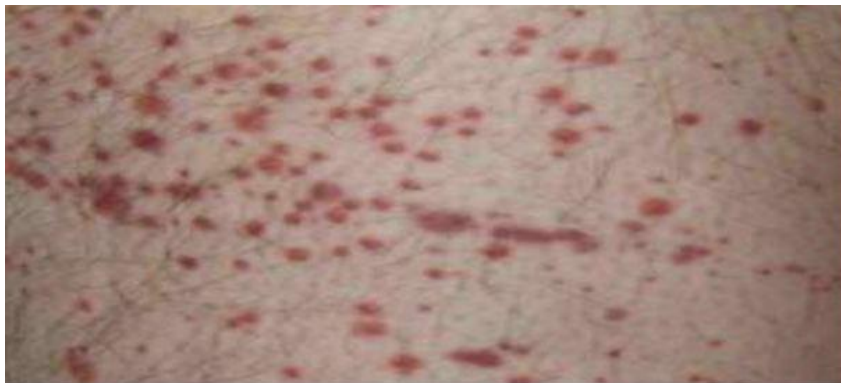
Meningitis is an acute infection or inflammation of the meninges of the central nervous system.

- Meningitis can occur at all ages, but it is commonest in infancy.
- 95% of the cases take place between 1 month 5 years of age.
- It is more common in males than females

- **Etiology:** Bacterial, Viral, Fungal, Parasitis and Non-infectious (Cancer, Trauma to head or spine)

### - CLINICAL SYMPTOMS:

-fever, headache, neck stiffness photophobia, skin rashes



### Signs & Symptoms of meningitis in Neonates/infants

Jaundice, Abnormal temperature (hypo/hyperthermia) poor feeding /weak sucking, a high-pitched cry ,bulging fontanelles , seizures , vomiting



### **Eye affects:**

- Photophobia
- Venous congestion of ocular fundi
- Unequal pupils, Pupil dilation
- Sluggish reaction to light



### **- Diagnostic:**

- History taking
- Physical assessment
- MRI Or CT
- Blood culture and sensitivity
- Lumbar puncture best initial test and most accurate?

### **When Is a Head CT the Best Initial Test?**

Papilledema, Seizures, Focal neurological abnormalities, Confusion

## - **Papilledema**

Fundal photograph showing severe papilloedema



### **Treatment:**

1. Fluid.
2. Oxygenation.
3. Monitoring of cardiovascular function
4. Monitoring intracranial pressure, mannitol to reduce cerebral edema.
5. Antibiotics

## - **Prevention**

- There are vaccines that protect against some forms of meningitis

## SYPHILIS

**SYPHILIS** is a contagious bacterial infection; caused by spirochetal bacterium (*Treponema Pallidum*) is almost always transmitted through sexual contact or congenitally through the placenta to a fetus or at birth from an infected mother.

### CLASSIFICATION OF SYPHILIS

1- Acquired syphilis

- Primary Syphilis
- Secondary Syphilis
- Tertiary Syphilis

2- Congenital Syphilis

- PRIMARY SYPHILIS

Symptoms not all people show visible signs of the disease at the beginning Primary Stage

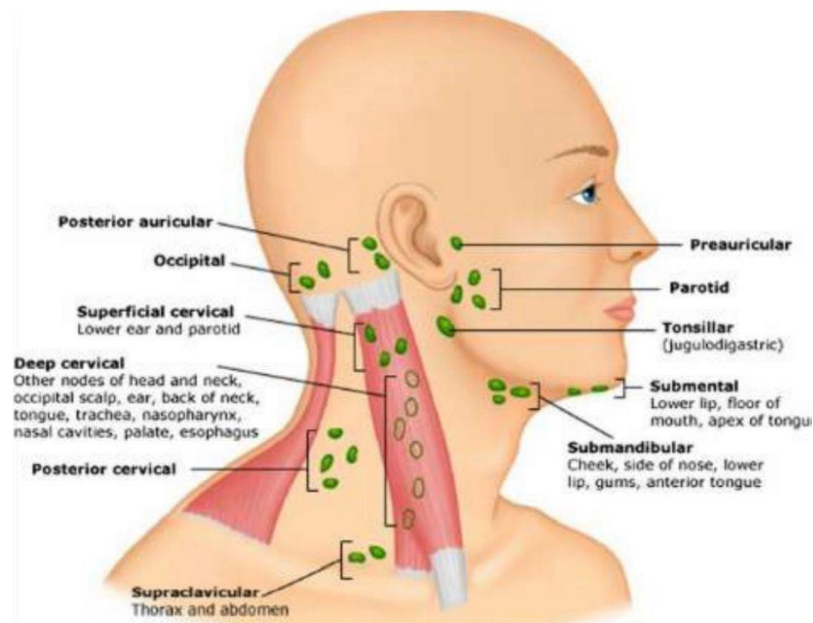




It's the first stage after infection painless & localized ulcer single or multiple. Appear 2-3 weeks after contact. Most common site is cervix, anogenital and mouth. Lymph nodes become enlarged.

**Without treatment the bacteria is still multiplying**

## LYMPH NODES BECOME ENLARGED



## - SECONDARY SYPHILIS



FIGURE . Secondary syphilitic rash on palm and sole.



Starts 2-12 weeks of development of primary syphilis

- fever, malaise , sore throat,
- headache –
- Rash involving entire trunk and the extremities palm and soles.
- 25% of pts have abnormal CSF SECONDARY SYPHILIS rash

### - **TERTIARY SYPHILIS**

- There may be an interval of 1 - 20 yrs from acute infection to clinical onset of tertiary SYPHILIS

- Tertiary syphilis divided into three main groups

- Late benign syphilis

- Cardiovascular syphilis

- Neurosyphilis

### - **Diagnosis of syphilis**

Hard to diagnose

- **Primary stage** - physical examination, symptoms, fluid from chancre taken and examined

- **Secondary stage** - blood tests

- **Tertiary stage** - spinal tap may be required in case of neurosyphilis

## Diagnosis of syphilis

- **direct antigen detection tests** ,as gold standards for test evaluation
- **VDRL**( venereal disease research laboratory test)
- **TREPONEMAL TESTS FTA-ABS: confirmatory** tests.

## OCULAR MANIFESTATIONS

Ocular involvement in primary syphilis is rare and mainly limited to chancres of the eyelids and the conjunctiva due to direct inoculation from contaminated fingers or secretions.

Ocular manifestations occur in about 2% of all patients with syphilis at any stage of the disease. Every part of the eye can be involved.

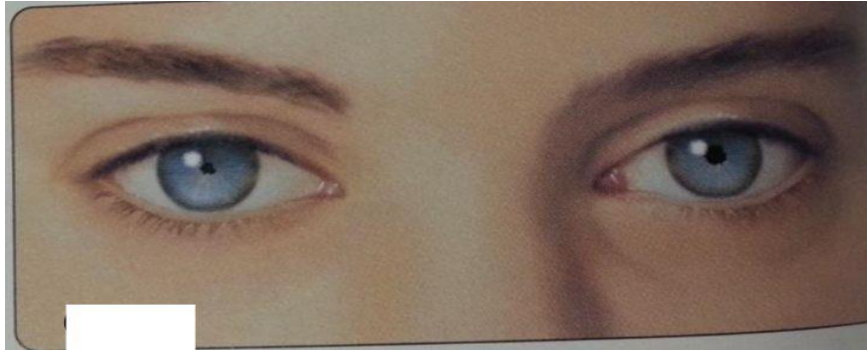
## OCULAR MANIFESTATIONS

- Common: madarosis(loss of eyelashes) and keratitis.



- Uncommon: uveitis and retinitis.
- Rare: optic neuritis, Argyll Roberston pupils and ocular motor nerve palsies.





## **Argyll Robertson pupil**

Have four characteristic findings:

- (1) Bilateral involvement.
- (2) Small pupils that fail to dilate fully in dim light.
- (3) No light reaction.
- (4) Brisk constriction to near vision and brisk redilation to far vision

## **OCULAR SYPHILIS TREATMENT**

- **Recommended regimen:**
  - Penicillin G 18-24 mu IV daily administered as 3-4 million units IV q 4 hr for 10 -14 days
- **Alternative regimen:**
  - Procaine Penicillin G 2.4 mu IM daily plus Probenecid 500 mg PO q d, both for 10-14 days

## CONGENITAL SYPHILIS

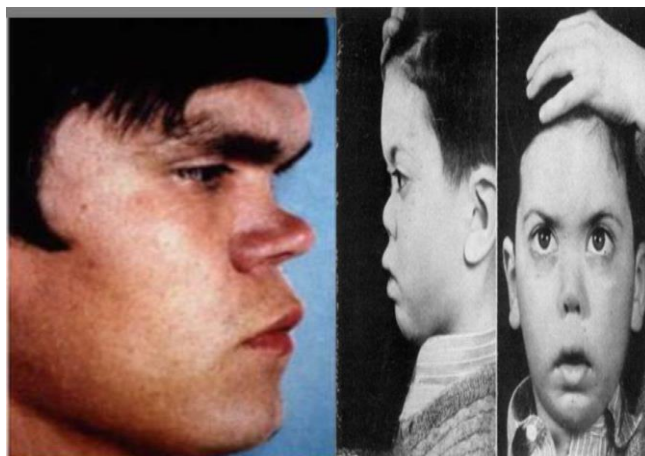
Infection of the fetus can occur transplacentally

### features include:

- failure to thrive, rash, mucosal ulcers ,fissures around the lips ,deafness, saddle-shaped nasal deformity.



- Most common ocular manifestation of congenital syphilis is bilateral keratitis, retinitis and secondary glaucoma.



## TREATMENT OF SYPHILIS

- **Primary and secondary syphilis:** single intramuscular injection of penicillin, Oral doxycycline if penicillin allergic.
- **Tertiary syphilis:** intravenous penicillin.
- **HIV serology is recommended for all patients with syphilis**

## Encephalitis

### Encephalitis

Is an inflammation of the brain that is caused especially by infection with a virus (such as herpes simplex or West Nile virus) or less commonly by bacterial or fungal infection or autoimmune reaction.

Can be acute or chronic .

#### Types:

- **Primary encephalitis-** It occurs when a virus directly infects the brain and spinal cord.
- **Secondary encephalitis-** It occurs when an infection starts elsewhere in the body and then travels to the brain.

#### Cause:

- Often unknown, but the most cause common is a viral infection. The viruses that can cause encephalitis: Herpes simplex virus (HSV).
- **Type 1** associated with cold sores and fever blisters around your mouth.
- **Type 2** associated with genital herpes.

**Type 1 is rare but can result in significant brain damage or death.**

Other herpes viruses. These include the Epstein- Barr virus, which commonly causes infectious mononucleosis, and the varicella zoster virus, which commonly causes chickenpox and shingles.

### **Risk Factors:**

- **Age:** Some types of encephalitis are more common or more severe in certain age groups. In general, children and older adults are at greater risk of viral encephalitis.
- **Weakened immune system:** AIDS, take immune-suppressing drugs , condition causing a weakened immune system

### **Features: COMMON**

- Severe headache.
- Coma.
- Stiff neck
- Mental changes behavior, and personality changes.
- Fever



## Other features

- Irritability, Weakness, Seizures.
- Nystagmus.
- Photosensitivity.
- Swollen or protruding eyes.
- Visual field defects.
- Decreased extraocular movements.
- Nausea and/or vomiting.
- Dysphagia

## Diagnostic

- History
- Physical Examination
- Diagnostic Tests.
  - CBC.
  - Polymerase chain reaction (PCR) tests for viruses.
  - Lumbar puncture (Culture).
  - Electroencephalogram (EEG).
  - CT scan.
  - Magnetic resonance imaging (MRI) Diagnosis.

## Treatment

- Acyclovir is the best initial therapy for herpes encephalitis.