



# Meningitis

## ANATOMY OF MENINGES:

The brain and spinal cord are covered by three membranes, called meninges .

1. Dura Mater: thick, fibrous and attached to cranium.
2. Arachnoid: lying in-between dura and pia mater.
3. Pia Mater: a delicate membrane which clothes the surface of brain, dipping into sulci.

Space between arachnoid and pia is sub-arachnoid space, containing cerebrospinal fluid (CSF)

**KEY WORDS:** Pachy Meningitis: Inflammation of the dura. It is suppuration between dura and skull. Usually results from cranial osteitis, a subdural abscess which is a complication of paranasal sinusitis. It was a common complication of Syphilis.

Leptomeningitis: Inflammation of the pia and arachnoid but commonly referred to as meningitis.

## TYPES OF MENINGITIS

- Acute
- Subacute
- Chronic

## Acute Meningitis

- 1) Pyogenic Meningitis
- 2) Meningo-coccal Meningitis
- 3) Tubercular Meningitis
- 4) Viral Meningitis
- 5) Miscellaneous

## ROUTES OF INFECTION:

- I) Direct spread from without:
  - a. Fracture of the skull with penetrating injury .
  - b. Fracture of base, organism directly spread from Nasopharynx to meninges.



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- c. Mastoiditis,
- d. Thrombophlebitis of the intracranial venous sinuses.
- e. Infection introduced directly through Lumbar puncture.

II) Direct spread from within

- a. From brain abscess
- b. Tubercular Meningitis from cerebral tuberculoma.

III) Haematogenous (Infection through the blood stream)

Meningitis following bacteraemia. The meningeal infection may be secondary to focal infection elsewhere eg pneumonia, empyema, osteomyelitis, typhoid, gonorrhoea etc. Tubercular meningitis may thus be a manifestation of miliary tuberculosis.

IV) Meningitis complicating encephalitis and myelitis  
In such cases meningeal symptoms may not be prominent but CSF yields evidence of Meningeal inflammation. e.g. Viral encephalitis.

IV) Meningism: Signs of meningeal irritation without infection, due to cerebral oedema, commonest in typhoid.

Any disease (including meningitis) is dependent upon three type of causes:

- fundamental causes are most important,
- predisposing causes are next and
- exciting causes are least important.

## CLINICAL FEATURES

Whatever the causative organism in acute meningitis, number of symptoms are common.

Onset: Fulminating, Acute Or Less commonly, insidious.

The triad of Fever, headache and vomiting is pathognomic of Menigeal irritation. In addition, signs and symptoms of the cause will also be seen.

**Headache:** increasing in severity is usually the initial symptom with cough and sore throat. Headache is usually very severe and is of 'bursting' character. It may



be diffuse or mainly frontal and usually radiates down the neck and into the back.

**Fever:** Fever is a rule. Degree may vary. Temperature range: 37.8°C to 38.9°C. Hyperpyrexia may occur, especially in terminal stages.

**Pain:** Headache associated with pain in spine which radiates to the limbs, especially lower limbs.

**Vomiting:** may occur, especially in early stages.

**Convulsions:** Convulsions common in children, especially in influenzal meningitis.

**Lie:** The patient tends to lie in an attitude of general flexion, curled up under the sheets and resenting interference.

**Cry:** High-pitched meningeal cry in infants.

**Rash:** Several types of rash may occur, the most characteristic being a purpuric eruption which may take form of petechiae. These petechiae are purple at first, fading to a brownish color and do not disappear on pressure. Axillae, flanks, wrists and ankles are most commonly involved sites. Often they are located in the center of lighter-coloured macules and they may become nodular as the disease progresses (sometimes Gonococci may be demonstrated from scrapings of nodular lesion). However absence of rash does not necessarily indicate that the illness will be mild.

**FULMINATING MENINGOCOCCAL MENINGITIS:** Also called Waterhouse – Friderichen Syndrome.

It is associated with vasomotor collapse and shock. Unless incipient shock is recognized and managed in time, death from cardiac and/or respiratory failure almost invariably occurs.

**SIGNS OF MENINGEAL IRRITATION:** The following signs are of special value:

- **Neck Rigidity:** It is present at an early stage in almost every case. It is due to spasm of the extensor muscles of the neck and an attempt to overcome this causes pain. Make it routine to check for neck stiffness in every case of a fever with vomiting.
- **Head Retraction:** is an extreme degree of cervical rigidity. It is a reflex protective spasm.
- **Kernig's Sign:** From a position of both knee and

hip fully flexed, the knee is extended briskly. If pain and spasm occurs in ham strings, Kernig's sign is said to be positive.

- **Brudzinski's Sign**
  - (1) Spontaneous flexion of knee and hip on attempt to flex the neck.
  - (2) Spontaneous flexion of one leg, when other is flexed passively.

Both Kernig's sign and Brudzinski's signs are due to presence of inflammatory exudates around roots in the Lumbar theca.

#### OTHER SIGNS

Delirium is common in early stages, but as disease progress, drowsiness and stupor follow, finally coma.

Photophobia: frequently present.

Papilloedema—Fundus may be normal. Shows various congestion Or some times Papilloedema.

Pupils: Often unequal and may react sluggishly. In later stages they tend to be dilated and fixed. Ptosis is common, squint and diplopia are often present. Any of the ocular muscle may be paralysed.

Facial paralysis is not rare.

Dysphagia: May occur in later stages.

Paralysis: Incoordination and tremor are common and there is considerable muscular Hypotonia. A general flaccid paralysis is a terminal event.

Reflexes: are usually sluggish and often soon lost. Abdominal reflexes also disappear early. Planter reflexes are usually flexor at first but later one or both may become extensor.

Sensory: Loss does not usually occur.

Sphincter: control is lost very late. But mental state of the patient may lead to retention or incontinence of urine early in the illness.

Convulsions: Meningitis localized for a time to one hemisphere may cause Jacksonian convulsions hemiparesis and even hemianopia.

#### LABORATORY FINDINGS

TLC 12,000 to 40,000 /cc

DLC Polymorphonuclear Leucocytosis



Hb: Anaemia is common.

Platelets: low count with decreased level of circulating clotting factors as a result of intravascular coagulation.

**CSF**

PRESSURE: increased.

APPEARANCE: Turbid or purulent

PROTEIN: increased

SUGAR: always less than 35mg/100ml.

CELL COUNT: 100 to 40,000 polymorphs/mm.

Meningococi: Can be recovered readily from cultures of blood or CSF and occasionally from material aspirated from skin lesion or joints.

In meningococcal meningitis, a smear of the spinal fluid is diagnostic.

**COMPLICATIONS AND SEQUELAE**

1) Due to direct spread of infection from Nasopharynx

- Otitis Media
- Sinusitis
- Conjunctivitis and Keratitis.

2) Mechanical damage to Nervous system

- Hydrocephalus
- Spinal block
- Mental retardation due to damage to brain substance
- Subdural effusion
- Paralysis of cranial nerves. III and VII every common.

3) Systemic Complications

- Multiple arthritis early
- Mono articular suppurative arthritis-Late
- Pericarditis
- Endocarditis
- Pleurisy.

4) Acute Fulminating meningitis

5) Chronic Septicemic meningitis.

**DIFFERENTIAL DIAGNOSIS**

1) Meningism:

Irritation of meningeal membrane without Meningeal infection. It occurs in course of an infectious disease usually at onset eg Typhoid fever, pneumonia, acute

exanthema.

**Meningitis**

Usually slow onset  
 Delirium, convulsions or coma common.  
 Vomiting throughout  
 Pulse and respiration may be irregular, relative bradycardia initially.  
 Kernig's sign  
 Brudzinski's sign +ve  
 Cranial Nerve palsy common.  
 CSF shows definite biochemic changes

**Meningism**

Rapid onset  
 Rare.  
 Only at onset  
 Not such  
 Rare  
 Only increased pressure of CSF.

**II) Other of Meningitis**

a) From other types of Pyogenic Meningitis

- Pneumococcal meningitis associated with Lobar pneumonia, chronic otitis media, sinusitis or Head injury. More severe toxemia. C S F thick greenish fluid. CSF Gram +ve cocci.

- Strepto or Staphylococcal meningitis, usually complication of aural condition. CSF thin yellow

b) Syphilitic Meningitis:

H/O primary infection 1-2 year back  
VDRL +ve

Meningitic type of colloidal gold curve.

c)	<b>Meningococcal</b>	<b>Tuberculous</b>
<i>Previous health</i>	Healthy	Unhealthy
<i>Age</i>	Not uncommon below 1 year	Rare below 1 year

<i>Onset</i>	Sudden	Insidious
<i>Early convulsions</i>	Not common	Common
<i>Evolution</i>	Rapid	Slow and irregular
<i>Pyrexia</i>	High	Slight
<i>Prostration</i>	Marked	Not much
<i>Neck rigidity</i>	Constant	Not constant
<i>Ocular palsies</i>	Occasional	Common
<i>Fundus</i>	Sometime	Sometime



<i>C S F</i>	Optic Neuritis	tubercles	19) <i>Rhus-tox</i>	14/6
	Purulent	Clear or opalescent	<b>GENUS EPIDEMICUS</b>	
	Protein below 1gm/100 cc	Protein 1 to 4 gm/100ml.	In 1989-90 we had epidemic of meningitis. After taking common symptoms of about 30 patients following were the indicated remedies.	
	Cell Poly morph	Cell Lymphocyte		
	Meningococci	Tubercle bacilli.	1) <i>Gelsemium</i>	21/9
			2) <i>Ars-alb</i>	15/9
			3) <i>Nux-vomica</i>	19/8
			4) <i>Bryonia</i>	17/8
			5) <i>Nat-mur</i>	17/8
			6) <i>Opium</i>	16/8
			7) <i>Phosphorous</i>	16/8
			8) <i>Digitatis</i>	11/8
			9) <i>Lycopodium</i>	15/7
			10) <i>Nat-sulf</i>	15/7
			11) <i>Sulphur</i>	14/7
			12) <i>Stramonium</i>	14/7
			13) <i>Argentum-nitricum</i>	12/7
			14) <i>Zincum-metallicum</i>	12/7
			15) <i>Cuprum-metallicum</i>	9/7
			16) <i>Tabaccum</i>	9/7
			17) <i>Cal-carb</i>	15/6
			18) <i>Lachesis</i>	15/6
			19) <i>Rhus-tox</i>	4/6

#### MANAGEMENT OF MENINGITIS

1) Hospitalization for diagnosis, monitoring and nursing care

2) I/V Fluids if required.

3) Homoeopathic Medicines

There is no specific in Homoeopathy for any disease, as we treat diseased person and not disease and hence Discussing any specific Drug in Homoeopathy will be against Organon.

However on basis of common symptoms of Meningitis, repertorization was done with help of Kent's Repertory and following drugs emerged..

1) <i>Belladonna</i>	21/9
2) <i>Ars-alb</i>	15/9
3) <i>Nux-vomica</i>	19/8
4) <i>Bryonia</i>	17/8
5) <i>Nat-mur</i>	17/8
6) <i>Opium</i>	16/8
7) <i>Phosporous</i>	16/8
8) <i>Digitalis</i>	11/8
9) <i>Lycopodium</i>	15/7
10) <i>Nat-sulf</i>	15/7
11) <i>Sulphur</i>	14/7
12) <i>Stramonium</i>	14/7
13) <i>Argentum-nitricum</i>	12/7
14) <i>Zincum-metallicum</i>	12/7
15) <i>Cuprum-metallicum</i>	9/7
16) <i>Tabaccum</i>	9/7
17) <i>Cal-carb</i>	15/6
18) <i>Lachesis</i>	15/6

Now if we compare both charts, we find that *Opium*, *Belladonna*, *Nux-vomica*, *Phosphorous*, *Bryonia*, *Zincum-met*, *Art-alb*, *Nat-mur* and *Lyco* are common in both the cases.

But *Gelsemium*, *Helleborus*, *Actea-racemosa*, *Apis*, *Cocculus-sudiccus* are missing on basis of common symptoms. Hence each time, on basis of present persistent and prominent symptoms, Drug for each Epidemic should be decided.

#### FEW IMPORTANT DRUGS FROM EXPERIENCE OF LAST EPIDEMIC.

1) **BELLADONNA:**

Pain Deep seated (Boring) Oppressive, Drowsiness



Sensitive to light and Noise  
 Red sparking eyes with furious look  
 Red and Bloated face  
 Violent throbbing Carotids  
 Eye Half open. Head Hot and extremities cold  
 Loss of consciousness and speech.  
 Muttering or virulent Delirium.  
 Convulsive movement of the Limbs  
 Vomiting and involuntary discharge of urine and faces.  
 Delusion - animals. Sees dead persons.  
 Fear alternate with mania.

**APIS-MEL**

Head feels too large, relieved by squeezing with both hands.  
 - Congestion of Head and face, with burning and throbbing in brain.  
 - Loss of consciousness and delirium.  
 Tongue made of wood.  
 - Death desires in forenoon.  
 - Single sharp, shrill screams while sleeping or walking.  
 - Dilated pupils  
 - Chilliness from every slight movement, face and hands hot  
 - Skin Eruptions are burning, pricking and itching.  
 Rash may suddenly disappear.  
 - Parts of body sensitive to touch.  
 - *Apis* may follow *Belladonna*.

**GELSEMIUM**

- Concentration difficult.  
 - Dullness ameliorated by copious flow of urine.  
 - Can recall things Long forgotten.  
 - Unconsciousness, cannot open eyes.  
 - Delirium on falling sleep.  
 - Anticipatory fear.  
 - Desire for light.  
 - Mirth, hilarity, liveliness  
 - Moaning  
 - Taciturn and oversensitive to light.  
 - Indifference, Timid.

Intense and excruciating headache with Nausea, Giddiness and blindness.  
 - Restless from heat of bed.

**OPIUM**

- Delirium, blames himself  
 - Rolls on floor  
 - Delusion see scorpions  
 - Fear of extravagance  
 - Lethargy  
 - Stertorous breathing with eyes half closed.  
 - Stupefaction after waking  
 - Heaviness of Head with dull stupid look as if drunk.  
 - Dullness of senses  
 - Patient not desire or complaint anything  
 - Frequent vomiting, which is foul and offensive.  
 - Weeping alternate with antics

**CUPRUM-MET**

Delusion, think he is repairing old chairs.  
 Fear-things will catch fire.  
 Loud screaming followed by violent convulsions, thumb clenched, face pale with blue lips.  
 - Eyes constantly rotating.  
 - Breathing short and anxious.  
 - Skin cool covered with cold sweat.  
 - Bites constantly glass or spoon while drinking.  
 - Lognasity delirium on awaking from sleep  
 - Sadness, walking in open air, must stand still a sit down.

**Helleborus-niger**

Feels as if he could do great  
 Indifference, refuse to obey the will, when attention is turned away  
 Weakness of memory.  
 For what has heard  
 For what has read  
 For what has said  
 For what is about to say  
 Speech slow  
 - Automatic motion at regular intervals of Head, one



- arm and one leg.  
 - Scanty urination  
 - Forehead wrinkled

### **Zincum-met**

Think of calm death  
 Violent delirium  
 Delusion, he has goitre  
 Dullness on closing Eyes  
 Lying Ameliorates  
 Impatient, while talking  
 Headache aggravated from pressure  
 Headache occipital radiating to Eye and teeth.  
 Better from Eruption.

### **PREVENTION**

Constitutional drug is best prophylactic. But in cases of Epidemic, Genus Epidemicus one dose of 200 and if required 1M may be used.

### **PROGNOSIS**

With proper management without Fulminating meningococemia, it is less than 10%.  
 In fulminating cases with shock, most deaths occurred in 24 to 48 hours.

### **CASES**

Patient Case Report Date: 9/12/91

Genesis of Selected Rubrics

Head

1. Pain, bursting
2. Pain, Forehead, in
  - Extending backward
  - neck, to
  - Stomach
3. Vomiting, headache, during
4. Sleep, Position, abdomen, on
  - curled up like a dog
  - Back
5. SPASMS. See Opisthotonus
6. Eyes Photophobia
7. Mind Delirium

8. Mind, Dullness, sluggishness, difficulty of thinking and comprehending
9. Eyes Pupils, sluggish
10. Eyes, Pupils unequal
11. Extremities, Stiffness, Lower Limbs
12. Generalities, Convulsions, heat, during the

Remedy	Total	Note
<i>Bell</i>	21/9	Total Rubrics: 13
<i>Ars</i>	15/9	Top of the List
<i>Nux-v</i>	19/8	Name : <i>Bell</i>
<i>Bry</i>	17/8	Grade : 21
<i>Nat-m</i>	17/8	Freq. : 9
<i>Op</i>	16/8	
<i>Phos</i>	16/8	
<i>Dig</i>	11/8	
<i>Lyc</i>	15/7	
<i>Nat-s</i>	15/7	
<i>Sulph</i>	14/7	
<i>Stram</i>	14/7	
<i>Arg-n</i>	12/7	
<i>Zinc</i>	12/7	
<i>Cupr</i>	9/7	
<i>Tab</i>	9/7	
<i>Calc</i>	15/6	
<i>Lach</i>	15/6	
<i>Rhus-t</i>	14/6	

### **PATIENT CASE REPORT 2 DATE: 11/12/91**

Genesis of Selected Rubrics

1. Mind, Dullness, sluggishness, difficulty of thinking and comprehending
2. Stomach, Thirstless
3. Head, Pain, bursting, occiput
4. Head, Pain, occiput, extending down back
5. Throat, Swallowing, difficult
6. Fever, cerebro-spinal fever
7. Eyes, Photophobia
8. Eyes, Pupils, sluggish



REMEDY RUBRIC CHART

Remedy	Total	Note
<i>Gels</i>	15/6	Total Rubrics: 8
<i>Op</i>	15/6	Top of List
<i>Bell</i>	14/6	Name: <i>Gels</i>
<i>Nux-v</i>	13/6	Grade: 15
<i>Hell</i>	13/6	Freq: 6
<i>Nat-m</i>	11/6	
<i>Phos</i>	10/6	
<i>Ip</i>	9/6	
<i>Cimic</i>	7/6	

<i>Apis</i>	12/5
<i>Arg-n</i>	12/5
<i>Lyc</i>	11/5
<i>Sep</i>	10/5
<i>Nux-m</i>	9/5
<i>Ars</i>	9/5
<i>Zinc</i>	9/5
<i>Cocc</i>	8/5
<i>Bry</i>	8/5
<i>Ign</i>	8/5



## The Encephalon Eeriness

A girl, aged 12 yrs, was mentally retarded from birth.

**HISTORY:** Normal delivery. But umbilical cord around the neck → Blue Asphyxia. She did not cry for 2-3 minutes after birth. Physically normal, so no suspicion about her behaviour. At two years, when not commenced to talk, Doctors felt some children take a little longer time. so nothing to worry. At 3 y, referred to Neuro-Specialist, who diagnosed Birth Asphyxia and advised training and referred to psychiatrist. Prescribed sedatives, which had a an undesirable side effect: child became very lazy, sleepy with enormous appetite. She put on tremendous weight causing more difficulty to the people helping her in her daily activities (Toilet). But mentally she did not improve.

Advised Naturopathy treatment. This had practical difficulty: uncooked food and items were not acceptable to the child. Also the child had to eat every two hours during the day, which she would not do. Acupuncture tried. Treatment was given for months on end, having to travel outstation. Thousands spent, to no end. Siddha tried. The abstinence from certain food items like fish, was difficult in a joint family.



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As the last resort, tried homoeopathy. In 10 months, the child is quiet, her toilet habit is controlled, her sleeping by night and keeping awake by day, has been reversed. She is able to recognize people and span of attention is improved, obesity reduced. She is obedient. The child was diagnosed as infantile Autism and advised behaviour therapy.

She dislikes meeting people, shyness, lethargy, averse to be talked to, mind sluggish, deficient memory, stubborn, screaming at night.

**1.5.97:** At birth, Blue Asphyxia insufficient oxygen (O) supply to brain. *Carbo-veg* 1 M one dose.

**3.5.97:** For mind symptoms *Kali-phos* 12 X, 4 TDS.

**15.5.97:** Immature Brain: *Baryta-carb* 30. 4 BD x 2 months. Symptoms improved.

**18.5.97:** Screaming at night: *Chamomilla* 200, daily evening 1 dose x 5 days. Symptom disappeared.

**10.7.97:** Late waking. Stool involuntary. *Carbo-veg* 10 M, 1 dose. Symptom improved.

**10.8.97:** Involuntary urination and defecation by night treated with *Sulphur* 1M, 1 dose. Toilet control obtained.

Now the child has become calm, attentive and obedient.

*Kali-phos* 12 X is being continued and advised to stop if patient better.

