Epidemic Cerebrospinal Meningitis(流行性脑脊髓膜炎)

The Second Affiliated Hospital of CQMU

Department of Infectious Diseases

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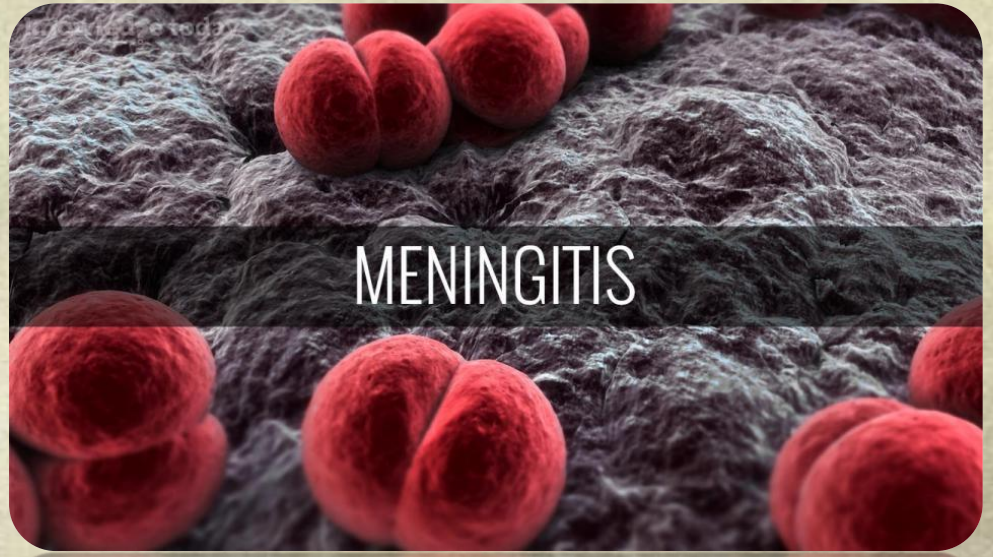
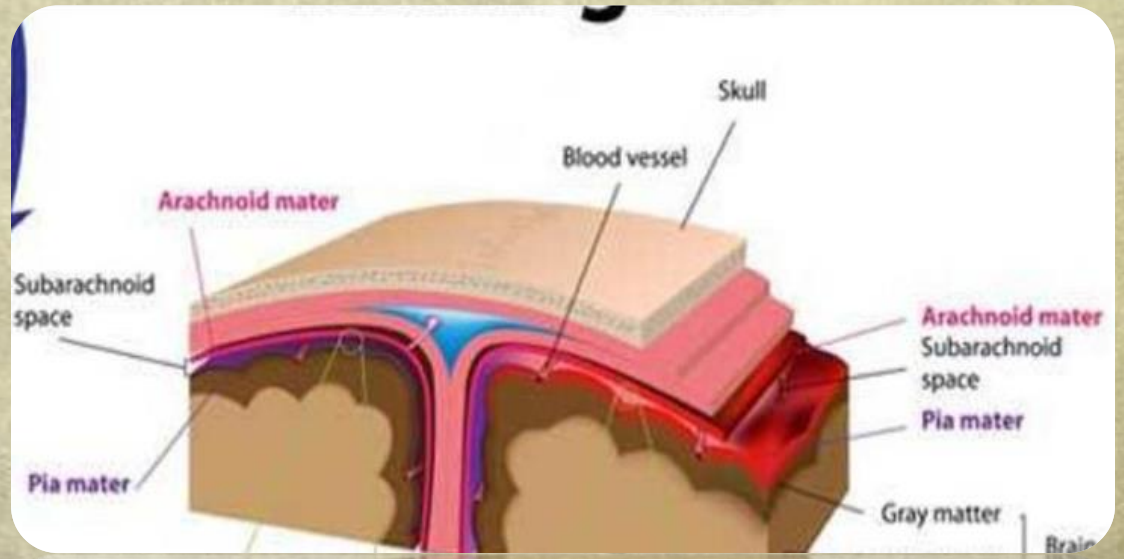
Definition

Epidemic cerebrospinal meningitis (ECM) is acute

infectious disease caused by **meningococcus**.





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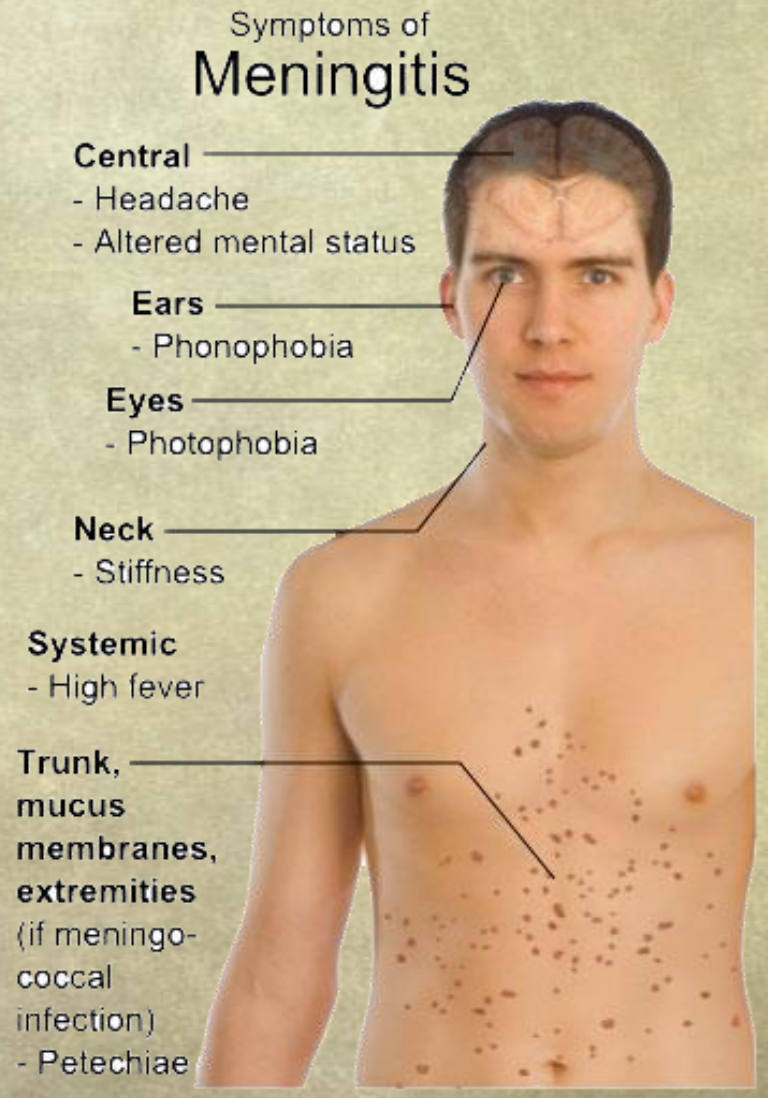
Definition

Main characteristics of ECM

- Fever
- Headache
- Vomiting
- Petechiae or ecchymosis
- Meningeal irritation signs.
- CSF is purulent.



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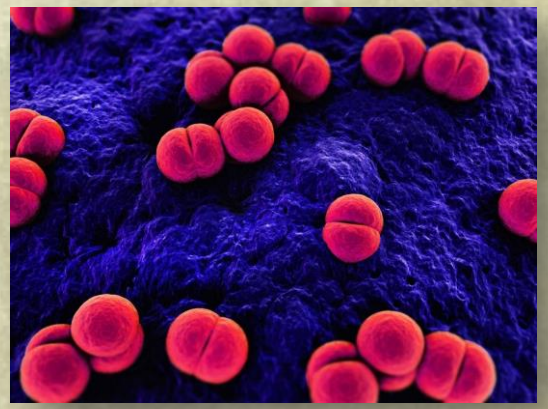
Etiology



1. Pathogen is Neisseria meningitidis (meningococcus); G diplococcus.

2. Biological features:

- The organism grow by incubation on blood, chocolate or trypticase soy agar in 5-10% CO2, pH 7.4-7.6;
- The organism is susceptible to dry, heat, chill and disinfectant;

  Heat, chill and disinfectant;
- Autolysis by autolysin in vitro.

Etiology

3. The organism can be detected in patients' nasopharynx, blood, CSF, petechiae in skin.

4. Pathogenic factor: endotoxin.

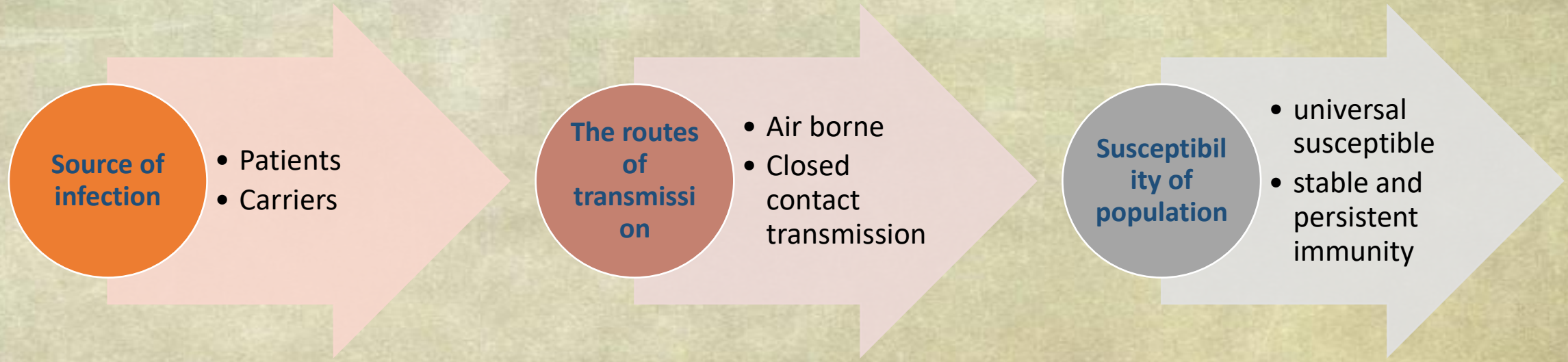
5. Serogroups of meningoccus.

- 13 serogroups and more than 20 serotypes found in the world;
- Most common serogroups:

  A B C group

- Group A is the most common in China

Epidemiology



Epidemiologic feature:

- **Season:** November – May; high peak: March – April
- **Age:** 6 months to 2 years old

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Pathogenesis

Meningocci

↓

Extinguished

↓

Nasophaynx → Carriers 60-70%

↓

Upper respiratory tract → Infection 20-30%

↓

Meningococcemia period

↓

Septicmia

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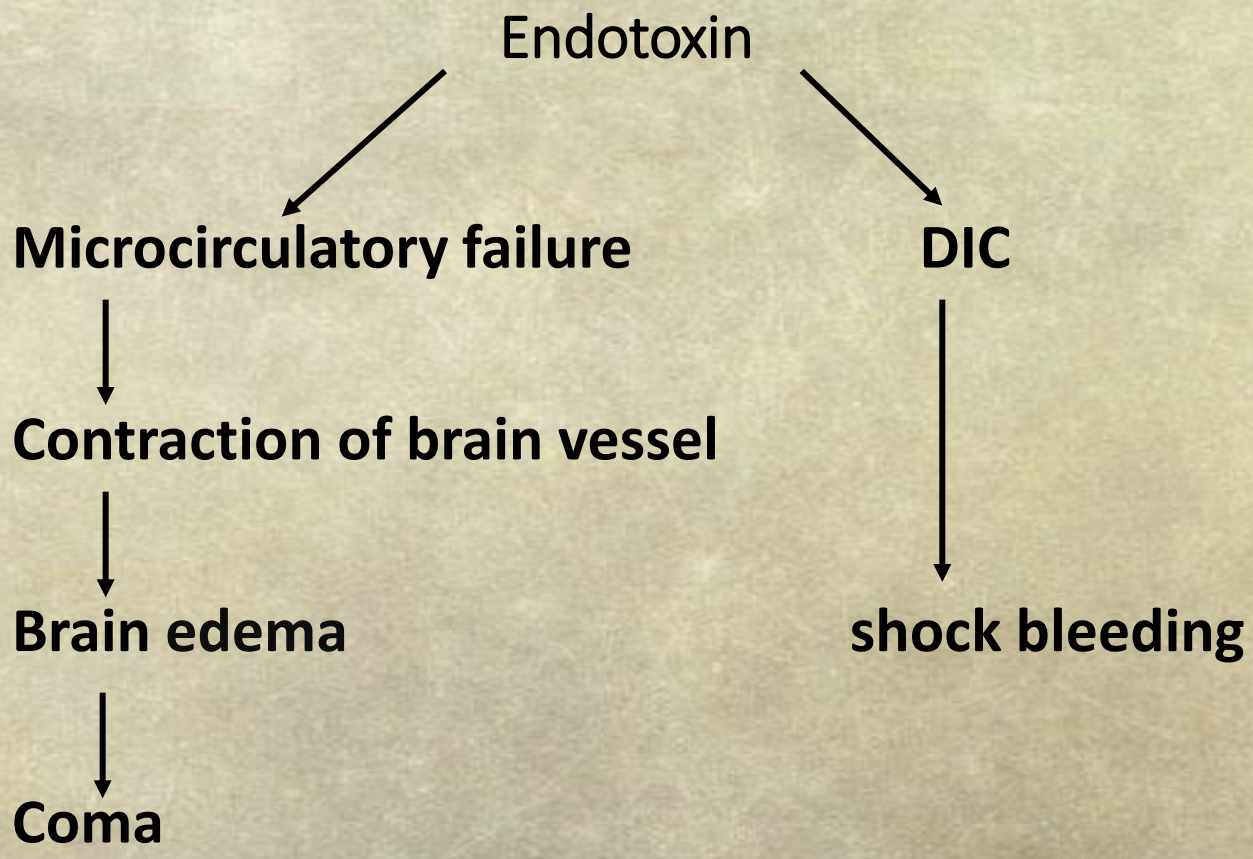
Pathogenesis

Fulminant Type



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Pathology

Septicemic stage		
Vascular endothelial injury	Vascular wall inflammation, necrosis	Thrombosis, perivascular bleeding

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Pathology

Meningitis stage			
Site: leptomeninx, arachmoid	Congestion, bleeding, swelling of meningeal vessel	Exudation of fibroprotein, neutrophil and plasma (CSF is purulent)	Cranial nerves is injured.

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Pathology

Fulminant meningoencephlitis type		
Congestion, bleeding, necrosis and swelling of brain tissue	Congestion, bleeding, necrosis and swelling of brain tissue	Brain hernia

Clinical Manifestation

Common Type

Incubation period:

1-10 days (2-3days)

URT infectious stage

Septicemic stage:

1. toxemia symptoms

2. petechiae, purpura or ecchymosis

Meningitis stage:

1. High fever and septicemic symptoms;

2. CNS symptoms: headache, vomiting, meningeal irritation (nuchal rigidity; Kerning's signs and Brudzinski's signs are positive)

severe case: drowsiness, delirium, and restless merge into coma

Convalescent stage:

5-7 days

Convulsions may occur at any stage of the illness.

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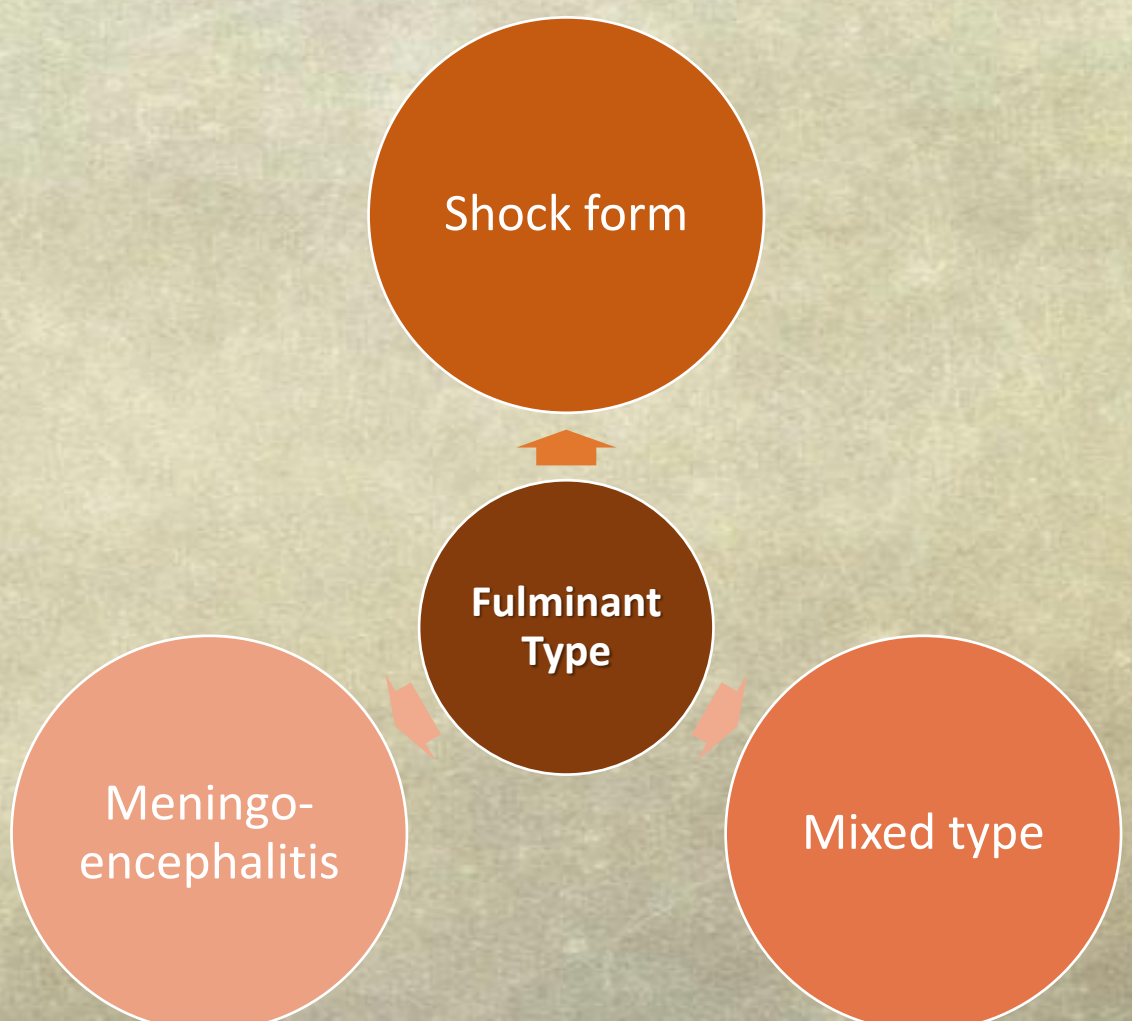
Clinical Manifestation

Fulminant Type



Clinical Manifestation

SHOCK Type

The most dramatic form.

- Severe toxic symptoms;
- Wildly petechiae, purpura, ecchymosis
- Shock: pallor, extremities cold, cyanosis, hypotension, pales quickly
- DIC
- MOF
- Meningeal irritation signs is absent. CSF is normal.
- Blood culture of meningococcus

Clinical Manifestation

Meningoencephalitis Type

- Fever, toxic symptoms, petechiae;
- Repeated convulsions
- Intracranial hypertension:

  severe headache; projectile vomiting
- Papillar edema; encephalocele
- Respiratory failure

Mixed Types

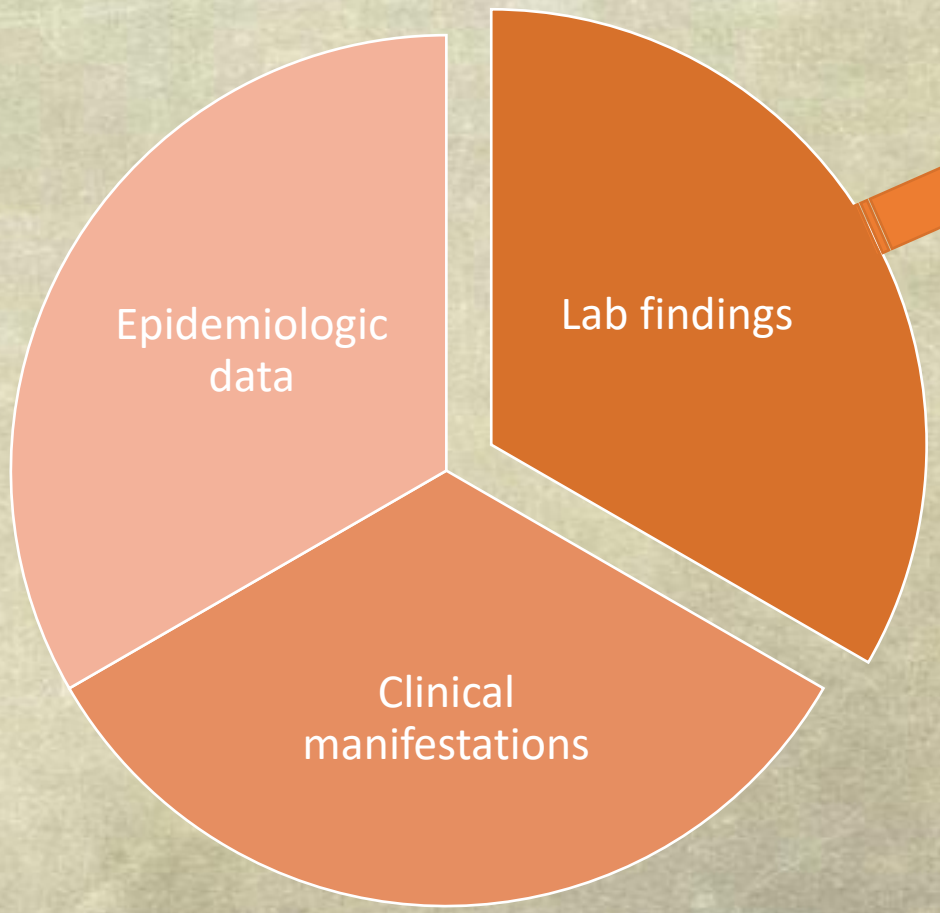
- The mild form:
- The chronic meningococcemia form:

Complications

- Otitis media, purulent arthritis, endocarditis, pericarditis, pneumonia or panophthalmitis;
- Sequelae:

hydro-subdural, hydrocephalus, cranial nerves injured, deafness, blindness, paralysis etc.

Diagnosis



- 1 **Blood pictures**
- WBC > 20 ×10^9; PLT decreases in DIC.
- 2 **CSF** is suppurative
- 3 **Bacteriologic diagnosis**: smear or culture
- 4 **Immunologic test**: antigen and antibody

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Differential Diagnosis

- Other purulent meningitis
- TB meningitis
- Epidemic encephalitis B
- Septicemia

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Treatment

COMMON TYPE

1 General treatment

2 Pathogenic treatment

- Penicillin G
- Chloramycin
- Ceftriaxone, Cefotaxime;

3 Symptomatic therapy

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Treatment

FULMINANT TYPE

SHOCK form

1 Pathogenic therapy

2 Anti-shock

3 Steroid; hydrocoticosterone etc;

4 Anti-dic

5 Protect major organs

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Treatment

FULMINANT TYPE

Meningoencephalitis

1 Antibiotics

2 Decrease intracranial hypertension

3 Steroid

4 Anti-respiratory failure

5 Symptomatic treatment

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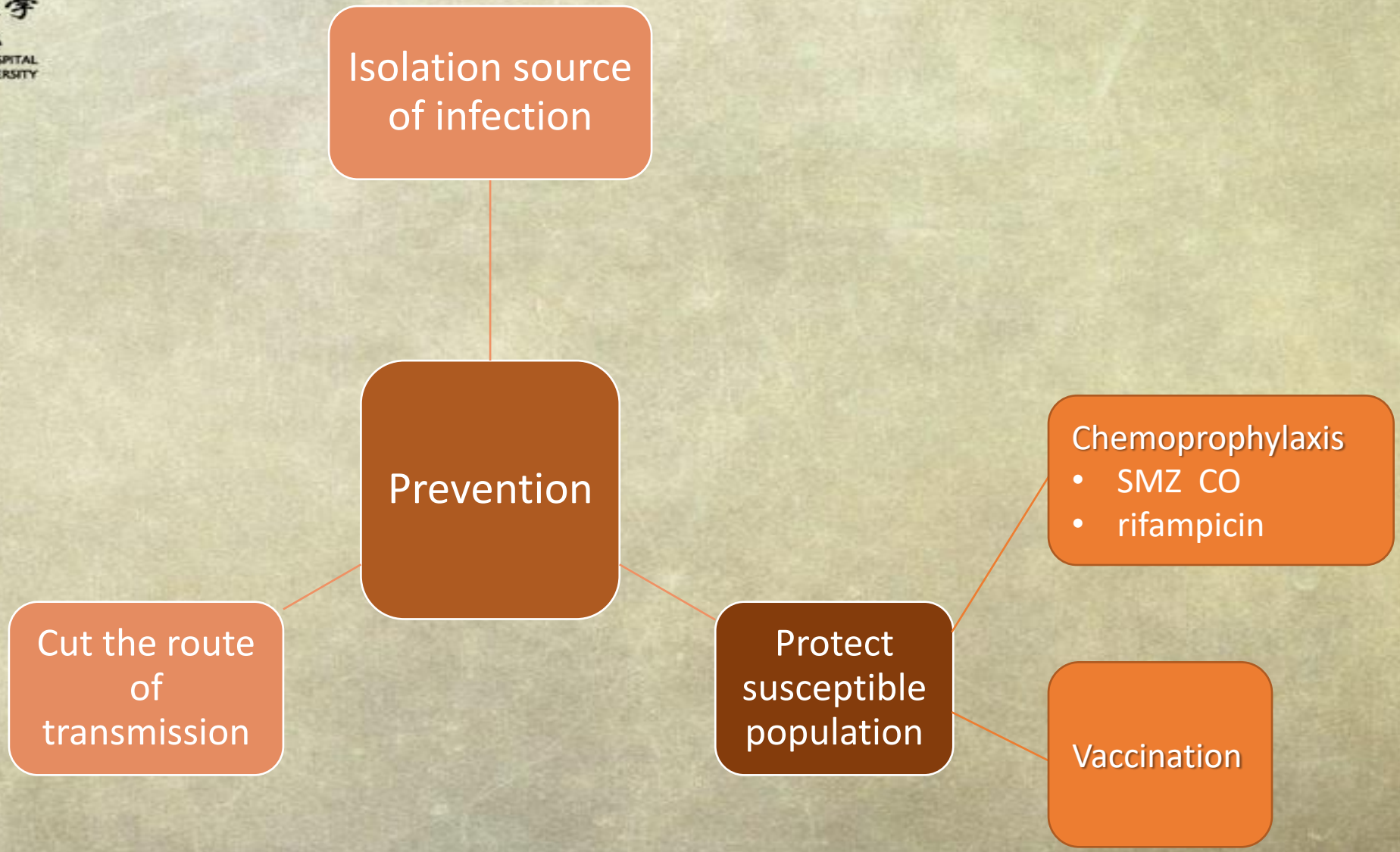
Prevention



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The end.

Thank you!