

Clinical Training

Omar Nafi

- 8 months old male arrived to E.R with jerking abnormal movements

- What key question you are going to ask?

Description of abnormal movements

- Jerking movement is generalized .up rolling eye. LOC. and cyanosis
- Duration 3 minutes.
- It is the first time.
- Mother is not aware of temperature.

- Was doing well up to today morning
- This is the first episode
- Past hx
- Antenatal perinatal
- Family hx
- Developmental hx
- Recent immunization.
- Immunization up to date

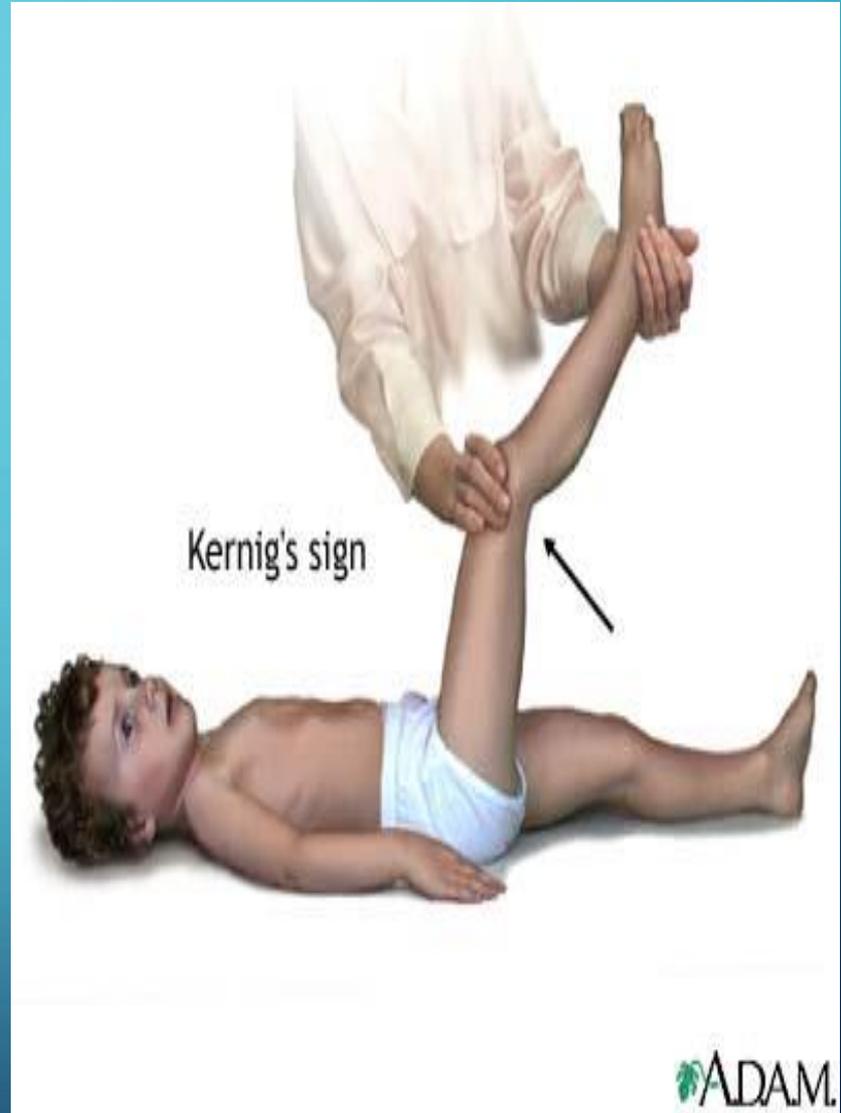
- On examination
- Temp 39.5 c
- No evident focus of infection
- Meningeal signs equivocal

- **Brudzinski's Sign :**

- **Attempts at neck flexion induce flexion of the hip or knee .**



- **Kernig's Sign :**
- **Resistance to passive extension of the knee while the hip is flexed.**

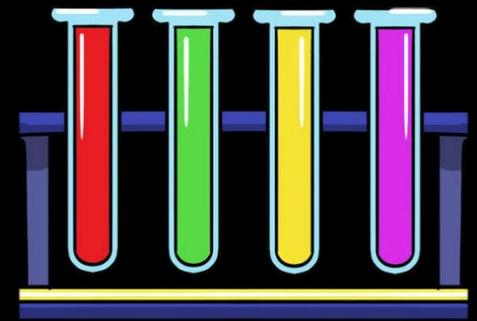


- What is the most likely diagnosis?
- What is the most serious differential diagnosis ?

- Most likely DX **FEBRILE SEIZURES**
- Most serious diff dx **MENINGITIS**

- Next step ?

- Lumbar Puncture done
- What indications for LP in this patient ?



We have to take **5** tubes of CSF FOR :

- Cytology .
- Chemistry
- Gram stain
- Antigenicity
- Culture .

- Cells 2000 95% neutrophils
- Protein 55 mg/ml
- Sugar 45/110

- CSF differential diagnosis
- Normal CSF finding
- Bacterial meningitis
- Viral meningitis
- TB meningitis
- Guillian – Barre
- BIH

- Normal CSF findings
- Cells 0-5 all lymphocytes
- Protein 20-40
- Sugar half to two thirds blood sugar

- CSF diagnosis in this patients ?

- Bacterial meningitis

- RX options

- Etiology in neonate

- Etiology post neonate

- RX in neonate

- Duration of rx

- RX postneonatal

- Duration of rx

Post-Neonatal Meningitis (Treatment):

A- 3 generation cephalosporin
(*Cefotaxime* or *ceftriaxone*)

B- *vancomycin*



Post-Neonatal Meningitis (Treatment Duration)

Generally :

If *N .MENINGITIDS* : 5 -7 DAYS .

IF *H.INFLUENZA* : 7- 10 DAYS .

PNEUMPCOCUS : 10 – 14 DAYS .

- Drug doses are not reduced when clinical improvement occurs because drug penetration commonly decreases as meningeal inflammation decreases .

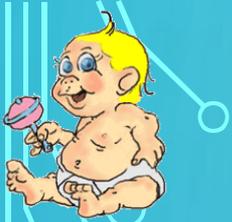
- Dexamethasone in meningitis
- Pathophysiology
- Indications and contraindication
- Dose and duration

- Meningococemia
- Presentation
- Skin rash



Meningococcal Rash





- ❖ **A maculopapular or hemorrhagic petechial rash often appears soon after disease onset .**
- ❖ **Fulminant meningococemia syndromes include **Waterhouse-Friderichsen syndrome (septicemia, profound shock, cutaneous purpura and adrenal hemorrhage)**, sepsis with multiple-organ failure , shock and DIC .**

- Complications

- Prevention

▶ There are 2 types of pneumococcal vaccines:

▪ **Pneumococcal conjugated vaccine (PCV7):**

Given for children **<2 years old**.

▪ **Pneumococcal polysaccharide vaccine (PPV)/ Pneumovax:**

Given to **older children** and **adults**.

▶ **When to administer PCV13 in a child <2 years old?**

1. **Cystic fibrosis**

2. **Cochlear implants**

▶ **When to administer PPV in older children/adults?**

1. **all persons over 65 years**

2. **Immunocompromised patients (increased risk of infection)**

Organ transplant / lymphoma / myeloma / HIV

3. **CSF leak (fractured skull) & cochlear implants**



4. **Patients with chronic illnesses that increase risk of complicated pneumococcal infection**

DM / Alcoholism / Chronic heart, lung or kidney disease

5. **Patients with Splenectomy / Asplenia**

Given 2 weeks prior to splenectomy

6. **Individuals at occupational risk**

There is a strong association between welding and the development of pneumococcal disease, particularly lobar pneumonia

▶ **What is the route of administration?**

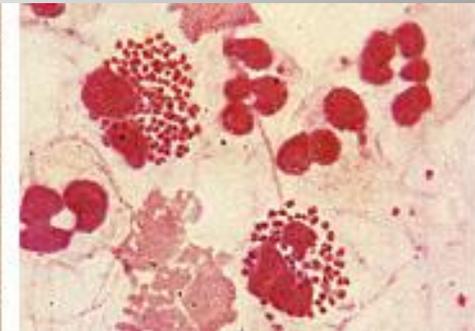
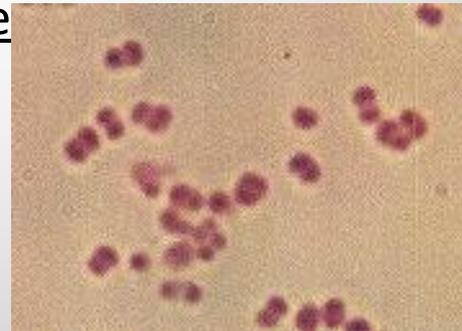
- IM

Notes on *Neisseria meningitidis*

- ▶ Gram -ve diplococci (**encapsulated**)
- ▶ It exists as **normal flora in the nasopharynx** of up to 40% of adults.
- ▶ Spread through respiratory secretions

▶ What are the most important strains?

- (**Strains are based on the chemical composition of their polysaccharide capsule**)
- The most clinically important are
 - **A, B {most lethal form}**
 - **C, X, Y**
 - **W135 {pilgrimage to Mecca}**



Meningococcal vaccine

- ▶ **What are the two types of meningococcal vaccine available in the US?:**
 1. Tetraivalent polysaccharide vaccine (MPSV4) :
 - ▶ For ages **2 years and up**
 2. Tetraivalent polysaccharide-protein conjugate vaccine (MCV4).
 - ▶ **Less than 2 years**

- ▶ Both **protect against** serogroups **A, C, Y, and W-135**,

- ▶ **There is no vaccine currently available against serogroup b**, which is actually the most prevalent. **Why?**
 - the **capsular polysaccharide** on the type B bacterium is too **similar to human neural antigens** to be a useful target.



▶ **Why is it important to get vaccinated against N. meningitidis?**

- The infection can rapidly progress from fever, headache and neck stiffness to **coma and death**.

□ **Death occurs in approximately 10% of cases.**

▶ **Whom is the vaccine given to?**

- Impaired immunity
 - Nephrotic syndrome (immunoglobulin loss)
 - Splenectomy
 - Complement deficiencies
 - HIV
- Laboratory personnel exposed to aerosolized meningococci
- Travelers to areas hyperendemic or epidemic with meningococcal infection.

Some notes on Haemophilus influenzae

- ▶ Gram –ve coccobacillus
- ▶ Two types:
 1. Encapsulated (Typable)
 2. Unencapsulated (Non-typable)
- ▶ Typable H. influenzae include 6 serotypes from A to F including H. influenzae B.
- ▶ Haemophilus influenzae type B (Hib) was the most common cause of childhood bacterial meningitis.

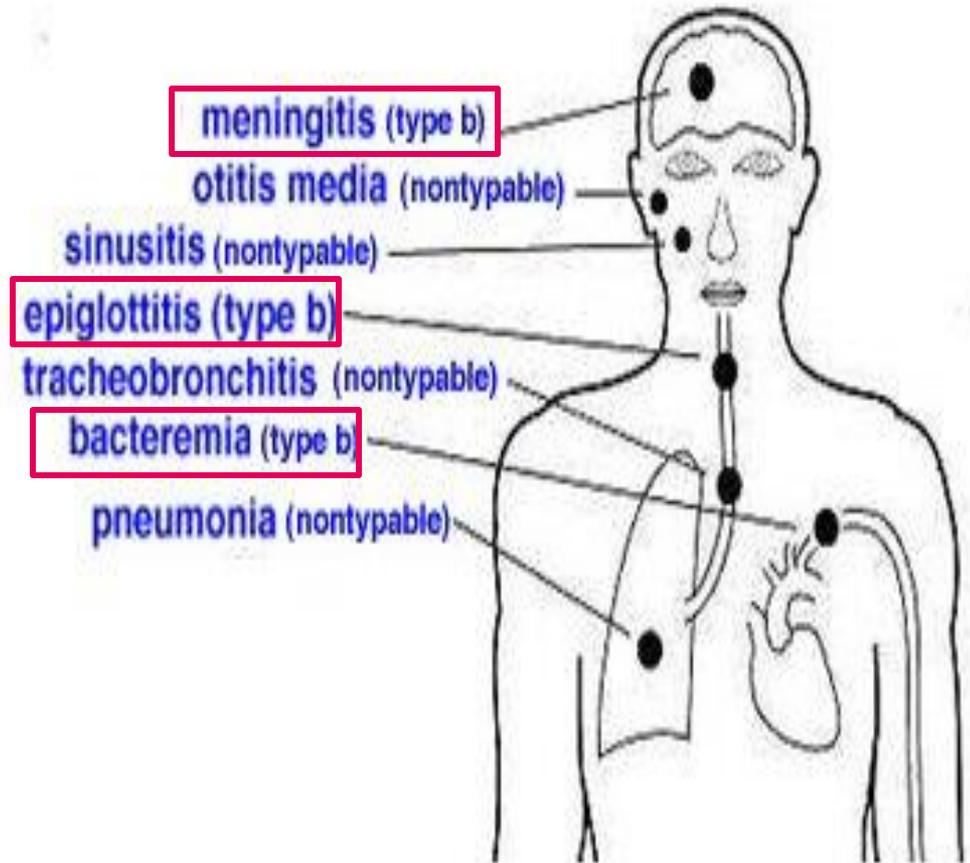
► **Type b** is the one responsible for:

- Meningitis
- Pneumonia
- Bacteremia
- Arthritis
- Osteomyelitis
- Cellulitis
- Epiglottitis

► The **unencapsulated** causes:

- Bronchitis
- Otitis media
- Sinusitis

Haemophilus influenzae infections



Hib Vaccine

▶ Type of vaccine?

- Inactivated/Fractional (conjugated)

▶ Why is it given?

- Protection against childhood meningitis

▶ Route of administration?

- IM

▶ Whom is it given to as well?

- older people who have had [splenectomy](#) , or illnesses that put them at risk for pneumonia, including sickle cell disease, leukemia, complement deficiency, and HIV infection.

- Chemoprophylaxis
- To whom is given
- Rifampicin
- Ceftriaxone

- 2-3 weeks after discharge from hospital ;
the 270 days vaccination(10 months) is due;
- What vaccine is given at this age in Jordan?

برنامج التطعيم الروتيني للأطفال قبل دخول المدرسة

العمر	المطعموم
أقرب وقت بعد الولادة (في الشهر الأول من عمر الطفل)	<p>مطعموم البَيْل (BCG)</p>
بداية الشهر الثالث (يوم 61)	<p>المطعموم السداسي (HEXA) الجرعة الأولى - مطعموم شلل الأطفال (IPV) - مطعموم الثلاثي البكتيري (DaPT) - (الدفتيريا، السعال الديكي والكران) - مطعموم المستديمة النزلية نوع ب - مطعموم التهاب الكبد نوع ب</p> <p>مطعموم الروتا ROTA الجرعة الأولى</p>
بداية الشهر الرابع (يوم 91)	<p>المطعموم السداسي (HEXA) الجرعة الثانية - مطعموم شلل الأطفال (IPV) - مطعموم الثلاثي البكتيري (DaPT) - (الدفتيريا، السعال الديكي والكران) - مطعموم المستديمة النزلية نوع ب - مطعموم التهاب الكبد نوع ب</p> <p>مطعموم الروتا ROTA الجرعة الثانية مطعموم الشلل الفموي OPV الجرعة الأولى</p>
بداية الشهر الخامس (يوم 121)	<p>المطعموم السداسي (HEXA) الجرعة الثالثة - مطعموم شلل الأطفال (IPV) - مطعموم الثلاثي البكتيري (DaPT) - (الدفتيريا، السعال الديكي والكران) - مطعموم المستديمة النزلية نوع ب - مطعموم التهاب الكبد نوع ب</p> <p>مطعموم الروتا ROTA الجرعة الثالثة مطعموم الشلل الفموي OPV الجرعة الثانية</p>
بداية الشهر العاشر (يوم 271)	<p>مطعموم الحصبة Measles مطعموم الشلل الفموي OPV الجرعة الثالثة فيتامين أ 100 ألف وحدة دولية</p>
عمر 12 شهر (1 سنة)	<p>مطعموم الثلاثي الفيروسي MMR1 الجرعة الأولى</p>
عمر 18 شهر (1.5 سنة ونصف)	<p>مطعموم الثلاثي الفيروسي MMR2 الجرعة الثانية مطعموم الثلاثي البكتيري DPT المُدَعِّمة مطعموم الشلل الفموي OPV المُدَعِّمة فيتامين أ 200 ألف وحدة دولية</p>

للمزيد من المعلومات الرجاء الإتصال على هاتف: ٥٢٠٠٢٣٠ داخلي (٢٦٥٥)

قسم التطعيم / مديرية الأمراض السارية - وزارة الصحة



- Thank you