

8:00

Spore-Forming Gram-Positive

9:00

Bacilli: Bacillus and

10:00

Clostridium Species

11:00

\* Listeria monocytogenes

\* Corynebacterium diphtheria

Gram

⊕

Non Spore Formers

12:00

1:00

\* Spore formers gram ⊕ are divided into two genera based on their oxygen requirements

2:00

→ Bacillus → Aerobes

يحب بيده هوا

3:00

→ Clostridium → Anaerobes

4:00

\* Bacillus \*

5:00

\* Ubiquitous / \* has many species of highly medical important

6:00

\* B. anthracis

→ anthrax

مسبب ال

الحمى القبية

Clinically come with 3 forms

7:00

8:00

Notes

Cutaneous anthrax (most common)

Inhalational anthrax (Wool sorter disease)

GI anthrax (rare & caused by ingestion of anthrax spores)

27 Rajab 1442 H

11/3/2021

٢٧ رجب ١٤٤٢ هـ

8:00

B. cereus mainly عن غذائي GI -  
Food Poisoning هو ال most common presentation

9:00

B. thuringiensis هو Bacillus genus ب ال other members و ال B. subtilis

10:00

insect pathogen

B. subtilis

11:00

research model & are used in the industry

12:00

\* B. cereus → aerobes or facultatively anaerobe  
→ Spore formers / motile  
→ Food Poisoning  
→ Produce 2 types of toxins

1:00

2:00

3:00

4:00

Heat labile enterotoxin  
Heat stable //

5:00

Food Poisoning هو Vomiting و cerulide و diarrhea هو classical enterotoxin  
B. cereus هو

6:00

localized of systemic B. cereus ال Food Poisoning هو infection

8:00

pneumonia, osteomyelitis, meningitis هو

most common extra intestinal infection by B. cereus is ملاحظات هو

endophthalmitis

face هو immunocompromised هو ال most common

March - 2021

3)

آذار - مارس

FRIDAY

26

الجمعة

13 Sha'aban 1442 H

26/3/2021

١٣ شعبان ١٤٤٢ هـ

8:00 \* *B. cereus* tend to be in pairs or in chains with square ends.

9:00 \* Spores of *B. cereus* are located in the middle of the rods unlike *B. anthracis* which are located

10:00 at the end ((Bambos stick appearance))

SATURDAY

27

السبت

14 Sha'aban 1442 H

27/3/2021

١٤ شعبان ١٤٤٢ هـ

8:00 *B. cereus* → motile / no capsule

9:00 *B. anthracis* → Non-motile / glutamic acid capsule  
(not Polysaccharide caps)

10:00 *B. cereus* → Beta hemolysis / resistant to Penicillins & cephalosporins

11:00 *B. anthracis* → no hemolysis / Sensitive to Penicillins & cephalosporins

1:00 \* So there is no need to give Antibiotics for Food Poisoning by *B. cereus*

3:00 \* Two forms of *B. cereus* toxins  
1) emetic type → vomiting → Pre-formed heat stable toxin → can survive "flash frying" → rice & cereals → chinese Food Poisoning → cereulide

5:00 2) diarrheal type → *B. cereus* germinate & elaborate heat labile toxin inside your intestine → meat dishes & sauces

15 Sha'aban 1442 H

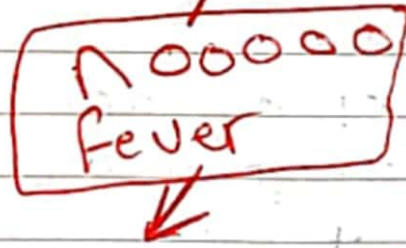
28/3/2021

15 شعبان 1442 هـ

8:00 other enterotoxins of B. cereus induced in diarrheal type  
 → three pore-forming  
 9:00 → Hemolysin BL (HBL)  
 → nonhemolytic enterotoxin (NHE)  
 10:00 → Cytotoxin K

11:00 (cerulide → heat stable → emetic) ← ! تذكر type

12:00 \* Vomiting type → shorter incubation period  
 Preformed toxin لأنه



1:00 → self limited / nausea vomiting  
 rarely abdominal cramps & diarrhea

3:00 \* diarrheal type → السهل  
 Self limited يرفق  
 4:00 within 24 hours

5:00 Clostridium perfringens enterotoxin ← diarrheal type \*

6:00 S. aureus food poisoning ← Vomiting type \*

التاريخية Clinical Presentation ←

Diagnosis

ملاحظات

resolves within 24 hours we don't dig deep بالعبادة

Severe dehydration permanent vomiting بس إذا صار

8:00

Diagnosis

تكملة ←

sensitive بالعادة ال Stool & vomit غير كافي لمعرفة ال

9:00

Left over of food الأفضل نرجع لا

10:00

10<sup>5</sup> colony of B. cereus per one gram of food اذا لقينا

11:00

This is diagnostic!!

12:00

→ B. cereus on Blood Agar :- Large colony

1:00

ذات شكل ريشي with Beta hemolysis

2:00

→ ~~B. cere~~ B. anthracis → dry waxy colony

3:00

→ ((Medusa head))

4:00

B. cereus food poisoning → we give patients

5:00

Fluids & electrolytes but NOT antibiotics

6:00

7:00

8:00

Notes

8:00

# \* Clostridium

\* Ubiquitous / \* motile (C. Perferingens → <sup>not</sup> motile)

9:00

\* they posses Peritrichous Flagella يعني حلاله  
من كل الجهات

10:00

\* Strictly Anaerobes (aerotolerant <sup>قليل منهم</sup>)

11:00

تذكر انته البجمل بدو هو الـ ١١١١١ وهذا من اجل

12:00

\* Contains Four Species of highly medical important

1:00

1) C. tetani → tetanus (disease) characterized by continuous contraction of the ~~muscle~~ muscle ((Rigid Paralysis)) another name Lock jaw disease

2:00

وهو دول الناس يكون عندو arching of the back

3:00

mechanism of its toxin = Inhibits inhibitory signals (Inhibits GABA & Glycin)

4:00



5:00

في حين Continuous contraction

6:00

GI manifestation

2) C. Botulinum → Botulism (disease)

7:00

Prevent the release of Ach from synaptic membranes → Flaccid Paralysis  
Very highly toxic toxin  
BiLateral symmetric descending Paralysis started by cranial nerves involve autonomic & motor nerves

8:00

من اجل GI manifestation

30 Sha'aban 1442 H

12/4/2021

٣٠ شعبان ١٤٤٢ هـ

8:00 3) *C. perfringens* → cause myonecrosis (gas gangrene)

9:00 Common cause of Food Poisoning  
أيضاً

10:00 *B. cereus* مثل ال  
11:00 4) *C. difficile* → antibiotic associated diarrhea (mild) or Pseudomembranous colitis or Fulminant colitis (Severe)

\* *C. botulinum*

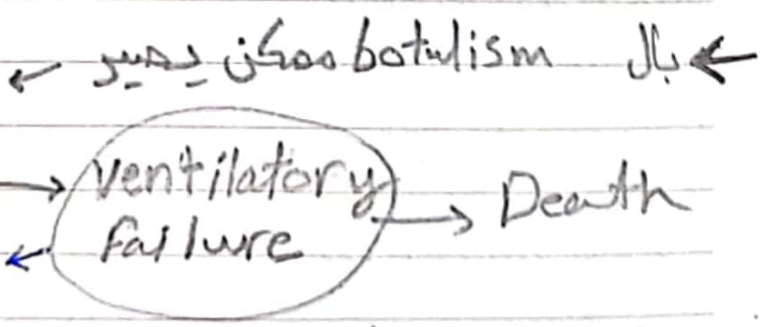
2:00 \* Gram (+) / Spore formers / Anaerobes

\* Bilateral Symmetrical descending flaccid paralysis starting with cranial nerves then motor & autonomic nerves  
reversible ←

4:00 Four Ds بالعادة ينشأ عن ال botulinum

5:00 Dysarthria Dry mouth Dysphagia Diplopia

6:00 Paralysis of respiratory muscles



8:00 Notes need supportive treatment for RS

FI ← يمكن نلاحظها بال Soil ← بعد colonization ل mammals. تبيع ال birds وال

8:00 Pathogenesis of C. botulinum

\* مثل كل C. botulinum بتلطف botulinum toxin لنفسها

9:00 Diagnosis is coded by ProPhage ← toxin ← غسان هيك احتياجا  
ما يتطور بس على C. botulinum ولكن ايضا بتطور على

10:00 → Toxin Producing C. botulinum

11:00 → Has Seven Serotypes (some books says 8) from A to E

12:00 → most common types causing human illness are A, B & E → in Jordan Trivalent

1:00 → in Europe Heptavalent

→ there is C1 & C2 → some books (C2) → (H)  
2:00 → E is not common to cause human illness

3:00 \* Classical picture of food contaminated with C. Botulinum → Smoked vacuum canned alkaline food

4:00 Bulging ← فتقح ← هاسي لعطبات

\* Four clinical categories of Botulism:-

5:00 ① Foodborne Bot. → Preformed toxin unlike infant B  
→ most common within C. Botulism

6:00 ② Infant Bot. → most common vehicle is Honey → Contains

spores → spores germinate to bacilli → during this germination the toxin is

7:00 produced (Floppy baby Syndrome) ← بيكونا الولدي الشربطة وبيقبط

→ ممكن تشوب بالكتب ← adult ← هو نفس ال ← infant ← poor reacting ← complete flaccid paralysis ← continuous crying

8:00 ③ Wound Bot. → Skin Popping technique in IV Drug use

→ كفان جرح اجنا عليه من التراب

④ Inadvertent (unintentional)

→ Following botulinum IM toxin injection



20 Sha'aban 1442 H

2/4/2021

٢٠ شعبان ١٤٤٢ هـ

8:00 \*Diagnosis of Botulism\*

gastric secretion or stool - يتدور غالبا أو toxin producing C.B...  
9:00 أو بال Wound Botulism إذا كان Pus

10:00 \*Gold standard for diagnosis of C. Botulinum intoxication is Mouse Bioassay Test

PCR & ELISA are also used <sup>السيت</sup>

21 Sha'aban 1442 H

3/4/2021

٢١ شعبان ١٤٤٢ هـ

8:00 \*Treatment of Botulism\*

- Supportive treatment & mechanical ventilation

9:00 Ventilatory failure لأنه يتخاف من

- Surgical debridement in Wound B...

10:00 - Anti-toxin (trivalent A, B & E) -> بشكل عام لكل الأنواع ورجوعه عال <sup>Severity</sup>

11:00 !! Toxoid -> تكون مارة فوراً لها يدو -> **Active**  
Anti-toxin -> Antibody -> **Passive**

12:00

! Don't give Antibiotics -> يمكن يزيد الحالة سوءاً

1:00

\*Prevention or Control of Botulism\*

- 2:00 - avoid bulgy canned food
- adequate heating & boiling of food
- 3:00 - No honey for the first year infant

4:00

5:00

22 Sha'aban 1442 H

4/4/2021

٢٢ شعبان ١٤٤٢ هـ

8:00

\*Clostridia that produce invasive infections\*

⇒ C. Perfringens → myonecrosis / gas gangrene

9:00

→ common causative of food poisoning

→ Crepitation in wounds affected with gas gangrene

10:00

→ elaborate different toxins: α ⊖ ε → Type A C. Perfringens

11:00

Also elaborate CPE  
Clostridium Perfringens enterotoxin      Food Poisoning      gas gangrene

12:00

Type C C. Perfringens → β toxin → necrotizing enterocolitis toxin  
→ Pig Bel disease

1:00

2:00

Exception For C. Perfringens: (early spore formation)  
Spore formers مع البغلة  
they don't possess peritrichous flagella (non motile)  
or gliding movement

3:00

4:00

5:00

Anaerobes → Stormy fermentation in milk media      ظاهرة التخمر العاصف  
C. Perfringens

6:00

- Double zone hemolysis → α & β

7:00

- could be part of normal flora

8:00

عن جنس Clostridium في تلافيف C. botulinum  
في تلافيف C. Perfringens  
توليد السموم في Clostridium Perfringens  
ملاحظات

FRIDAY

9

الجمعة

27 Sha'aban 1442 H

9/4/2021

٢٧ شعبان ١٤٤٢ هـ

8:00 \* جرح بتقرن الى traumatic implantation من الـ C. Perfringens  
من الـ Soil أو الـ Feces فتنتج Gas

9:00 \* أو إذا لم يكن Ingestion لـ Food grown in soil من الخضار والفواكه  
وكان فيهم Spores هذا الـ Spores يصير لهم germination

10:00 ويتجوا toxin فبببر Gas

SATURDAY

10

السبت

28 Sha'aban 1442 H

10/4/2021

٢٨ شعبان ١٤٤٢ هـ

8:00 Lithinase ← alpha ← Type A ← تذكر  
theta strains

9:00 edema factor ← epsilon  
- بالانفاة اهدول بطلع كان (CPE)  
- من كل strain يطلبهم كلام

10:00 Type C → بطلع Beta toxin

11:00 \* Calibrate food of C. Perfringens → meat dishes well cooked  
من

12:00 و بظاوا لتاني يوم وما يتسختوا مبيع

1:00 gas gangrene → traumatic implantation  
→ crepitation / foul-smelling discharge  
نعيد كان مرة

← بالتشخيص ما يكفي نشوف C. Perfringens لازم نشوف strain  
نتيج toxin

3:00 \* alpha toxin or Lecithinase or Phospholipase

4:00 Nagular test ال test الي العلاقة بال alpha toxin هو

5:00 C. Perfringens

29 Sha'aban 1442 H

11/4/2021

٢٩ شعبان ١٤٤٢ هـ

8:00 \* treatment of C. Perfringens \*

In gas gangrene → surgical debridement & antibiotics

9:00

→ (+) Hyperbaric oxygen chamber

10:00 Antitoxin is also available → not highly recommended لكن highly recommended

11:00

C. Botulism  
In Food poisoning → self limited & only symptoms care

12:00

1:00 \* Clostridium difficile infection \* (CDI)

2:00

\* Ubiquitous / part of normal flora

3:00

\* hospital or community acquired

أكثر شيوعاً

4:00

Fluoroquinolones / cephalosporins / clindamycin  
ceftriaxone

5:00

فجيرة عتية diarrhea

6:00

mild → antibiotic associated diarrhea  
Severe → pseudomembranous colitis (PMC)

7:00

- بالتالي يكون endogenous يعني ال C. difficile يكون عايش بال intestine للمريض إذا المريض أخذ antibiotic يصير suppression

8:00

C. difficile lower growth و Bacteria لأنواع كثيرة من ال Bacteria ملاحظات

- برضو ممكن يكون exogenous عن طريق ال medical staff  
بالعادة إذا انصاب فيه مريض عندك روح يتطابوا كل مرض القسم فيتحول auto cleaved  
من ال spores ← إذا انشخص مريض فيه يصير infection control

8:00 \* Pathogenesis of C. difficile  
 → two types of toxin → Toxin A (enterotoxin)  
 9:00 → Toxin B (cytotoxin)

\* they inhibit Rho-GTPase  
 10:00 \* So they impact actin cytoskeleton of the cell

11:00 \* Toxin A → chemotactic → huge infiltration of PMN-cells & cytokines  
 12:00

1:00 \* net outcome of both A & B toxins is hypersecretion of fluid & electrolytes (diarrhea)  
 2:00

New strain of C. perfringens → Hypervirulent, hyper toxin producing strain (ribotype 027, 078)  
 3:00  
 4:00

\* Diagnosis

5:00 1) diarrhea → consistency / frequency  
 6:00

7:00 with no recognized cause

8:00 2) then we find the toxin → A أو B  
 Notes

يمكن أدرخال genes عن طريق ELISA أو PCR  
 مشكلة ال genes ! نه مش دايماً إذا الجين موجود يعني البروتين اللي بطلع  
 elisa → higher sensitivity  
 3) endoscopy → من الحالات بتقنه عن طريقه

24 Sha'aban 1442 H

6/4/2021

٢٤ شعبان ١٤٤٢ هـ

8:00 \* treatment

مع بأنه المشكلة تتضمن antibiotics

9:00

لكن العلاج أيضًا بال antibiotics

أول شيء يتوقف الـ offending antibiotics التي هي wide spectrum

10:00

العلاج ← Metronidazole (Flagyl)

11:00

إذا ما زبط بنعطي Oral Vancomycin

12:00

الحالة الوحيدة بالطبيب التي بنعطي فيها الـ Vancomycin

Orally

لأنه المشكلة بال GI

2:00

بسه برغبو ممكن يصير في مشكلة أكبر بسيت الـ Vancomycin

3:00

التي هي (VRE)

4:00

Vancomycin Resistant Enterococci

5:00

مرضى الـ PMC بعد في their life

6:00

Broad spectrum Antibiotics ما لازم ياخذوا

7:00

8:00

الطبيب يعني بوصفهم Non-Broad Spectrum إذا ملاحظت

احتاجوا مراد حيوي لقوام

Infection control

إذا تشخص مريض بال PMC بغير المستشفى

8:00 Enteric Gram-Negative Rods

9:00 (Enterobacteriaceae)

10:00 \* عائلة كبيرة ممكن تسبب أمراض فوق ما بتتخيل  
\* Coliform or enteric Bacteria ← أسماء ثانية

12:00 \* يستخدمونهم لفحص تقاوة المياه مثل E. coli Prototype  
\* يعيشوا جوا وأعضاء الانسان والحيوان بشكل طبيعي  
← عنى كلهم ← بعضها Strictly Pathogenic وين ما شفتاهم  
مثل Shigella / Salmonella / Yersinia

1:00 \* E. coli / Proteus / Klebsiella → Part of GI normal flora  
2:00 \* other members → Providencia stuartii / Acinetobacter  
Branamella (Moraxella)

3:00 \* Opportunistic → E. coli → most common for UTI

4:00 \* بعض الحالات ال E. coli وهي بال intestine  
5:00 gastroenteritis ← فيقول it acquires plasmid  
6:00 colonization (adhesins) أو مكان ممكن تاخذ  
Klebsiella & Proteus also cause UT

7:00 \* أو ممكن يعمل urinary tract access

8:00 bacteremia ← blood أو ال

Notes \* Gram- are common  
caused for bacteremia

26 Sha'aban 1442 H

8/4/2021

٢٦ شعبان ١٤٤٢ هـ

8:00 \* Most of Enterobacteriaceae species are motile (Peritrichious Flagella) but there is some exceptions:

9:00 *Shigella / yersinia / Klebsiella* ← Non-motile

10:00 \* *Enterobacterial Common Antigen* (ECA)   
 كلهم مشتركين بانه عندهم

11:00 (O) Antigen

They ferment "rather than" وأيضا

12:00 oxidize" glucose

1:00 They reduce nitrate to nitrite وأيضا

2:00 Catalase (+) وأيضا

3:00 Oxidase (-) وأيضا

4:00 \* *Plesiomonas* oxidase (+) "exception"

5:00 \* They are facultative anaerobes

6:00 \* *glucose fermenter* لكن لاكتوز فيرمنتير   
 كلهم

7:00 Lactose fermenter → E. coli Pink

NON Lactose fermenter → Salmonella / Shigella

8:00 differential media

MacConcy agar

ملاحظات ← عن طريق

\* Eosin Methylene Blue (EMB) → Lactose fermenter

central located nucleus

(+) greenish

E. coli

ملاحظة  
القص  
على  
selective  
gram



8:00 \*Antigenic Structure

\* الجرام - gram - إذا فيه Lipid Poly Saccharide

9:00 Lipid A ← الكيتوي على

Core Poly Saccharide ←

10:00 Outermost (O antigen) ←  
oligosaccharide

11:00

\* ال O antigen يعتبر Common بال Enterobacterace

12:00

\* ال Motile ones يكون عندهم H (Flagellar) antigen

1:00

\* ال التي يكون عندهم capsule ← عندهم capsular (K) antigen

2:00

\* Somatic O antigen → IgM

3:00 \* H (Flagellar) antigen → IgG

4:00 \* O antigen → Heat stable

\* K antigen → Heat Labile

5:00

6:00 Exception: if K antigen comes with Salmonella  
serotype typhi → then the capsular antigen  
is called Vi antigen

7:00

\* ال gram - gram - بر فيه ممكن ينتجوا ال (Colicins)

8:00

Notes

← (bacteriocins) → Peptides & Proteins that can inhibit the growth of other bacteria

← الكيتوي  
من ال F. coli

10 Ramadan 1442 H

22/4/2021

١٠ رمضان ١٤٤٢ هـ

8:00 E. Coli - associated diarrheal diseases

9:00 \* E. Coli colonizes GI tract mainly & upper respiratory tract & genital tract

10:00 \* E. Coli -> Lactose fermenter -> pink colony on MacConkey agar & black nucleated with greenish appearance on Eosin Methylene Blue (EMB)

11:00 \* E. coli -> oxidase negative

1:00 2:00 ① Enteropathogenic E. coli (EPEC)

\* major cause of infantile diarrhea

\* major outbreak of nursery diarrhea

3:00 \* (a & e) Lesion -> attachment and effacement  
4:00 -> required for pathogenicity

5:00 \* Tight adherent characteristic of EPEC is promoted by (EAF) and (LEE)

6:00 EAF -> EPEC Adherence Factor

7:00 LEE -> the chromosomal locus of enterocyte effacement

8:00 \* After attachment, there is loss of microvilli

(effacement) ملاحظات

acquired through plasmid -> strains

outcome -> explosive watery diarrhea + vomiting + fever  
not bloody

8:00 \* EPEC is usually self limited

Severely dehydration ممكن يستدعي دخوله الى المستشفى حسب ال

9:00

\* ممكن تعطيرهم antibiotic ← تقريباً كل ال

10:00

diarrheal associated E. coli

11:00

EHEC

بزيط تعطيرهم antibiotic لا

12:00

لأنه contraindicated

1:00

\* ال adults بالعادة ما يتمايوا بال EPEC

2:00

لأنه يحتاجوا إلى high inoculation dose ← 10<sup>10</sup> colony

3:00

2 Enterotoxigenic E. coli (ETEC)

4:00

~~\* 3/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31~~

\* common cause of "traveler's diarrhea" فيها كمان viral & Parasitic causes

5:00

6:00

\* its pathogenesis starts with colonization factor

7:00

"also aquired by Plasmid"

\* Lesions occurs in small intestine

8:00

\* also a common cause of diarrhea in children

Notes

Less than 5 years / its toxin has 2 components

ST & LT

ST → ↑ cGMP

↓  
A & B 1 & 2

LT → ↑ cAMP

→ ↑ Secretion of fluid and electrolyte

17 Ramadan 1442 H

29/4/2021

١٧ رمضان ١٤٤٢ هـ

8:00

AMP شغل عال

← تكولة

9:00

LT → immunogenic → Antibodies against LT  
 so less possibility of diarrhea  
 ST → NOT immunogenic

10:00

\* LT has the same mechanism of action of Vibrio cholera

12:00

3 Shiga toxin-Producing E. coli → أول وحدة بتفرغها  
 (STEC) or (EHEC) → شغل دموي  
 inflammatory diarrhea ⊕ blood stool

1:00

2:00

\* 3 Names → STEC → has the ability to produce a shiga like toxin  
 ↳ EHEC → hemorrhage = bloody diarrhea  
 ↳ (VTEC)

3:00

4:00

\* RBC + WBC + mucous = inflammatory diarrhea

\* under cooked ground beef (hamburgers) / lettuce / apple cider

\* mainly affect childrens causing (HUS)

8:00 HUS = anemia + thrombocytopenia + renal failure

STEC → renal failure in children ملاحظات

EHEC → don't give them antibiotic since it increases the risk of HUS

11 Ramadan 1442 H

23/4/2021

11 رمضان 1442 هـ

8:00 \* most common strain of STEC that affects human is O157:H7 → ready enzyme

9:00 immune assays

10:00 أوعاء نقطية صناديق  
زي فحوصات الحبل  
بتحليلها بال Stool

12 Ramadan 1442 H

24/4/2021

12 رمضان 1442 هـ

8:00 \* طبقاً هـ و ل يطلقوا toxin بشبهه (مطابق حتى)

STX2 & STX1

9:00 طب ليس يعملوا ؟ لأنه إلهم

10:00 adequate receptors on both Kidneys acute renal failure

11:00 thrombosis وكمان لأنه يجعل  
vessels بال

12:00 \* bloody stool  
1:00 \* Abdominal cramps  
\* No Fever  
\* مش كل واحد بنصاب  
فيها بحس عنده HUS  
ومش كل واحد عنده HUS  
يكون سببها هاد ال toxin

2:00 ~~infection~~  
3:00 بالعدوى السببية

4:00 \* intussusception  
\* ischemic bowel disease → No Fever  
برقنو

5:00 \* C.difficile / campylobacter / salmonella  
↳ also bloody diarrhea

8:00 \* other test than EIA is cultivation of these cells with Vero cells → إذا ماتوا هدول

9:00

10:00

ال Vero  
معناته في  
EHEC  
STEC

11:00

\* Prevention by pasteurization & well-cooking

12:00

\* Antibiotics may increase the risk of HUS

1:00

4) Enteroinvasive E Coli

2:00

× بجائانه في invasive بال GI

3:00

Fever ← يوجد  
blood ← يوجد

4:00

\* Produces a disease very similar to shigellosis →

6:00

EIEC به اختلاف إته ال  
بتحتاج (10<sup>8</sup>-10<sup>10</sup> CFU)

7:00

to establish the infection

8:00

ملاحظات بيضا بال Shigella أقل من 100 باسلاي  
بتحتاج

Exception → EIEC → non or Late Lactose fermenter  
unlike other E coli

8:00 EHEC enzyme immunoassay (EIA) تذكر بنية لها

9:00 Sorbitol MacConkey agar  
10:00 Lactose

11:00 Fermentation of Sorbitol E. coli كد ال

12:00 EHEC  
1:00 hemorrhagic

2:00 [5] Enteraggregative E. coli (EAEC)  
3:00 diffusely adherent E. coli اسم آخر

4:00 \* one of the common causes of  
5:00 chronic diarrhea & persistent diarrhea with HIV Patients  
6:00 last for more than 14 days

7:00  
8:00 Stacked brick pattern ← سبب التسمية  
Notes on culture

+ very hard diagnosis

8:00

\* inflammatory diarrhea

9:00

↳ EHEC & EIEC

10:00

11:00

antibiotics في كثير من الأحيان  
مشكلة علمية  
E. coli gram ⊖  
مدول ال

12:00

1:00

علمي رأيهم ال Sulfonamides

2:00

Trimethoprim - sulfamethoxazole

3:00

4:00

Prevention before travelling

5:00

→ bismuth subsalicylate

→ doxycycline

6:00

Prophylaxis

7:00

8:00

Control → hand washing

↳ rigorous asepsis

↳ sterilization



8:00 (Shigella, Salmonella, Yersinia)

9:00 \*Those are Enterobactriaceae/\* They are Coliforms  
\* Differ from other Gram ⊖ bacteria → All of Enterobactriaceae members can ferment <sup>glucose</sup> → they reduce nitrite to nitrate  
→ they are facultative anaerobes → so they grow aerobically & anaerobically → Oxidase ⊖

12:00 Shigella

1:00 \*the causative agent of Shigellosis (also called Bacillary dysentery).

2:00 \*Shigella, Salmonella, Yersinia → always pathogenic whenever found in the body → can't be normal flora

3:00 \*Shigellosis is strictly human disease (no animal reservoir)  
4:00 ? Transmission cycle continuous  
convalescent carrier ← carriers ← عن طريق  
5:00 subclinical carrier ←

6:00 → Shigella is a gram ⊖ bacilli → NOT motile also rarely found outside GI tract

7:00 \*Shiga toxin is a neurotoxin, cytotoxin & enterotoxin

8:00 Notes ↳ baby comes with <sup>تشنج</sup> convulsio or seizure with fever

\*Shigella is a Glucose ✓ But NOT Lactose

non glucose  
non lactose  
\*Salmonella also. → fermenter

8:00 Shigella & Salmonella

\* Both Ferment glucose

9:00 \* Both aren't Lactose fermenters

\* Shigella is NON motile

10:00 \* Shigella doesn't produce acid called  $H_2S$

11:00 \* Shigella produces a colorless colonies in EMB. (Eosin Methylene Blue) agar plate

12:00

Epidemiology → Shigella mainly is a children pathogen (under 5 yrs) → outbreak in nursery  
→ also infects very old people institutions or infirmary

1:00

→ highly contagious → needs very minimal infectious dose (Bacilli 100 فقط) to establish infection & illness of Shigellosis

4:00

\* Four species of Shigella (important human pathog.)

5:00

① S. Flexneri → most common world wide & in developing countries

6:00

② S. Sonnei → most common in developed countries

7:00

③ S. Dysenteriae → Classical & Most Potent Producer of Shiga toxin

8:00

④ S. Boydii

ملاحظات

\* Shigella is strictly human pathogen (mainly feco-oral route)

S. Sonnei has only one serotype while others have multiple

18 Ramadan 1442 H

30/4/2021

١٨ رمضان ١٤٤٢ هـ

8:00 Remember!!

9:00 4Ds → جماعة البوتكس

10:00 4Fs → with Shigella. Flies, Fingers, Feces, Food

↑ infected human of subclinical carrier

SATURDAY

19 Ramadan 1442 H

1/5/2021

١٩ رمضان ١٤٤٢ هـ

8:00 Etiology \* The main pathogenesis factor of Shigellosis is **Invasiveness**, also they produce

9:00 Shiga toxin (which works synergistically with invasion process).

10:00 SO the prototype of bacterial invasive diseases of GI tract is Shigella

\* main pathogenesis through invasion of mucosa & submucosa

12:00 **ليس برفشوا بلطاع برا ال GI tract كتي لو اجناب الريفين (الطفلة) Meningismus أو Febrile convulsion**

1:00 Shiga toxin **كيف عرفنا هذا الكلام؟؟ لازم نعرف انه ال is chromosomally encoded**

2:00 جوبينا نسيال الجين المسؤول عن ال adhesin ما طلع معنا

Classical ال invasion Picture (البرهي اخطر)

4:00 Shiga toxin **بيضا لما شلنا ال gene المسؤول عن ال**

كان نتج معنا المورة الخطيرة على الرغم من زواله

Shiga toxin

20 Ramadan 1442 H

2/5/2021

٢٠ رمضان ١٤٤٢ هـ

8:00 \* *S. Dysenteriae* produces the most potent Shiga toxin → which is chromosomally encoded

9:00

10:00 هوذا ال Shigella وال antibody serum والتثبيت تبيّن Slide agglutination

11:00

12:00 Pathogenesis → Less than  $10^3$  infectious dose is needed to cause shigellosis

1:00

After ingestion of material contaminated with shigella → invasion of mucosa & submucosa takes place

2:00

→ then inflammatory diarrhea (RBC + WBC + mucus) → bloody diarrhea

3:00

4:00 \* أو اسّي يكون تأثير ال Shiga toxin قبيح

4:00

و بعدين لما بيد أثر ال invasion يحيي

5:00

Post infectious stage بـ يمكن يدخل المريض بـ

5:00

و بخل carrier و يستقر ال transmission cycle

6:00

عشان هيك ال Shigella بقتر Strictly HUMAN pathogen

6:00

\* بسبب ال invasion ممكن يحيي ulceration

7:00

micro abscesses

8:00

pseudomembrane → dead epithelial cells & shigella fibrin clots

8:00

bloody diarrhea و هتلا ملاحظت ممكن يحيي ال Stuffing و يساهم بال

8:00

ومن هون اجس الاسم الآخر " الزحار العصبي "

8:00

" Bacillary dysentery "

8:00

→ inflammatory diarrhea

2 Rabia-1 1443 H

8/10/2021

٢ ربيع الأول ١٤٤٣ هـ

8:00 Toxin \* Shigella → glam ⊖ → Lipopolysaccharide  
 → endotoxin activity other than  
 9:00 exotoxin "if they produce exotoxin"

10:00 \* Exotoxin of Shigella is chromosomally encoded  
 which means that all its species produce exotoxin but with  
 different quantities & forms

SATURDAY

السبت

3 Rabia-1 1443 H

9/10/2021

٣ ربيع الأول ١٤٤٣ هـ

8:00 \* Shiga toxin is cytotoxin, neurotoxin and enterotoxin  
 is believed to act early in the  
 9:00 disease process of shigellosis

10:00 يكون عندهم watery diarrhea أول يومين وبعدها  
 typical dysentery نبدأ ال  
 11:00 Presentation of bloody diarrhea

12:00 \* Neurotoxin → child patient may come with  
 convulsions or meningismus

Clinical Finding

- \* short incubation period of two days
- \* highly contagious
- \* fever, \* watery diarrhea then bloody diarrhea
- \* Tenesmus (rectal spasm)

\* احنا ما شكلنا  
 مع ال carriers  
 سواد بعد او قبل  
 العلاج همدول  
 they keep  
 shedding  
 Shigella in their  
 feces → نبدأ  
 low hygiene  
 → they infect  
 others who eat  
 contaminated food

4:00 \* short lived immunity التي بنصابوا فيها بغير عندهم

5:00 High من شان هيك يرجعوا بنصابوا بعدين  
 ويكون loss severe من ال  
 First + time

4 Rabia-1 1443 H

10/10/2021

٤ ربيع الأول ١٤٤٣ هـ

# 8:00 Diagnostic Laboratory test

9:00 Specimens

Culture

Serology

10:00 Stool <sup>ببائظ</sup>  
ويتشوف تحت المايكروسكوب

11:00 gram negative bacilli  
RBCs و

differential media

non lactose fermenters  
فبظالوا

Not Used

لأنه ممكن يظالوا  
False Positive

12:00

و بعد من بيضوا على

Selective media

أو biochemical test

بسبب ال  
Cross-reactive agglutinins from other GI infections

1:00 Shigella  
2:00 Salmonella  
عشان يميز إيه  
مش

3:00

\*Differential media → MacConkey or EMB agar

4:00

\* Selective media for shigellosis → Hekton enteric of Salmonella-Shigella agar

5:00

## Treatment

6:00

invasive process  
لأنه عندهم

تذكراته اللي عندهم  
electrolyte & fluids  
Antibiotic is mandatory or indicated

7:00

Antibiotic  
بيعطيه

No Antibiotic ← EHEC \* مش زي ال

ملاحظات

\* the treatment of shigellosis may fail to eradicate the organism → so we got "Chronic carriers"

5 Rabia-1 1443 H

11/10/2021

5 ربيع الأول ١٤٤٣ هـ

8:00 Shigella, Salmonella, Yersinia - bloody diarrhea يشتركون بال  
Antibiotic غالبًا مثل دوائًا ينفعلي

9:00 antispasms opioids وال + ديزوبالكون ال

10:00 لانه يحتاج نختلاه  
من البكتيريا بال diarrhea

يكون عندهم severe abdominal pain  
يسموا ينعطوهم morphine  
ولا methadone

Prevention & Control  
\* IgA antibodies play a major role to prevent attachment & colonization in the gut  
هو مهم لاي  
يشكل اعوام  
\* Serum antibodies to somatic Shigella antigens is IgM

لانهم ممكن يعطوا masking  
ويكون عنده surgical problem  
\* مثلاً لو عنده appendicitis وانت اعطيتك opioids وسكتت الألم ثاني يوم يكون منتشرة عنده الزايدة وهو مش حاس بحاله

Short lived immunity for (O) antigens يعطونا

6:00 HFs \* عشان ال Prevention منك متذكر ال  
وألهم اشئ ال carriers لا يسدقوا  
Food handlers

\* اللي يعطوا blood diarrhea ممكن يتسببوا به

Notes MUS, Reiter syndrome, reactive arthritis  
may take place in Post infectious stage

8:00

# Salmonella

9:00

\* Salmonellosis has 3 clinical forms

10:00

1) Typhoidal Salmonella → Typhoid fever  
also called (enteric fever)

11:00

2) Gastroenterites or enterocolitis Salmonella  
→ most common form

12:00

3) Bacteremia with focal lesions

1:00

→ no pathology in the GI tract

2:00

← يعني هون العسكرة ما ح تدير بال I و لكن باماكن مختلفة

3:00

\* Shigella vs Salmonella

A) Salmonella asexual

B) Salmonella produce H<sub>2</sub>S from sulfur

4:00

containing amino acids

C) Salmonella NEVER ferment lactose or

5:00

glucose

\* Nomenclature of Salmonella

6:00

genus

then species then

subspecies

7:00

Salmonella

enterica

typhi  
enteritidis

8:00

99%  
of infections

بنفوري



8:00 \*Most important clinical species of Salmonella

9:00 1) S. enterica subsp Typhi → most common causative agent of typhoid fever

10:00 2) S. enterica subsp Enteritidis  
11:00 3) S. enteric subsp Typhimurium

12:00 Most common worldwide with the presentation of gastroenteritis or enterocolitis → أكثر نوعين شيوعاً وبسيوياً

1:00 4) S. enterica subsp choleraesuis  
2:00 → Mostly implicated with the 3rd clinical form (Bacteremia with focal lesions)

3:00 قد يكون Osteomyelitis  
4:00 → Sicklers → معر هينج أكثر للإصابة بالسالمونيلا تحديدًا كإل Subspecies

5:00 5) S. enterica subsp Paratyphi  
6:00 Paratyphi

7:00 6) S. enterica subsp Dublin  
8:00 → mostly infects cattles

Notes \*Salmonella can be part of normal flora of Animals but if we found them in Human they are Pathogens!!



2 Shawwal 1442 H

14/5/2021

٢ شوال ١٤٤٢ هـ

8:00 \*needs higher infectious dose than Shigella

\* Salmonella invades Peyer Patches, they transcytose M cells, they reach the draining lymph node (in case of S. typhi & Paratyphi they exit through the thoracic duct then go systemically arriving Liver, spleen and bone marrow)

SATURDAY

15

Febrik ⊕

عشان هناك يصير الـ Systemic illness  
٣ شوال ١٤٤٢ هـ

3 Shawwal 1442 H

15/5/2021

8:00 mucosa invasion لعاصير Invasion  
Bloody diarrhea بالقي ← necrosis & Sloughing

\*incubation period of Salmonella is longer than that of Shigella

11:00 Shigella → Four stages (Incubation, watery diarrhea, bloody diarrhea, Post-toxic state)

12:00 Salmonella → weeks  
1:00 1st week → mainly Step Ladder Fever

2:00 also nausea & vomiting, headache, abdominal pain, may be diarrhea

3:00 2nd week → rose spots and rash on abdomen

4:00 5:00 3rd & 4th weeks → intestinal perforation and hemorrhage  
معظم الوفيات بهي الفترة بسبب الـ invasion

8:00 The location of colonization of *S. typhi* & *S. paratyphi* is Gallbladder especially if it has stones / female carriers  $\rightarrow$  male carriers

10:00 **ثاني حالة سريريًا** *Salmonella*

2) Enterocolitis

11:00 \* Most common presentation by *Salmonella* infection

\* chief complaint is abdominal pain & diarrhea

12:00 not fever } \* most implicated species are *S. Typhimurium* & *S. Enteritidis*

1:00 \* usually this is self limited  $\rightarrow$  هو الوحيد منهم الذي ما بتعطى في antibiotic

very old patients / neonate  $\rightarrow$  ليس بتعطى إذا كان المريض أ neonate و أيضا إذا كان immunocompromised

3:00

\* إذا على العكس من ال Enteric Fever التي فيه السالمونيلا رايحة systemic بالتالي (+) culture من أدل أسوي  $\rightarrow$  culture (-)  $\rightarrow$  بيضا هون rarely go systemic بالتالي

5:00

النسبة 4% وبتزيد إذا كان المريض immunocompromised

6:00

Enteric Fever  $\rightarrow$  (+) blood culture from week one / culture at week two  $\rightarrow$  (+) Stool culture

7:00

Enterocolitis  $\rightarrow$  (+) Stool culture / (+) blood culture  $\rightarrow$  مرض السرطان يكون لو صارهم السالمونيلا

8:00

8:00

آخر حالة سريرية لـ *Salmonella*

### 3) Bacteremia with Focal Lesions

9:00 → most implicated species is *S. Choleraesuis*  
بسبب كلهم ممكن يعلوا إذا اتجهت عدة عوامل

10:00 → Focal Lesion may reach any part of the body  
(lungs, bones, meninges and so on)

11:00 Sicklers ← غالباً *Osteomyelitis* خصوصاً عند الـ

12:00 \*Blood culture is (+) in both Enteric Fever  
and Bacteremia with Focal Lesion

1:00 ← من الاسبوع الثاني (+) blood culture  
من الاسبوع الاول (+) blood culture

2:00

\*بال *S. typhi* & *S. Paratyphi* يعرف إذا كانت *Positive* عن طريق  
3:00 duodenal drainage الـ

### 4:00 Diagnosis 1) Enrichment culture

5:00 specimen يستعمل السالمونيلا بنجيب الـ  
وينظفها بـ *Selenite F* or *tetrathionate* or *Peptones*  
وهاد الاشى بحقن الـ growth of *Salmonella*  
6:00 but not other bacteria especially gram (+)

### 2) Differential and selective media

7:00 ← عنان تعرف إذا  
Lactose or non Lactose Fermenter  
8:00 → *Salmonella-Shigella* agar (SS agar)  
of Hektoen enteric agar

Notes

### 3) Final identification

↳ bio chemical reaction + Slide agglutination

test → عن طريقه يعرف اين نوع من السالمونيلا

29 Ramadan 1442 H

11/5/2021

٢٩ رمضان ١٤٤٢ هـ

8:00 Serologic methods

9:00 نتجيب ال cultures التي علينا سابقاً وبنخلطها مع Specific Anti serum اذا صار في agglutination معناه انه ال culture في ال antigens التي طالعت من السالمونيلا

11:00 Slide agglutination test

→ unknown culture - known serum

12:00

طبعا فاذا الاشئ يختلف عن ال

1:00 Tube agglutination test (Widal test)

Nowadays → not used anymore → because of

2:00 False positive → ~~single titer~~

→ we can rely on single titer or pair titer

3:00 → titer against O antigen of greater than 1:320 and against H antigen of greater than 1:640 is considered positive

5:00 حالياً يستخدموا ال neurochromatography للريز في القولون لنتشخص الحالة الأكثر شيوعاً من السالمونيلا ← enteritis

6:00

Immunity → infection of salmonella gives

7: short lived immunity, reinfection is less severe than the first infection.

8:00 Patients who have predisposing factors like Sicklers could have complications such as Osteomyelitis <sup>ملاحظات</sup>

\* For GI Pathogens → IgA plays an important role in ~~establishing~~ preventing infection and disease

8:00 Treatment: Typhoid fever  
 Bacteremia with focal lesion

9:00 must take antibiotics  
 10:00 gastroenteritis (+) المر يضر كان كبير كثير او نيو نابت  
 او وقع سرطان  
 11:00 antibiotic بر دنو بنه طيهم  
 gram (-) لا

12:00 Ampicillin, Fluoroquinolones و 3rd generation مثل  
 cephalosporin

1:00 trimethoprim-sulfamethoxazole  
 2:00 Plasmid acquired resistance بس صبار في  
 ال بسبب ال

3:00 S. typhi + S. Paratyphi  
 antibiotic ما يكفي ال  
 لازم تفعل لهم cholecystectomy  
 تذكر ←

4:00  
 5:00 Vaccines → Killed → intramuscular  
 \* moderate efficacy  
 \* recommended for traveler visits rural area  
 \* against typhi & Paratyphi  
 6:00 live-attenuated → capsule

6 Shawwal 1442 H

18/5/2021

٦ شوال ١٤٤٢ هـ

8:00 Yersinia \* member of Enterobacteriaceae  
 \* gram negative  
 9:00 \* So they have O antigen or Common enterobacterial antigen

10:00 \* Non motile unlike Salmonella  
 \* they grow best at 25° temperature

11:00 \* most common mode of transmission is blood donation  
 اذا كان القبر في يده Yersinia يدون في الدم  
 12:00 بال multiple refrigerator

\* Yersiniosis is a zoonotic → mainly disease of animal but can infect human

\* Three important species of this genus

1) Yersinia Pestis → the causative agent of Plague → ~~route~~ route of transmission: bite of an infected Flea

2) Yersinia <sup>Pseudo</sup> Tuberculosis → both are implicated in diarrheal diseases in human

3) Yersinia enterocolitica

برصو بعلوا  
 terminal ileitis of mesenteric Lymphadenitis

8:00 (+) Presentation ال bloody diarrhea because of invasion process  
 ملاحظه  
 هذو العرض كثير بتفسير حالات ازالة الزائدة وهي ما فيها اسهال  
 عشان هيك سموها كان Pseudo appendicitis  
 40% من الحالات



25 Ramadan 1442 H

7/5/2021

٢٥ رمضان ١٤٤٢ هـ

8:00 Periumbilical Pain

تكملة ← هـد وائل المرضي يكون عندهم

9:00 Right iliac fossa Pain

عشان بنفكر إنه عندهم التهاب زائدة

10:00 Yersinosis → milk product أو raw meat ممكن تجي من

(Pasteurized, unpasteurized and chocolate Pasteurized)

26 Ramadan 1442 H

8/5/2021

٢٦ رمضان ١٤٤٢ هـ

8:00 invasion mesenteric

كيف يعملوا

Peyer Patch

Lymphadenitis

9:00 access mononuclear cells بعد بين بصير لهم عال

10:00 draining lymph nodes بعد بين بروصوا عال

11:00 \*Virulence Factors of Yersinia

12:00 → (YOPs) → Yersinia outer membrane Protein

1:00 → Type 3 secretion systems for enterotoxins

2:00 → invasins

3:00 → has (PAI) Pathogenicity island → موجود فيها كل هـدول آل

4:00 Virulence Factors

5:00

27 Ramadan 1442 H

9/5/2021

٢٧ رمضان ١٤٤٢ هـ

8:00 **Clinical manifestations of Yersinia**  
 → mesentric lymphadenitis } usually self-limited  
 9:00 → terminal ileitis

10:00 granulomatous appendicitis  
 بعض الناس يصبر عندهم  
 وبهاى الحالة لازم تشيل الزايدة

11:00 Post-infective phenomena of reactive  
 12:00 arthritis

1:00 Enteroinvasive E. coli ← ~~الاسياء~~ ممكن يجوا من  
 Salmonella ←  
 Shigella ←  
 2:00 Yersinia ←

3:00 reactive arthritis ← الاسباء اللي ممكن تصير  
 reiter syndrome ← triad  
 guillain barre syndrome ←

5:00 **Campylobacter** مرضى ال

6:00 أحد الفرضيات أو النظريات إنه بعد الإصابة رح تطلع  
 antibodies فيتسبب لها حمى بروتينات الجسم  
 7:00 الطبيعة فيبقل فأي الامراض المناعية  
 8:00 15% بهيبرفيم هيلك

**Yersinia selective agar** → **CIN** → عبارة عن مجموعة  
 منضاطات حيوية فآخر  
 اسى يقبل ال Yersinia  
 bulls eye appearance with red center nucleated



8:00 **Vibrios, Campylobacters, Helicobacter and associated Bacteria**

9:00 → Gram ⊖ → but not part of Coliforms/enterobacteria

\* Vibrio → the causative agent of cholera

10:00 \* Campylobacter → common cause of gastroenteritis

\* The most common BACTERIAL cause of

11:00 gastroenteritis → Campylobacter & Salmonella

\* Campylobacter → invasive → bloody diarrhea

\* 12:00 Vibrio → cholera → the most dramatic diarrhea

→ Loss of 1L per hour

1:00 → acidosis & dehydration لسرعة

2:00 \* ال Helicobacter كانا جزء من ال Campylobacter وكانوا لسرعة

Campylobacter fetus و بعد نزلوهم بـ genus لخالق

\* Helicobacter Pylori → causative agent of Peptic

4:00 ulcer & MALT Lymphoma

& adenocarcinoma of the stomach

5:00 \* Vibrio cholera → Found in water / Halophilic & Halogenic

6:00 يعني ههنا halo tolerant بتحملوا ال هود يوم كلورايڊ

بتستخدم هاي الصيغة حتى ينزل ال Vibrio cholera

7:00 \* Campylobacter jejuni & coli → common Bacterial

8:00 \* Salmonella → cause of

gastro enteritis ملاحظات in

developed countries

\* Helicobacter Pylori → causative agent of

Peptic ulcers / MALT Lymphoma / Adenocarcinoma of Stomach

& B cell Lymphomas



- \* Source of outbreak: contaminated water
- \* They are gram  $\ominus$ 
  - bacilli → in older cultures
  - coco-bacilli → in young cultures

30 Ramadan 1443 H ٣٠ رمضان ١٤٤٣ هـ

SUNDAY الأحد

- \* They are "S" shaped or "Comma" shaped in culture
- \* Vibrios have Polar Flagellum so they are motile

\* Enterobacteriaceae have Peritrichous Flagella.  
 \* oysters, mussels, clams and other chitinous shell fish's component → are nutritious for vibrios

- \* Vibrios → Halophilic & Halotolerant → grow at high PH (alkaline conditions) → rapidly killed by acid

Isolation Feature باستخدامها في الـ

- \* Selective agar for Vibrio is TCBS agar

Thiosulfate - Citrate - bile - Sucrose

\* إذا صار في لون أصفر معناه في Vibrio على ما هو في الـ  
 ← وجود اللون الأصفر دليل على ما هو في الـ Fermentation of Sucrose

- \* Campylobacter is also motile → darting or shotgun motility

- \* Vibrio → run-reverse motility
- Enterobacteriaceae → oxidase  $\ominus$
- Vibrio → oxidase positive

WEEK 18

REMINDERS

\* Vibrios are susceptible to the pteridine component (O/129) unlike Aeromonas which are resistant to O/129

← aquatic

\* As we know → Vibrio is an aquatic bacteria as well as Aeromonas ← aquatic

\* Vibrio cholera → halotolerant → we might be able to grow them in 6% to 8% (NaCl) but not other bacteria

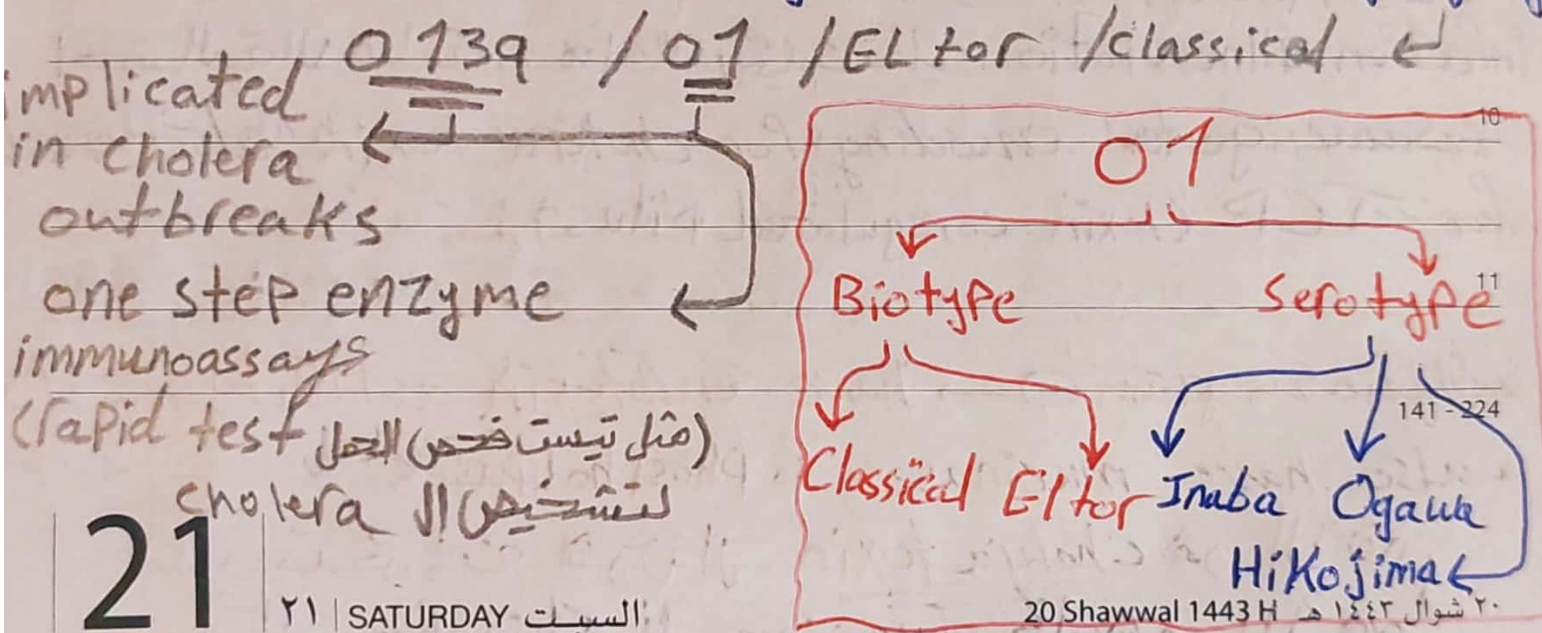
20

٢٠ | FRIDAY الجمعة

19 Shawwal 1443 H هـ ١٤٤٣ شوال ١٩

### Antigenic structure and Biologic Classification of Vibrios :-

- ① H antigen → they are motile
- ② O antigen → is used in Prophage typing



21

٢١ | SATURDAY السبت

\* main pathogenesis of cholera → cholera enterotoxin

chromosomally encoded ←

one A subunit for activating ←

Five B subunits for binding ←

Subunit B يرتبط مع GM1 عن طريق Subunit B ويفعل cAMP

hypersecretion ...

GM1 → Ganglioside, ... receptor هو عبارة عن

\* Most dramatic diarrhea → cholera

\* Vibrios grow in alkaline conditions sooooo they survive the trip through the stomach → إذا كان عددهم كبير كبير

Predisposing factors + كمان إذا كان في

22

21 Shawwal 1443 H ٢١ شوال ١٤٤٣ هـ

SUNDAY الأحد ٢٢

وهای الفاکتوز فلانت ال gastric acidity مثل ال (PPI) وال (Food) وال (H2 blockers) 08

Proton Pump inhibitor لانه يجعل كبر buffer

و كمان اللي عاملين تكمين للمعدة ... هذ ول كلهم بزيدوا 09  
احتمالية ال اصابة ... هاد الاشئ بتنسخيه infection-illness ratio

\* Same genes encoding for cholera toxin also encodes for TCP (toxin coregulated pilus) من اسمها ... بتساعد ال كوليرا انما تقفز ال toxin 10

\* Vibrio → gram - → have endotoxin activity from LPS  
\* also have mucinases & Phospholipases 12

بس تذكر إنه هون ال cholera toxin هو الأهم  
بينما بال Shigella ال invasion كان هو الأهم 01

\* مفهوم ال (Cholera seasons) إنه الكوليرا بتزيد في حالات 02

و جود ال heavy rainfall & high temp & floodings & Wars

\* EL Tor biotype → Less severe than the classical biotype 03

WEEK 21

REMINDERS

\* Mosquito واحد بتصاب بي Vibrio بيمير عنده Cholera  
( في فرق بين ال disease وال infection )

\* By the way → asymptomatic infections of EL Tor is higher than that of the classical one → so, EL Tor

Cholera → short incubation period  
→ rice-stool appearance  
→ Abdominal Fever

يمكن يتشتر اكثر ...



22 AlMuharram 1443 H

30/8/2021

٢٢ المحرم ١٤٤٣ هـ

8:00 \*Characteristic rice-watery stool is diagnostic for cholera in epidemics & outbreaks but in endemics we need more investigations

9:00 \*مرضى الكوليرا يفقدوا لتر من ميا بالساعة (٢٠ لتر باليوم) عشان هيك يسوعة بصير عندهم acidosis و dehydration فاذا ما لحقناهم death بم renal failure ممكن بصير water & electrolytes

11:00 \*Diagnostic Laboratory Tests For Vibrio cholera

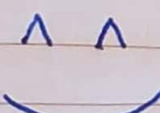
<p>12:00 A) Specimens</p> <p>sample from mucus</p> <p>1:00 Fleaks from stool</p> <p>2:00 we will see gram ⊖ comma or "S" shaped</p> <p>3:00 bacilli or cocabacilli</p> <p>4:00</p> <p>5:00</p>	<p>B) Smears</p> <p>Phase contrast or Dark Field microscope</p> <p>عشان نشوف الحركة</p> <p>run-reverse motility</p>	<p>C) culture</p> <p>Halophilic or Halotolerant</p> <p>→ grow in PH near 9</p> <p>on TCBS</p> <p>بكونوا yellow colonies</p>	<p>D) Specific Test</p> <p>slide agglutination or enzyme immunoassay</p> <p>بكون في antibodies</p> <p>01 &amp; 0139 antigens</p>
--	---	---	--

6:00 Treatment of Cholera

7:00 → Firstly & Mainly → Water & Electrolytes

8:00 → Secondary → Antibiotics (oral tetracycline and doxycycline)

Notes



عشان ما نظل تنقل من شخص لاخر → shorten the period of excretion of vibrio

23 AlMuharram 1443 H

31/8/2021

٢٣ المحرم ١٤٤٣ هـ

8:00 Tetracycline → both are contraindicated for children (<8 yrs) and pregnant women  
9:00 Doxycycline →

- Hepatotoxic  
- permanent discoloration of teeth  
- Stop epiphyseal growth of long bones

11:00 drops for children

12:00 erythromycin ← قينطري الأطفال والحوامل  
Furazolidone

Prevention

2:00 Vaccines → سويدى → contains O1 & recombinant cholera toxin B subunit

both given orally

4:00 → هيندي → contains O1 & O139 (no recombinant...)

6:00 Shanchol / السويدي / Dukoral / هيندي / وهذول الاثنين  
Killed

7:00 VAXCHORA في واحد جديد اسه  
8:00 → Live-attenuated orally ملاحظات

29 AlMuharram 1443 H

6/9/2021

٢٩ المحرم ١٤٤٣ هـ

8:00

# Campylobacter

9:00

10:00

11:00

12:00

1:00

2:00

3:00

4:00

5:00

6:00

7:00

8:00

Notes

*Helicobacter cinaedi*  
*Helicobacter fennelliae*

*H. pylori* *gastrointestinal* *Intestinal* *gastrointestinal* *gastrointestinal*

\*invasive / \*very common bacterial cause of gastroenteritis in human (وكمان السالمونيلا)  
 \*bloody diarrhea / \*Part of normal flora of many animals & many household pets  
 diarrheal disease  
 extraintestinal infection

\*gram (-) / Motile (Darting or Shotgun motility)  
 grow best in 25° temp. ← تذكر Yersinia

Campylobacter → thermophilic → grow best in 42°  
 Feature تستخدم هائي الـ  
 حتى جعل Selective condition لا Campylobacter

C. Petus and C. venerealis معلومة  
 ينسبوا لعدة شروبات  
 Arcobacter منهم  
 C. lari و C. upsaliensis  
 من الـ Seagulls و من الـ dogs  
 جزء من الـ Campylobacter

الـ اهم اتي في  
 جزء منهم

30 AlMuharram 1443 H

7/9/2021

٣٠ المحرم ١٤٤٣ هـ

8:00 C. jejuni → Small intestine اللي بدنا نحكي عنهم

9:00 C. Coli → Colon

10:00 \* gram ⊖ / comma shaped / motile (darting or "S" shaped shotgun motility)  
11:00 "gull wing" appearance

12:00 \* thermo philic / microaerophilic (Fastidious bacteria)  
1:00 42°C 5% O<sub>2</sub> 10% CO<sub>2</sub>

2:00 \* Campylobacter selective media (CAMPY) agar  
بنحط درجة حرارة 42 بنحو فقط ال Campylobacter

3:00 \* most common source of infection of Campylobacter  
4:00 is poultry food (Like Salmonella)

5:00 Pathogenesis → invasion ⊕ release of cytotoxin or enterotoxin --- then bloody diarrhea

6:00  
7:00 guillain barre syndrome ← هدول العرضي ايضاً  
reiter syndrome ← مكتوب سير عنهم  
8:00 reactive arthritis

ملاحظات

→ CDT (Cytolethal distending toxin) Play an important role but invasion is the main factor in C-jejuni or C.coli

19 AlMuharram 1443 H

27/8/2021

١٩ المحرم ١٤٤٣ هـ

8:00 Clinical Findings of C. jejuni & C. coli

→ Fever

9:00 → Flu like symptoms -- myalgia, headache, malaise

→ abdominal pain and cramps

10:00 → watery diarrhea then bloody diarrhea

20 AlMuharram 1443 H

28/8/2021

٢٠ المحرم ١٤٤٣ هـ

8:00 extraintestinal or suppurative lesions following  
Campylobacter infections → meningitis, endocarditis  
9:00 arthritis, septic abortions...

10:00 Diagnostic Laboratory test for Campylobacter

11:00 → Specimen → intra or extra intestinal infection  
بتختلف إذا كان

12:00 → Smears → comma or "S" shaped  
gull wing shaped rods  
→ we use Dark field or  
1:00 Phase contrast microscopy  
to show darting motility

2:00 → Culture → thermophilic condition  
3:00 on selective agar  
4:00 (SKirrow's, Campy-BAP  
Blaser's, Butzler's and  
5:00 Preston)

C. jejuni & coli will grow  
but not another campylobacter

21 AlMuharram 1443 H

29/8/2021

٢١ المحرم ١٤٤٣ هـ

8:00 Treatment → antibiotic  
 9:00 high grade fever ←  
 severe diarrhea ←  
 bloody ←  
 10:00 Persistent " more than one week  
 11:00 and worsening of symptoms

12:00 Water & fluid are وكمان أكيد  
 the main choice of  
 1:00 treatment

2:00 Drug of choice → ciprofloxacin

3:00

4:00

5:00

6:00

7:00

8:00

# Helicobacter Pylori

8:00

9:00

\* كانت جزء من الـ *Campylobacter* بعد ان افصلت عنها

\* Spiral shaped → الجرثومة الحلزونية

10:00

\* multiple flagella → So they are actively motile

11:00

→ urease (+) → مهم الـ Pathogenesis تبعها

12:00

→ microaerophilic → (5% O<sub>2</sub>) (10% CO<sub>2</sub>)

\* الـ culture تبعها كثير صعب

H. Pylori is implicated in the following:

1:00

Peptic ulcer / MALT (Mucosa Associated Lymphoid Tissue)

2:00

/ Pernicious anemia / iron deficiency through occult blood loss

3:00

\* Colonization by H. Pylori is Life Long

4:00

\* Very high Prevalance

\* Known to be a human disease or pathogen

5:00

← طبعاً ممكن تشوفه بال animals

\* H. Pylori → Feco-oral route of transmission

6:00

\* العصابين فيها مثل ضروري يكون عندهم أكثر

7:00

H. Pylori → Virulence Factors → Pathogenicity island

→ Type Six Secretion System

8:00

→ Cag (cytoxin associated gene)

Notes

→ VacA (Vacuolating Cytotoxin)

\* They are motile even in mucus

← لانهم عندهم mucinase فيروصوا لـ deeper layer

فصبروا أقل عرقه لا stomach acid

2 Safar 1443 H

9/9/2021

٢ صفر ١٤٤٣ هـ

8:00 H. Pylori  $\rightarrow$  urease (+)  $\rightarrow$  ammonia <sup>نتيجه</sup>  
 ← يتعمل buffering لا acidity stomach

10:00 \* المكان اللي يتعمل فيه ال Colonization ال H. Pylori  
 بميرله infiltration من قبل PMN و Mononuclear cells  
 هاد ال infiltration يسبب gastritis

11:00 \* التشخيص تبعها صعب لأنه أحياناً يتقدر نشوفها وأحياناً لا  
 \* incubation period may be Life Long  
 with no symptoms

12:00 1:00 ممكن تظهر الأعراض إذا كان في Acute gastritis  
 80% of duodenal ulcer is caused by H. Pylori  
 الباقي بتسببه ال NSAIDs

2:00 مفهومي ال Odd ratio ← بقيس العلاقة بين ال exposure  
 وال outcome

3:00 4:00 \* بال infection of H. Pylori ممكن يغير hyper acidity  
 و hypo

Hyper acidity  $\leftarrow$  هاد الاشئ يعتمد على المكان  
 مثلاً إذا هارت بال Duodenum بمير Duodenal ulcer  
 ← عشان هيك بعد الأكل هتدول بقل الألم أو الحرقه عندك  
 6:00 Duodenum  $\rightarrow$  Decrease

7:00 8:00 ~~exposure~~ Exposure <sup>to</sup> H. Pylori  
 $\rightarrow$  May increase the outcome of  
 Duodenal Ulcer / B cell Lymphoma  
 Noncardia gastric Adenocarcinoma <sup>ملاحظات</sup>

$\rightarrow$  May decrease the outcome of  
 Barrett esophagus  
 Adenocarcinoma of the esophagus



8:00 Diagnosis of H. Pylori is mainly by Histopathology  
(we see infiltration of PMN or Mononuclear cells  
9:00 with or without seeing H. Pylori

10:00 why? ←  
→ because H. Pylori is fastidious so  
11:00 it is hard to culture it

وكان لأنه ما يعرف ال antibiotic sensitivity

12:00 Special test →  
1:00 invasive ومنهم لا  
مثال عليه ال urease test

CLO test ← ال اسم آخر وهو  
2:00 لأنه يتطلع فقاعات بسبب ال CO2 اللي يتطلع  
مع ال ammonia

3:00 \* تخلي في بالك انه في another Bacteria  
ممكن تكون urease (+)

4:00 مثال على non-invasive test  
5:00 → Urea Breath test

6:00 \* في فحص يستخدم بعد العلاج عشان نعمل follow up  
وهو Stool-antigen test  
7:00 وبعد كم اسبوع المفروض يكون Negative

8:00

Notes

25 AlMuharram 1443 H

2/9/2021


٢٥ المحرم ١٤٤٣ هـ

8:00 Treatment of H. Pylori

9:00 في الهم علاج ثلاثي وعلاج رباعي وبالعادة يتبدأ بالثلاثي

- 10:00 → amoxicillin
- Clarithromycin
- 11:00 → PPI

- 12:00 metronidazole ← الرباعي
- PPI ←
- 1:00 tetracycline ←
- bismuth ←
- 2:00

3:00 \* طبقاً لأول الاثنتي عشر كثير فعالين مع شعبنا اللي بياخذ antibiotics وهو عمره شهر 

4:00

5:00

6:00

7:00

8:00

FRIDAY

3

الجمعة

26 AlMuharram 1443 H

3/9/2021

٢٦ المحرم ١٤٤٣ هـ

8:00

The Brucellae, Leptospira

9:00

and Mycobacterium of the

10:00

GIT

SATURDAY

4

السبت

27 AlMuharram 1443 H

4/9/2021

٢٧ المحرم ١٤٤٣ هـ

8:00

\*The Spectrum of Leptospira is wide (mostly asymptomatic) but the most severe (rare) is

9:00

Weil's Syndrome

10:00

\*ingestion of unpasteurized milk from Cows  
Mycobacterium bovis ← يكونوا موبقون

11:00

tuberculosis قنصل  
rare نادر الاشياء

12:00

Brucellae

1:00

\*gram ⊖ / non-motile / unencapsulated / obligate

2:00

or facultative intracellular / 8 species فيها أربعة بعلاوا

3:00

Preferred host ← كل واحد منهم ال human disease

4:00

1) Brucellae melitensis → Preferred host → cattle and sheep / most common Brucellae species in human

5:00

28 AlMuharram 1443 H

5/9/2021

٢٨ المحرم ١٤٤٣ هـ

8:00 2) *Brucellae abortus* → mainly in cattle

9:00 3) *Brucellae suis* → mainly in swine (Pigs)

10:00

11:00 4) *Brucellae canis*

12:00 \* They are aerobic except *B. abortus* which is microaerophilic (require low O<sub>2</sub> & 10% CO<sub>2</sub>)

1:00

\* Brucellosis (also called undulant fever or Malta fever)

2:00

← الحمى المتعرجة ← طائفة نازلة طائفة نازلة

3:00 → irregular fever

\* characterized by acute bacteremic phase

4:00 *Brucellae* route of entry bone marrow/spleen/liver

5:00

chronic phase

وهذا واحد من الأمراض التي يكون كثير من مفردي يعني الباحثين يرفضوا أحيانا، انهم يتعاملوا مع خيانت فيها *Brucellae*

6:00

حتى إذا اشتغلنا فيهم لازم يكونوا بـ Biosafety cabinet

7:00

\* irregular fever خاصة بال chronic stage

8:00

بصرفي musculoskeletal symptoms

malaise/arthritis/mialgia  
general tiredness/misery

ملاحظات

← يكونوا ناسا يا كسين

7 Rabia-2 1443 H

12/11/2021

٧ ربيع الآخر ١٤٤٣ هـ

8:00 Brucellosis → undulant fever

→ mediterranean fever

9:00

→ Gibraltar fever

10:00

كلهم تسميات لـ fever

Brucellosis المصاحبة لـ

SATURDAY

13

السبت

8 Rabia-2 1443 H

13/11/2021

٨ ربيع الآخر ١٤٤٣ هـ

8:00 \* In young cultures they are cocobacilli

\* they are gram ⊖ but often stain irregularly

9:00 \* " " strictly aerobic except Brucella

abortus (it is microaerophilic)

10:00



cattle abortion يتعمل بال

11:00

human

مش بال

والسبب بانه ال Placenta & fetal

12:00

membrane

1:00

inhance

يتعمل ←

Erythritol

اسمها

growth of Brucellae للـ

2:00

وهي العادة مش موجودة بالانسان

يعني إذا اتصبت في أم حامل مارح يتعمل واجهات

3:00

\* Catalase & oxidase Positive

4:00

\* easily killed by boiling → عشان هيك هو ممكن يتفسر عن طريق

5:00

بنقلهم على درجة حرارة 60 لمدة ربع ساعة

unpasteurized milk

9 Rabia-2 1443 H

14/11/2021

9 ربيع الآخر 1443 هـ

8:00 \* They don't ferment carbohydrate (although they utilize carbohydrate)

9:00

10:00 \* Brucellosis is a zoonotic disease (mainly affects animals) → يسبب المرض البشري الذي يكونوا على اتصال مباشر مع الحيوانات المصابة

11:00

12:00 \* بالحليب غير المبستر ← يتكلم البروسيلا عايشة أسبوعين  
\* بالحنة التي انعمت من الحليب غير المبستر ← يتكلم في أشهر

1:00

\* Inhalational Brucellosis → عن طريق الـ mucosal surfaces of oral cavity or conjunctiva

2:00

\* أكثر الناس معرضين له  
التي يشتغلوا بالمسلخ والمزارع...  
← يكون على الـ wool  
تبع الدجاج

3:00

4:00

\* Percutaneous exposure

5:00

→ عن طريق  
needlestick & injury

6:00

7:00 \* Accidental Brucellosis

← فالشخص الذي يعطي الملقوم  
← يكون Like-Vaccine هو بئصاب  
← vaccine للحيوانات

ملاحظات

\* في vaccine للحيوانات يسبب المرض للبشر

FRIDAY

19

الجمعة

14 Rabia-2 1443 H

19/11/2021

١٤ ربيع الآخر ١٤٤٣ هـ

8:00 \* كل ال Body Fluid تبع ال animal سوائل ينقل ال Brucella

9:00 \* يقطن النظم عن ال Portal of entry هـ ال البروسيل  
10:00 يس يدخلوا الجسم بركبوا على ال mono nuclear cells  
macro Phages

SATURDAY

20

السبت

15 Rabia-2 1443 H

20/11/2021

١٥ ربيع الآخر ١٤٤٣ هـ

8:00 \* بعدين يوصلوا ال Lymph node ثم thoracic duct  
9:00 ثم Systemically بعدين يوصلوا ال seeding  
Liver/spleen/bone marrow granulomatous organs

10:00 \* كل ال intracellular pathogens يجعلوا granuloma  
و بعدين يغير Caseous necrosis

11:00 \* Brucella -> intracellular Pathogen  
12:00 \* Brucellosis -> undulant + fever الحمى المتوججة

1:00 \* هاد المرفق كان endemic ببلادنا وبالعادة ال Symptoms  
كانت وحدة من هـ ال  
2:00 Fever + malaise, myalgia, arthralgia (

3:00 Monoarthritis + حرارة متوججة +  
in hip or knee joint

4:00  
5:00 Low back + musculoskeletal + حرارة + بالناس اللي  
Pain (اللي ذكرناهم بنقطة) كثير كبار

abnormal - حرارة + gait  
\* هاد المرفق كانوا يعرفوا العصبية فيه اذا كان عنده

16 Rabia-2 1443 H

21/11/2021

١٦ ربيع الآخر ١٤٤٣ هـ

8:00 Diagnosis of Brucella

9:00 \* The most frequent clinical manifestation of Brucellosis is hepatosplenomegaly

10:00

\* يتأخذ Sample من Spleen &amp; Liver &amp; Lymph node

11:00

12:00

\* البروسيلا ينمو في أي media common used

مثل chocolate agar

1:00

Fetal calf serum (FCS)

5% sheep blood

2:00

يس في selective agar  
يس ل Brucella وأيضا ينمو فيه

3:00

ال Campylobacter

4:00

يعتري ال definitive diagnosis  
هو ال culture بس مشكلته

5:00

انه بطول لما يطلع (بده ٣ أسابيع) وكثير من الحالات

6:00

تتكون موجودة ال Brucella بس بيكونها negative

8:00

بس اذا طلع Colonies يكونوا

ملاحظات

Smooth translucent convex shaped colonies



8:00 ~~لأنه ال culture صعب لل Brucella فينتقد كل ال~~  
 ال Serology في لأنه راح يفتقد كل ال Serology  
 9:00 لازم نعمل Both Agglutinating test ←  
 Non-agglutinating test ←  
 10:00

8:00 IgM → rise during the first week  
 → Peaks at 3 months  
 9:00 → Stay up until 2 years  
 ← عشان هيلما بندور عليهم

11:00 IgG ]  
 IgA ] → they start to rise at 3 weeks  
 → peak at 6 to 8 weeks

Two Serological tests  
 1:00 → Serum agglutination test (SAT)  
 2:00 (IgG) agglutinin titers above 1:80 is diagnostic.

3:00 → ELISA → Non agglutinating test  
 for both IgG & IgA

4:00 Three Phenomena for diagnosis of Brucella  
 1) Pro Zone Phenomenon → excess antibody  
 5:00 2) Post zone Phenomenon → excess antigen  
 3) Globulin antibody

ممكن لحد Cross-reactive Antibody  
 Mibrio Yersinia → مسببات امراض سابقة

18 Shawwal 1442 H

30/5/2021

18 شوال 1442 هـ

8:00 Treatment → Gram ⊖ Antibiotics  
لا نهم Gram ⊖

9:00  
10:00 drug of choice: doxycycline + streptomycin  
11:00 لمدة 4-5 days و 6 weeks

\* No Vaccines for human

12:00 Prevention & control → by test and slaughter method  
1:00 ⊕ active immunization of animals

# LIPTO SPIRA

4:00 \* route of transmission is urine/also it is a zoonotic disease (can be transmitted to humans & between humans) / \* Humans can shed Liptospira in their urine from 2nd week post infection

6:00 \* mostly asymptomatic (rarely → Weil's Syndrome)  
\* Weil's Syndrome → Triad → hepatitis  
→ Nephritis  
→ hemorrhage

8:00 → Jaundice

Hepatitis → hepatomegaly & change in liver enzymes  
Nephritis → blood urea, nitrogen, retention  
hemorrhage → most common site → Pulmonary hemorrhage then intracranial hemorrhage

23 Shawwal 1442 H

4/6/2021

٢٣ شوال ١٤٤٢ هـ

8:00 Two members of Leptospira → L. interrogans

9:00 affects humans

& L. biflexa

10:00

Free living

24 Shawwal 1442 H

5/6/2021

٢٤ شوال ١٤٤٢ هـ

8:00 \*route of transmission → water contaminated with animal urine

9:00 most common is rat urine

10:00 \*Leptospira → gram ⊖ لا هي و لا هي gram ⊕ لاهي

11:00 Spirochetes هي

12:00 يتظاهر على شكل علامة سؤال تحت المايكروسكوب

1:00 bent. لانها ←

2:00 → actively motile: contains two periplasmic flagella

3:00 → survive ~~at~~ in alkaline water for 4 weeks

4:00 → aerobic

5:00

25 Shawwal 1442 H

6/6/2021

٢٥ شوال ١٤٤٢ هـ

8:00 \* most common route through skin exposure  
secondly through mucosa and rarely  
9:00 through ingestion

10:00 \* نفوس قصبه ال Brucella ← يفتن النكر عن ال  
portal of entry  
بروحوا يستقروا بـ Parenchymatous organs

11:00 Leptospirosis is Biphasic disease

12:00 → 1) Leptosarremic phase → انشاء وجودها بالدم  
→ 2) Parenchymatous Phase → لها استقر بال liver  
وال kidney

1:00 ← هو نفسه ال  
Immune Phase  
او تحقيقي

2:00 ← لها تطلع ال Leptospira  
من ال دم وتجلس تطلع ال  
3:00 Antibodies

\* Presentation of Leptospirosis  
يشبه aseptic meningitis  
ال CSF يكون ⊕  
Pleocytosis  
elevated numbers of all cells

4:00 ← ال viral meningitis  
5:00

6:00 contaminated with animal urine \* المرض ينسب بسبب واحد بسبح ببركة

7:00 musculostkeletal ⊕ conjunctivis قبحير كمان عندهم

8:00 Symptoms like  
mialgia

19 Shawwal 1442 H

31/5/2021

19 شوال 1442 هـ

8:00 \* العينة بناخذها من tissue/urine/csf / blood  
 وبتحطها تحت الـ dark field micro...  
 9:00 وبتشوف question marked shaped  
 spirochete with two  
 10:00 periplasmic flagella

11:00 selective agar for Leptospira  
 → Elinghausen - McCullough - Johnson  
 12:00 - Haris EMJM → درجة حرارة 30  
 → aerobic conditions  
 1:00 → definitive diagnosis

2:00 \* Presumptive diagnosis through Serology  
 3:00 microscopic agglutination test  
 4:00 (MAT) → needs high titer to  
 5:00 be diagnostic more than 1:10000  
 6:00 also ELISA is used

7:00 \* mild leptospirosis → no need for treatment  
 8:00

Note \* Severe " → IV Penicillin  
 doxycycline also helps

لازم يهبر تدخل سريع علشان  
 Parenchymatous ال  
 organs

TUESDAY

1

الثلاثاء

20 Shawwal 1442 H

1/6/2021

٢٠ شوال ١٤٤٢ هـ

8:00 Prevention → through avoidance of exposure  
to urine from infected animals and  
9:00 control of rodent (they are the main  
reservoir

10:00 \* No vaccine for human

11:00

→ animals

12:00

1:00

2:00

3:00

4:00

5:00

6:00

7:00

8:00

ملاحظات

8:00

Mycobacterium

9:00

Tuberculosis (MTb)

10:00

\* also called Koch Bacillus

11:00

\* لاهي gram(+) و لاهي gram(-)

12:00

\* it is acid fast bacilli

\* المرض الذي يتسببه هو السل أو التدرن (Tuberculosis)

1:00

\* Abdominal tb is mainly caused by Mycobacterium bovis

2:00

3:00

↳ through unpasteurized milk from infected cattle

4:00

\* MTb → slowly growing / non-motile / aerobic  
↳ facultative intracellular → Like Brucella

5:00

6:00

method by ← granuloma والشئ يعملوا  
adaptive immune system

7:00

to contain intracellular infection

8:00

Caseous necrosis or central necrosis ← قبيح

Notes

\* MTb → acid fast bacilli

↳ لأنها تحتفظ باللون الأحمر مع إزالتها

alcohol و Carbolfuchsin stain

22 Shawwal 1442 H

3/6/2021

٢٢ شوال ١٤٤٢ هـ

8:00 Two conditions of TB

→ Latent TB → they don't show symptoms and not contagious

10:00 → active TB

3 → Latent TB ← TB من بين كل ١٥ يتعرفوا لـ TB

1 → active TB

6 → clear TB through immune system

12:00

Prevalance →

تُلت سكان العالم عندهم Latent TB

↳ They get activated when person become immunocomp

3:00 \* route of transmission → mainly airbourne

4:00 + respiratory TB → most common form  
or Pulmonary TB

أكثر من 70% من الحالات

6:00 النسبة المتبقية ← extra-pulmonary TB

7:00 abdominal TB من ال  
Tuberculous Lymphadenitis →

8:00 most common extra-pulmonary Pleural TB وهو هذا بيحي ال

→ 10-15% of extra-pulm. cases through unpasteurized milk



8 Thu'l-qa'da 1442 H

18/6/2021

٨ ذوالقعدة ١٤٤٢ هـ

8:00 \* Abdominal TB comes with Four Forms

9:00 1) TB Lymphadenopathy → abdominal جوارح cavity

10:00

9 Thu'l-qa'da 1442 H

19/6/2021

٩ ذوالقعدة ١٤٤٢ هـ

8:00 2) Peritoneal TB → Most common form of abdominal TB

9:00

10:00 3) GI TB

11:00 4) visceral TB involving the solid organs

12:00 \* route of transmission for abdominal TB

→ 1) unpasteurized milk ingestion

→ 2) through swallowing phlegm arising from pulmonary TB

→ 3) Miliary TB → hematogenous spread of tubercle bacilli to the abdomen

3:00

4:00

5:00

10 Thu'l-qa'da 1442 H

20/6/2021

10 ذوالقعدة ١٤٤٢ هـ

8:00 nightsweat → Brucellosis ممكن يصير جال  
 → Leptospirosis  
 9:00 → Mtb

10:00 extra pulmonary TB or Pulmonary TB سواء

11:00 Fever المر يحن يكون عند

12:00 \*most common presentation of abdominal TB  
 is abdominal pain, second presentation  
 1:00 to the most common is abdominal  
 2:00 mass

Diagnosis

3:00 → through acid fast stain (Ziehl -  
 4:00 Neelsen  
 5:00 technique)

→ Staining with auramin  
 6:00 جديد صاروا يعطوه

7:00 → culture on solid or broth media  
 (تسوي بطول يدو TB سايح)

8:00 → MGIT (mycobacterial growth indicator tube)  
 (low sensitivity ← تسوي ملاحظات)

→ PCR / → IGRA / → TST  
 Nucleic Acid Amplification tests  
 عن طريقهم بنعرف اذا مرضنا اول

8:00 TST → Tuberculin skin test  
 IGRA → Interferon-gamma release assay

9:00  
 False Positive ممكن يعطى  
 10:00 vaccine لما تاخذ ال

11:00 + جدول كلهم ممكن يعطوا False Positive

12:00 إذا المريض اصاب بـ environmental TB

1:00 Treatment

2:00 \* كل ال intracellular infection بدو مدّة علاج طويلة

3:00  
 4:00 \* cell-mediated immunity play an important role in defense against intracellular infections

5:00 Two Phases of treatment

6:00 1) intensive Phase (2 months)

7:00 isoniazid / rifampin / ethambutol / Pyrazinamide  
 8:00 بيأخذوا 4 الأدوية

2) continuation Phase (4 months)

يأخذوا على 2 دوائين

8:00

\* الناس اللي عندهم Latent TB  
أو فروع عالية من الإصابة فيه

9:00

isoniazid ← بيعطوهم

10:00

For 9 months

11:00

12:00

Bacillus Calmette Guérin (BCG)

1:00

2:00

Vaccine against M. bovis

3:00

Live attenuated

4:00

efficacy From zero to 80%

5:00

6:00

7:00

8:00

Done By :-

نعيم الشريف