



# MICROBIOLOGY

## (GI) LAB : 2

**DONE BY : Bashar Smadi**

# Practical class 2

هذه المحاضرة تتطلب منك المعرفة البسيطة من ال clinical presentation لكل واحد من ال infections يلي اخذناهم بالGIT وبالإضافة الى معرفة صور Lab 1

## Case 1

### History:

63 years old women admitted to the hospital 2 weeks after she returned home after a visit to Spain. For one week she had intermittent high fever and shivers followed by profuse diarrhea for 8-10 times daily. The diarrhea was watery and over the last 72 hours she had noticed fresh blood in the stool. She also complained from colicky abdominal pain relieved by defecation. Her partner had loose stool for 3-4 days on return from holiday, but is now better.

الاشياء المهمة يلي ممكن نستخلصها :

1 ● : النقطة الاولى ان العمر بيهما لان سابقًا قلنا ان "العمر يعطينا فكرة عامة عن نوع الorganism"  
فهنا العمر = 63 old age

2 ● : الاعراض

وجود الfever = يدل ان هناك infection  
وجود الdiarrhea = قلنا انها ال cardinal symptom for GIT infection  
الcolicky abdominal pain = بيشرح اكثر على وجودGIT infection

3 ● : هناك دليل على history of contact لان شريكها بيتحوي على اعراض مشابهه

4 ● : ال Travel history بيهما كمان (اذا بتتذكروا ال Traveler's Diarrhea وعلاقتها بالGIT infection)  
والفترة بين السفر وظهور الاعراض = incubation period = around 1-2 weeks

الان من هدول المعلومات بدنا نحاول نوصل لتشخيص مبدئي "formulation of differential diagnosis":  
= 1 ○ : العمر لحاله ممكن يستثني الviral cause لان قلنا من قبل ان اغلب الviruses بتكون في الرضع والأطفال الصغار

وايضًا ال Parasite بتكون اكثر بالاطفال بعمر 10-12 سنة لكن من غير المحتمل ان يكون في عمر 63 .  
فإحتمال ان يكون viral او من parasite قليل

2 ○ : السفر الى اسبانيا (دولة اوروبية) ومش معروف عنها انها بتحتوي على parasites فاحتمال الparasite بضل قليل

3 ○ : عندنا high-grade fever ومعها bloody diarrhea = bacterial causes

فاذا ممكن احط احتمال عالاغلب انها تكون Salmonella, Campylobacter  
لكن ما بنقدر نستثني بشكل قاطع احتمال انها تكون parasitic او viral او other bacterial

### Examination:

- T: 38.9 °C Pulse: 82/min RR: 15/min BP: 100/67 mmHg
- Abdomen: mid tenderness in the infra-umbilical region with with active bowel sound

T: 38.9 °C = الحرارة مرتفعه جدا

RR (respiratory rate) +pulse +BP(blood pressure) = around normal

في نقطة تستحق الانتباه ان الحرارة مرتفعه لكن ال pulse مش مرتفع معها  
(فهو اقل من المتوقع مع درجة الحرارة هذه)

ال gastroenteritis = ماشيه مع ال

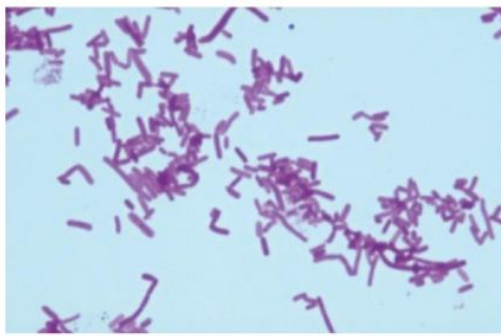
obstruction = دلاله انه ما عندنا active bowel sound

Salmonella, Campylobacter most likely caused ال انها تكون

### Investigations:

- CBC: leukocytosis
- Stool analysis : increase WBCs, RBCs, with mucus
- Culture and Gram stain are attached

WBCs : stool analysis كمان اكلدي انه في infection و ال RBCs اكلدي انها dysentery type



Gram stain



MacConkey agar



SS agar

ال gram negative bacilli = gram stain

ال Non lactose fermenter = positive = MacConkey agar

ال (black colonies is only for Salmonella) positive with black colonies =SS agar



فكل المعلومات بنقول لنا ان الجواب هو **Salmonella GE**

### Tasks:

1. What are the differential diagnosis based on history  
= gastroenteritis – most likely bacterial – specifically causes dysentery (bloody diarrhea)  
but other causes should be included
2. What is the main finding of stool analysis and culture  
gram negative bacilli -Non lactose fermenter – SS agar = salmonella
3. What other investigation you would like to order  
1.maybe stool under microscope 2.kindy function test to see if there is dehydration 3.antigen test
4. Treatment  
if his vital signs are normal (BP , pulse...etc) and he looks well no need for admission and treated as an out-clinic patient

## Case 2

### History:

A 4-year old girl presents at the emergency room with bloody diarrhea, fever and vomiting. The child's mother reports that the child has had these symptoms for about 24 hours and she has not passed any urine for about 12 hours. The child is enrolled in a day care center and the group had recently made a field trip to a fast food place to learn about different jobs. The children had a lunch of ground beef, fries and cola after meeting with different workers. This field trip was 4 days earlier on Friday.

الاشياء المهمه يلي ممكن نستخلصها :

1 : العمر = 4 سنين

حسب العمر فانه غالبا السبب viral لكن ...

2 : لكن بنلاحظ انه عنده bloody diarrhea ومش watery

viral is for watery diarrhea

فاذا السبب مش viral

ممكن تكون ؟ bacterial ؟ parasite ؟

3 : بنلاحظ انها acute

بشكل عام هاي النقطة لصالح فكرة انها تكون bacterial لكن ممكن تكون اصابة اولى باميبيا؟

4 : 12 ساعة دون تبول = بشكل عام هاي من احدى علامات ال severe dehydration

5: he had a lunch ground beef : الان بنفكر بالاشياء يلي بتنتقل بالbeef

ممكن تكون E.coli صح ؟ E coli O157

وتذكير بان ال E.coli157 بتعمل renal failure ! ممكن تكون السبب لانه قعدت 12 ساعة دون تبول

لكن هل بنقدر نتأكد انها E coli O157 فقط من ال history؟

الجواب لا ال history غير كافي للتشخيص لأن تشخيص E coli O157 خطير جدا فلازم نتأكد

هل ممكن تكون اميبيا ؟ المفروض لا (غالبا هناك فحص للparasites كل 6 شهور بيهيك مطاعم )

لكن بتضل الاحتمال الثاني

### Examination:

- T: 39.1 °C Pulse: 109/min RR: 15/min BP: 95/62 mmHg
- Physical signs of dehydration
- Abdominal examination was within normal limits

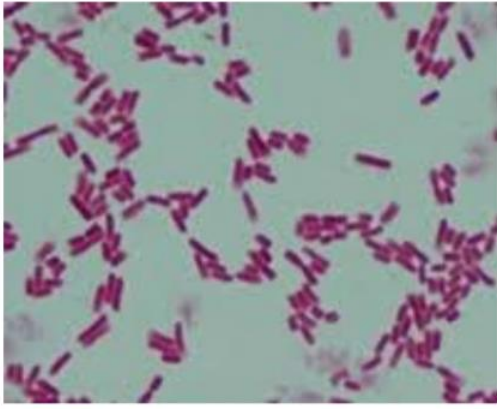
● T: 39.1 °C = مرتفع Pulse: 109/min..... =مرتفع BP: 95/62 mmHg..... = شوية dehydration

### Investigations:

- CBC: Leukocytosis
- Blood samples drawn showed evidence of greatly reduced kidney function and lysed red blood cells.

● الان تأكدنا انه عندنا + reduced kidney function عندنا lysed RBCs ايضا دلالة ل E.coli O157

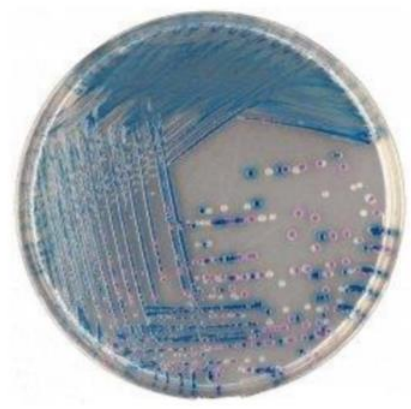
- Stool analysis and culture are attached



Gram stain



MacConkey agar



Chromogenic agar

gram negative bacilli = gram stain

lactose fermenter = MacConkey agar

E.coli O157 = positive = Chromogenic agar



E coli O157:H7 فاذا كل المعلومات بتقول لنا ان الجواب هو

### Tasks:

- What is the differential diagnosis based on history  
not viral because of bloody diarrhea – we think its E coli O157 because of the symptoms
- What were the critical features to your diagnosis  
“not passed any urine for about 12 hours” = requiring a kidney function test  
“had a lunch of ground beef”
- Other investigation that you would like to order  
investigation is confirmed =Chromogenic agar was enough  
keep the patient informed - antibiotic – ICU
- Complications  
Acute renal failure – death

# Case 3

## History:

A 16 years old boy from village presented to the outpatient department complaining from diarrhea for the last 9 months. He passes 4-5 large volume stools daily which are frothy, greasy and foul smelling. His parents mentioned that he not growing well. Past medical history indicated an attack of fever, bloody stained cough, and generalized itching few months ago.

1: هاي chronic diarrhea مش acute لان الاعراض صرلها 9 اشهر

2: bloody stained cough, = affect the lung

## Examination:

- T: 37.4 °C Pulse: 95/min RR: 15/min BP: 110/85 mmHg
- Looks tired, thin, short stature, and pale
- Abdominal exam is not significant

الحرارة يادوب مترفعه الباقي normal .... واضح عنده ال growth مش مزبوط واضح انه عنده anemia

## Investigations:

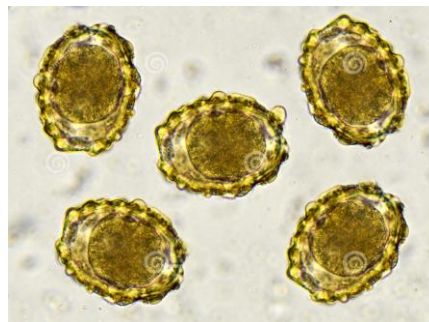
- CBC: low hemoglobin level with mild eosinophilia

بتاكذلك ايضا بوجود chronic case و anemia

- Stool analysis and culture are attached



Gross



Microscopic



Culture

فإذا كل المعلومات بتقول لنا ان الجواب هو Ascaris

## Tasks:

1. What are the differential diagnosis based on history

itching + fever + 16 years old + cough + weight loss + improper growth + chronic disease = helminths = Ascaris

2. What is the main finding of stool analysis and culture

3. What other investigation you would like to order

stool analysis for his family – other people

4. Treatment

treatment of choice is albendazole + vitamins and iron to overcome anemia

## Case 4

### • History:

A previously healthy 10-month-old female infant presented to the hospital emergency room with two brief (5 min) and consecutive episodes of generalized tonic clonic convulsions (تشنج) after having bouts of vomiting, watery diarrhea and low-grade fever for the last 2 days.

1: العمر 10 شهور

2: watery diarrhea

= اذا ووضح انها Viral وبالتحديد rotavirus الا اذا اثبت عكس ذلك

### Examination:

- T: 37.8 °C Pulse: 108/min RR: 18/min BP: 102/54 mmHg
- Signs of severe dehydration
- Abdomen examination show mild tenderness

### Investigations:

- CBC: mild lymphocytosis
- Stool analysis negative
- Stool culture negative
- Toxin assay negative
- Stool antigen ...

not bacteria not parasite

طبيب شو سبب التشنجات؟ قد يكون الحرارة المرتفعة بس هون الحرارة مش مرتفع  
بنعمله electrolyte test و kidney function test وغالبا رح يكون بسبب imbalance in electrolyte like hypernatremia



ان الجواب هو Viral GE with hypernatremia

### Tasks:

1. What are the differential diagnosis based on history  
age + watery diarrhea
2. What is the main finding of stool analysis and culture
3. What other investigation you would like to order  
electrolyte test
4. Treatment  
fixing the imbalance

# Case 5

اختبر نفسك بهاد ال case

## History:

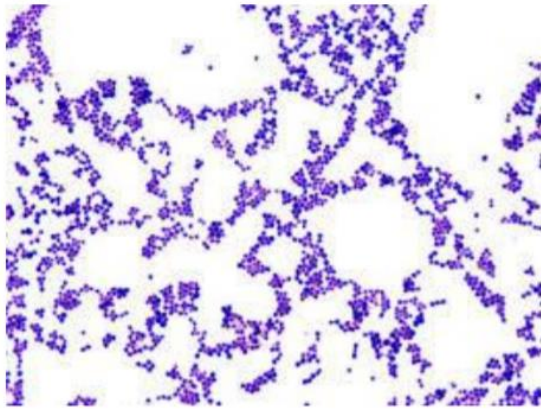
A 24 years old male presented with 3 attacks of sever vomiting containing undigested food with central colicky abdominal pain few hours after eating at a local restaurant. 2 hours later he developed watery diarrhea and reported feeling hot and fatigued.

## Examination:

- T: 39.0 °C Pulse: 125/min RR: 18/min BP: 110/80 mmHg
- Looks ill, mildly dehydrated, abdominal examination indicated mild central abdominal tenderness, no rebound, with increased bowel sounds.

## Investigations:

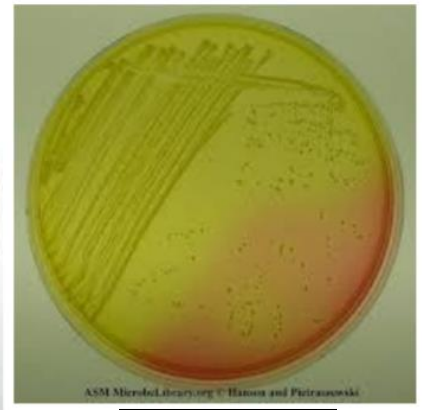
- CBC: sever leukocytosis
- Stool analysis and culture are attached



Gram stain



Blood agar



MSA agar

## Tasks:

- What are the differential diagnosis based on history
- What is the main finding of stool analysis and culture
- What other investigation you would like to order
- Treatment



**S. aureus food poisoning** الجواب هو



## Case 6

### • History:

The patient was a 74-year-old male with a history of borderline diabetes, hernia repair, and prostate surgery. He weighed 99.8 kg (220 lbs), well developed and well nourished. He developed abdominal cramping and intractable diarrhea 6 hours after ingesting a fish dinner. Later on he presented to the ER with sever generalized abdominal pain and signs of early dehydration. He was admitted to the hospital for treatment. The next day, the patient looked severely ill and on transferring to X-ray, he became unresponsive and CPR was started. Code blue was called however the patient died immediately 😞

● نحن بنعتقد اول شي انها ال parasite اللي موجود في ال fish لكن هل ال parasite هذا يؤدي الى الوفاة هيك ؟  
الجواب لا

### Why did he die?

#### • Examination:

• T: 38.8 °C Pulse: 130/min RR: 30/min BP: 60/35 mmHg

● T: 38.8 °C = مرتفعه قليلا ..... Pulse: 130/min = مرتفعه كثير ..... RR: 30/min عالي  
BP: 60/35 mmHg قليل جدا

● طيب ليش هيك كل vital signs مش طبيعيين ؟

● تدهور ال RR يدل على انه حالة المريض خطيرة جداً

- Very ill looking, sever signs of dehydration with shallow breathing
- Abdomen show sever tenderness, rigidity and poor bowel sounds

#### • Investigations:

- CBC: severe leukocytosis
- Stool analysis negative
- Stool culture negative
- Toxin assay negative
- Antigen assays negative
- KFT and LFT are elevated

● طيب نحن مش لازم بس نفكر بالميكرو لازم كمان نفكر بالباثولوجي والامراض يلي ممكن تسبب هيك اعراض  
ال diverticulitis و ال fever تعمل واعراض مشابهه  
طيب كمان لازم نفكر بالادوية يلي كان ماخذها وبال biochemistry؟؟ شو السبب ؟



Patient



Abdomen laboratory



Surgical treatment

● صورة المريض بنقدر نستنتج الحالة من وجه المريض .. هاي بسموها Hippocratic face او terminal acute peritonitis face

● ال peritonitis عبارة inflammation من infection حول البطن .. وعندك الالتهاب بكل اماكن الجسم السبب : perforation :

يمكن يكون perforated abdomen , perforated diverticulitis , perforated peptic ulcer اللى بصير هو انه عنا organ فيه inflammation وانتشر ال inflammation لكل الاعضاء

● بال case هذا السبب perforated intestine والسبب هو fish bone ابتلع سمكه مع عضمه قوية وكان حظه سيء خزقت ال intestine (وهذه حالة حقيقية شافها الدكتور) فكل البكتيريا وال Flora طلعت لبرا ال intestine وعملت الالتهاب ب peritoneum

✓ FISH BONE PERFORATION الجواب هو

THANK YOU AND GOOD LUCK