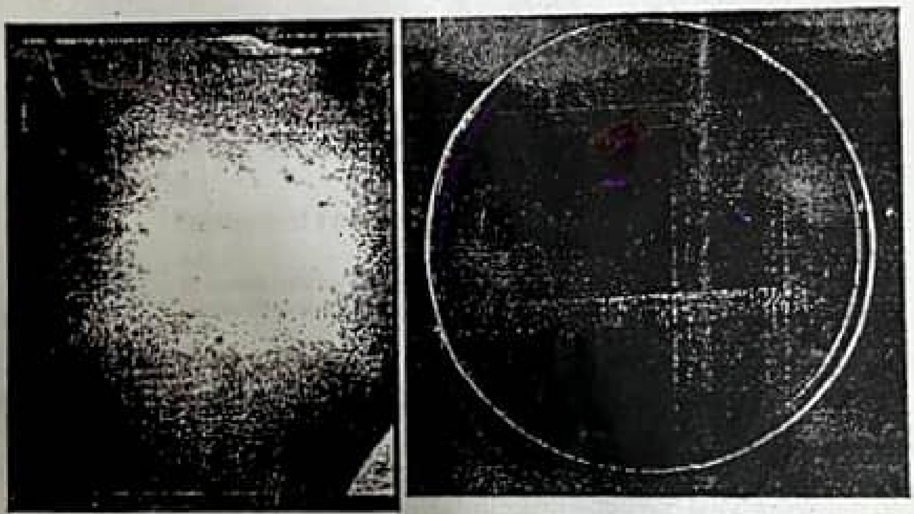
Pathology SGD :- Code 21

Rose spot — Imp

Salmonella typhi

A 28-year-old male presents in the emergency department with fever, chills, myalgia, and diarrhea. He has a faint maculopapular rash on his trunk. The patient recently returned from a trip to Central America. The physician collects blood samples for analysis. The resulting colonies on MacConkey agar resemble those shown (non lactose fermenting colonies) which were oxidase negative. What is the most likely etiology and infection?



1. Name the causative agent and the disease.
2. What are other diseases caused by this organism? osteomyelitis, Septemia
3. Classify Salmonellae.
4. What is the route of transmission and infective dose and incubation period of the bacterium? feco-oral route; 1x10^7; 10-14 days
5. Discuss its pathogenesis.
6. What is the cell and colony morphology of the bacterium shown?
7. Two vaccines are available to prevent infection by the organism shown. The oral vaccine contains live attenuated bacteria. What is the composition of the second licensed vaccine? Vi capsular polysaccharide
8. What are the findings in the disease during 1st, 2nd and 3rd week of the disease?
9. What are the findings on TSI? (alkaline slant, acidic butt, H_2S positive)

10.

11.

Treatment:

12. **Enteric fevers:** ceftriaxone or ciprofloxacin recommended

1st Line Drugs: Ampicillin, Chloramphenicol, Trimethoprim-Sulphamethoxazole.

2nd Line Drugs: Nalidixic acid & Ciprofloxacin.

3rd Line Drugs: 3rd Generation Cephalosporins.

Ampicillin or Ciprofloxacin should be used in chronic carriers of *S. typhi*.

Cholecystectomy may be necessary to abolish chronic carrier state.

13.

Salmonella:

Antigen: O / H / Vicapsular.

Transmission: Contaminated food.

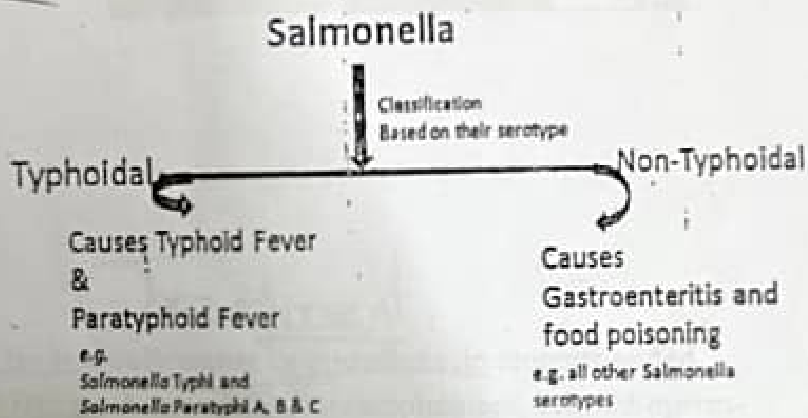
Clinical findings: Rose Spots
High fever
Diarrhea
Typhoid
Meningitis

Lab. Diagnosis.

Specimen: blood / Urine / Stool

KEY: → Agent. Salmonella typhi

1. The patient most likely has typhoid fever caused by *Salmonella enteritidis* serovar Typhi.
2. Enterocolitis, Septicemia. | Osteomylitis.
3.



4. ID_{100} = 1 x 10^8 ID_{50} = 1 x 10^7—Incubation period = 10-14 days…..Enter via feco-oral route.
5. Endotoxin causes fever → also see page 150 micro
6. Short, flagellated rods and lactose-negative colonies are shown on MacConkey agar. Growth on MacConkey indicates that the bacterium is nonfastidious and Gram negative.
7. Vi capsular polysaccharide is in the second licensed vaccine.
8.

Ingestion → gut mucosa → Invade → Intestinal mucosa → Blood stream → Reticulo endothelial → Blood (Bacteremia) → Fever

alkaline slant, acidic butt] On TSI agar.
H_2S (+).