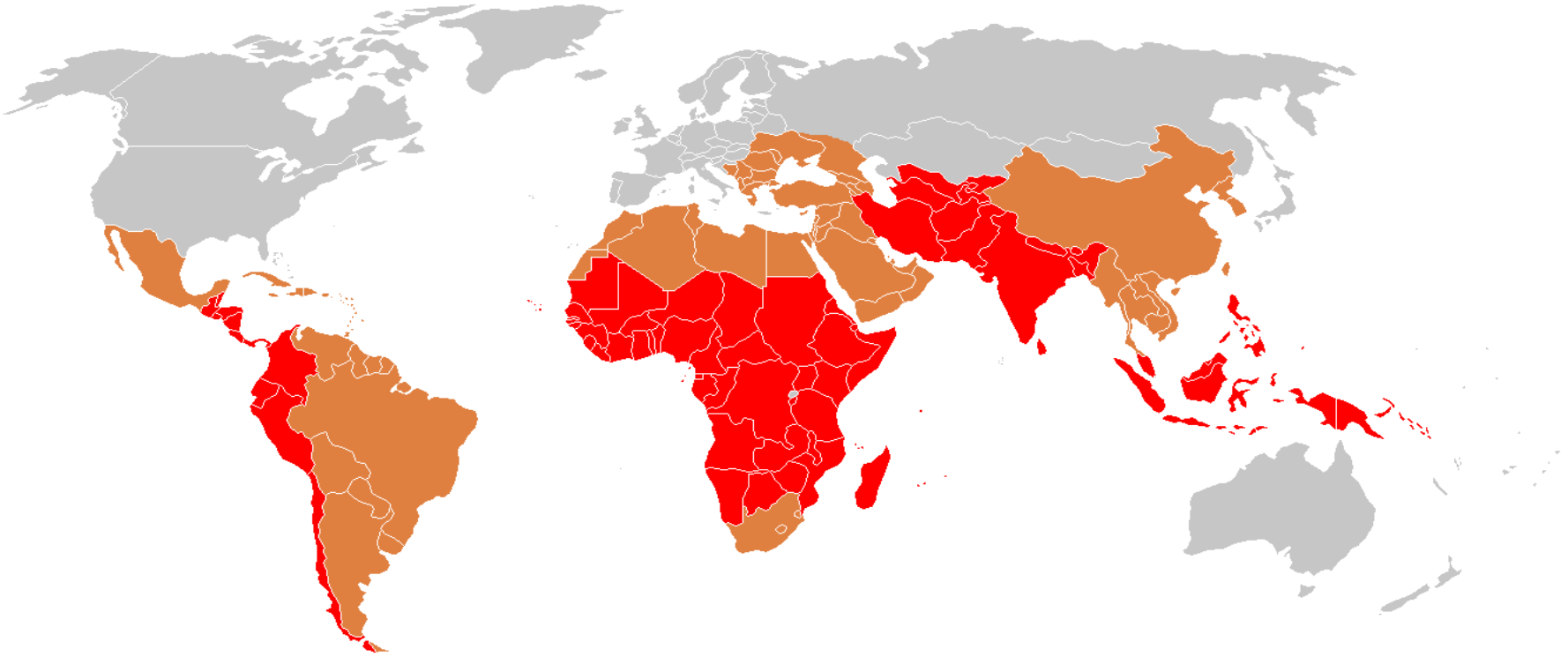
A 32 year old man presented with fever, fatigue, body aches and headache for 1 week. He returned 2 weeks ago from a trip to Egypt.

Typhoid fever

- It is an acute febrile disease, caused by *Salmonella typhi* and *S. paratyphi* A, B,C
- *S. typhi* and *paratyphi* lives only in humans.
- Persons with typhoid fever carry the bacteria in their bloodstream and intestinal tract.
- Carriers recovering from typhoid fever shed *S.* Typhi in their feces .
- It is transmitted through the ingestion of food or drink contaminated by infected people.

Epidemiology



- strongly endemic
- endemic
- sporadic cases

Pathogenesis of Enteric fever

- The organisms penetrate ileal mucosa
- Reach mesenteric lymph nodes - multiply there.
- Invade Blood stream
- Infect Liver, Gall Bladder,, spleen, Kidney, Bone marrow.
- After 7-10 days bacilli pass into blood stream (secondary bactermia)

Clinical features

- Develop 1- 3 weeks after exposure.
- May be mild or severe. Gradual onset
    - intermittent fever
    - malaise, headache
    - abdominal pain
    - constipation or Diarrhoea
    - rose-colored spots on the chest
    - enlarged spleen or liver.
- Healthy carrier state may be follow acute illness.

Rash in Typhoid

- Rose spots: 2 -4 mm in diameter raised discrete irregular blanching pink maculae's found in front of chest
- Appear in crops of upto a dozen at a time
- Fade after 3 – 4 days

Complications

- Pneumonia, meningitis, osteomyelitis
- Severe intestinal hemorrhage and intestinal perforation
- If not treated can be fatal.

Carriers

- 5% of the survivors continue to excrete the organism for months = carriers.
- In carriers the bacteria remain in the gall bladder and are shed into the intestine.

Investigations

- WBC
- ESR
- Blood, bone marrow, or stool cultures
- Widal test (serum agglutination test)
  cross reactions– false positives

Blood Cultures in Typhoid Fevers

- Bacteremia occurs early in the disease
- Blood Cultures are positive in

1st week in 90%

2nd week in 75%

3rd week in 60%

4th week and later in 25%

Differential Diagnosis

- Brucellosis
- Tuberculosis
- Infective endocarditis
- Lymphoma
- Adult Still's disease
- Malaria

Treatment

- 3rd generation cephalosporins, like Ceftriaxone are effective
- Flouroquinolones, like ciprofloxacin are the drugs of choice for treatment of typhoid fever.
- Fever may continue for several days after starting therapy.
- The majority are cured with antibiotics
- 10% may relapse.

Prevention and Control (WHO,2009)

Control measures:

- Health education
- Antibiotic treatment
- Excluding disease carriers from food handling.
- A vaccine is available

  recommended for travellers to high risk areas. It does not provide full protection

A 32 year old man presented with fever, fatigue, body aches and headache for 1 week. He returned 2 weeks ago from a trip to Egypt.

Brucellosis

- Other names:
- Systemic febrile illness
- Zoonosis ..occurs worldwide.
- B. melitensis and B. abortus are most frequent.
- The incubation period 1 – 4 weeks.

Transmission

Infection transmitted to humans by:

→ contact with fluids or meat from infected animals (sheep, cattle, goats, pigs, or other animals)

→ eating food products such as unpasteurized milk and cheese .

→The disease is rarely, if ever, transmitted between humans.

Pathogenesis

- Enter the body
- To lymph nodes
- To blood stream
- Reticuloendothelial System
- Blood
- Any organ

Clinical Manifestations

Often fits one of the three pattern:

- Acute febrile illness resembling typhoid.
- Fever & acute monoarthritis (hip/knee)
- low grade fever, low back pain,hip pain

Clinical Manifestations

- Symptoms :

  Fever, Night sweats, Fatigue
  Anorexia, Weight loss
  Arthralgia ,Low back pain
  Depression

- Signs:

  Arthritis
  lymphadenopathy
  Hepatosplenomegaly

Localised Brucellosis

- Osteoarticular disease: especially sacroileitis, vertebral spondylitis and large joints arthritis
- Genitourinary disease, especially epididymo-orchitis
- Neurobrucellosis, usually presenting as meningitis, radiculopathy.
- Abscess involving the liver, spleen, abdomen.

Differentials

- Typhoid fever
- Tuberculosis
- Infective endocarditis
- Collagen vascular disease
- lymphoma

Investigations

- WBC
- ESR
- Blood cultures

  slow growth = 4 weeks
- Serology: SAT positive in recent infection

  No diagnostic level...>1:360

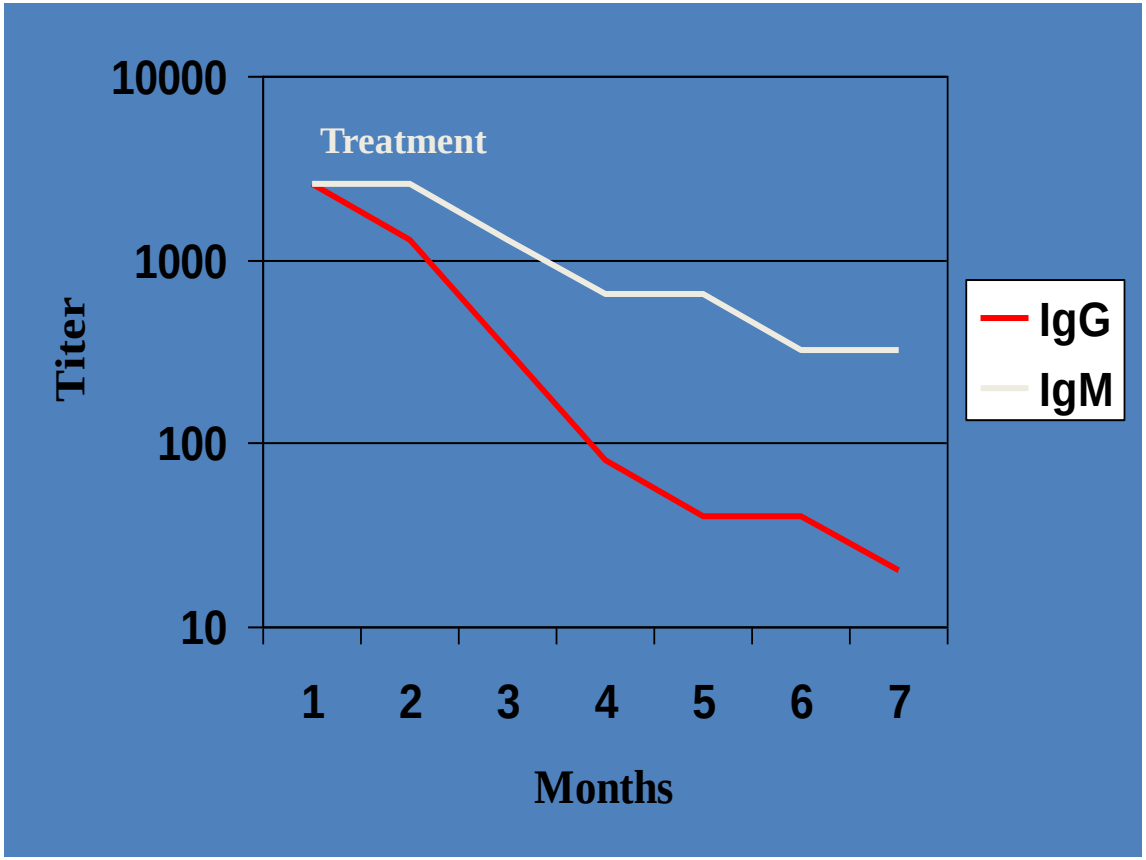
Treatment

- Treatment for uncomplicated Brucellosis
  - Streptomycin + Doxycycline for 6 weeks
  - Rifampicin + Doxycycline for 6 weeks
  - ? TMP/SMX + Doxycycline for 6 weeks
- Treatment of complicated Brucellosis
  - Endocarditis, meningitis
  - No uniform agreement
  - Usually 3 antibrucella drugs for 3 months

Relapse

- About 10 percent of patients relapse after therapy.
- Most relapses occur within three months following therapy and almost all occur within six months.
- Relapse should prompt assessment for a focal lesion, especially hepatosplenic abscess
- Most relapses can be treated successfully with a repeat course of a standard regimen.

Treated Brucellosis



A 22 year old student presented with nausea, abdominal pain and diarrhea for 2 days. On examination, he was febrile with mild peri-umbilical tenderness.

Acute Gastroenteritis

Defence mechanisms

- Gastric acidity
- GI peristalsis
- Normal flora
- Immune defences

Causes of gastroenteritis

- Viruses
- Bacteria
- parasites

Pathogenesis of diarrhea

- Villous damage
- Enterotoxin
- Cytotoxin
- invasion

Gastroenteritis

Bacteria Gastroenteritis

- Salmonella enteritides
- Shigella spp.
- Campylobacter jeujeni
- Vibrio cholera
- E . Coli
- C. difficile

Gastroenteritis

- Transmission: contaminated food or drink
- Presentation: abdominal pain, nausea, vomiting ,diarrhea +/- fever
- Diagnosis: stool microscopy & culture
- Treatment: fluids PO/IV
- Antibiotics: -only for severe cases or impaired immunity

  - in shigella and cholera

Gastroenteritis

Intestinal Amaebiasis

- Transmission : by cysts
- Causes invasive colitis
- Presentation: asymptomatic
  acute dysentry
  chronic amebiasis
- Complications: liver abscess
- Diagnosis: stool microscopy , serology
- Treatment: metronidazole

Gastroenteritis

Giardiasis:

- Transmission:
- Colonise upper small intestine
- Presentation: asymptomatic – mild to moderate :abd. pain , flatulence
- May become chronic
- Diagnosis: stool microscopy
- Treatment: metronidazole

Food poisoning

A. Vomiting within 6 hrs of eating
B. Abd pain , diarrhea after 8 – 16 hrs
C. Abd. Pain , diarrhea after 16 – 48 hrs
D. Abd. Pain, diarrhea , fever 16- 48 hrs