

Brucellosis

Case Study

A previously well 39 year old male patient was hospitalized for the first time at the Clinic for Infectious Diseases, with fever, sweating, weakness, loss of appetite and loss of body mass.

These problems occurred one month before he was admitted. Until then, he was healthy.

Form epidemiological history we found he was farmer, and involved in cattle breeding. One month before these problems he was in contact with the sick sheep.

examination

- On physical examination he was conscious, oriented, communicative,
- Feverish temp 38.5 ° C. Normal skin colour.
- whitish sclera, pharynx calm, carious teeth. Lymph nodes at accessible regions were not palpable
- Lungs was normal findings. Cardiac examination revealed the heart, clear tones, audible systolic murmur.
- His vitals signs were RR 25/min, BP110/70, PR 110/min. Abdomen was soft, without pain; liver and spleen were palpable subcostal.
- Meningeal signs negative.

Brucellosis (malta fever , undulant fever)

Etiology :

1. **Causative organism:** Brucella , Gm –ve coccobacilli
2. **Source of infection :**
 - o Brucella melitensis : in goats
 - o Brucella abortus : in cows
 - o Brucella suis : in pigs.
3. **Mode of infection :**
 - o Drinking contaminated milk.
 - o Dealing with infected animals : farmers , veterinarian.

- **Ingestion** of unpasteurized milk and related dairy products.
- **Aerosolization** of fluids, contamination of skin abrasions, and splashing of mucous membranes among slaughterhouse workers , farmers and shepherds.
- Veterinarians are usually infected by inadvertent **inoculation of animal vaccines** against *B abortus* and *B melitensis*.
- Laboratory workers (microbiologists) are exposed by **processing specimens (aerosols) without special precautions**.

Clinical picture :

1. **Incubation period** : 1 – 2 weeks .

2. **Clinical manifestations**

- o Bone & muscle pain.

- o Relapsing fever : fever lasts for 10 days then apyrexia for 10 days , then relapse and so on.

- o Constipation , nausea , vomiting.

- o Lymph node enlargement.

- o Liver : enlarged , tender.

- o Spleen : enlarged.

- o Sweating.

Complications :

- Relapse.
- Infective endocarditis
- Orchitis.
- Neurobrucellosis
- Paraplegia due to transverse myelitis.
- Abortion.

investigations

Initial laboratory work up revealed

- WTC 10,400 /ul, RBC 5.070/ul, **Hb 10 mg/dl**, HCT 43,3%, platelets 319,000 u/l,
- C-reactive protein **69.3** mg/l, erythrocyte sedimentation rate **40/60** mm/h,
- serum creatinine 1.2 mg/dl,
- aminotransferase ALT 17 u/l, aspartat aminotransferase 23 u/l, total serum proteine 76 g/l , serum albumins 34 g/l, serum globulins **42 g/l**, urine normal.
- **Blood cultures** were positive for Brucella species. The indirect microagglutination test to Brucella by Rose Bengal was positive.
- **ELISA test** for Brucella was: IgM positive (67 U / ml), IgG positive (272 U / ml) and IgA positive (230 U / ml)
- **FREE CHEST RADIOLOGY, Echocardiography**: normal.
- Abdominal ultrasound: mild HSM.

Investigations :

- 1. CBC : Lymphocytosis , ↑ ESR
- 2. Culture : blood culture +ve during fever spike.
- 3. Serological tests : Brucella agglutination test.

Work up

- Serology

1. Serum tube agglutination test.
2. Tray agglutination test

titers of more than 1:160 in conjunction with compatible clinical presentation is considered highly suggestive of infection. Titers of more than 1:320 are considered to be more specific, especially in endemic areas.

Work up

3. ELISA

it measures IgM, IgG and IgA allowing for better interpretation.

4. PCR

it is used for rapid and accurate diagnosis of brucellosis.

treatment

a) Prophylaxis : Hygienic measures e.g. Pasteurization of milk.

b) Therapeutic :

i. General : Rest , light nutrient diet.

ii. Symptomatic : antipyretic & analgesics.

iii. Specific :

Tetracycline : 500 mg/6h for 6 weeks. **OR**

Doxycyclin : 200 mg / d for 6 weeks. **OR**

Septrin : 2 tab / 12h for 6 weeks

PLUS

Streptomycin : 1 gm/d IM for 2 weeks **OR**

Rifamicin : 600 mg / 12h .

iv. Treatment of complications.

Management

- The World Health Organization recommends the following for adults and children older than 8 years:
 - Doxycycline 100 mg PO bid and rifampin 600-900 mg/d PO: Both drugs are to be given for 6 weeks (more convenient but probably increases the risk of relapse).
 - Doxycycline 100 mg PO bid for 6 weeks and streptomycin 1 g/d IM daily for 2-3 weeks: This regimen is believed to be more effective, mainly in preventing relapse.

THANK YOU