

GOOD MORNING



BRUCELLOSIS



Etiology

Brucella are aerobic, non-spore-forming, non-motile, gram-negative coccobacilli that is .divided into 4 types; Brucella abortus (cattle), B melitensis (goat/sheep), B. suis (swine), and B. .canis (dog)



Epidmiology

Brucellosis is an important zoonotic disease that result either from direct contact with an infected animal or by consumption of their meat or products (especially unpasteurized milk products), it also may occur by inoculation through cuts or conjunctiva, or by inhalation of .infectious aerosols



Pathology

The major virulence factor for Brucella appears to be the smooth lipopolysaccharide (LPS) of its cell wall which makes it more resistant to killing by PMN & because these organisms are facultative intracellular pathogens, they can survive and replicate within the mononuclear phagocytic cells of the reticulo-endothelial system (RES) resulting in granuloma formation

Clinical manifestation

The I.P. is 2-4 wk. Hx. Symptoms are usually non-specific & vague e.g. fever, night sweats, anorexia, headache, fatigue, arthralgia, rash, abdominal pain, diarrhea, vomiting, cough, and pharyngitis. Some patients may present with only FUO but the most consistent part of hx is the direct contact with an infected animal or by .consumption of their meat or products

Ex. Pyrexia, pallor, skin rash, arthritis
. (especially spine), LAP, & HSM



Investigation

CBP; Pancytopenia, i.e. anemia, .1 .1
.neutropenia, & thrombocytopenia

Culture of blood or any tissue of the RES.2 .2
(e.g. liver, spleen, lymph nodes, or BM) is the
gold standard in Dx, but remember that
Brucella is a fastidious organisms, i.e. it
require as long as 4 wk to be recovered from
.the growth media



Serology; Serum Agglutination Test (SAT) or.3
Brucella Agglutination Test (BAT) can detects
antibodies against B. abortus, B. melitensis, and
B. suis (but not B. canis because it lacks the
smooth LPS). No single titer is ever diagnostic,
but most patients with acute infections have
titers of $\geq 1:160$; whereas low titers may require
acute and convalescent sera to
.confirm the Dx



SAT detects both IgG and IgM (IgM can remain in the serum for weeks to months after the infection has been treated), therefore the serum is treated with 2-mercapto-ethanol which cancel IgM & detect IgG only. However false-positive results of SAT may occur due to infection with other bacteria e.g. Yersinia, Francisella, & Vibrio cholerae; whereas false-negative results may occur due to high antibodies titers "prozone effect"; to avoid this effect, serum should be diluted to $\geq 1:320$

ELISA is more sensitive but less specific than SAT.

5. PCR is very sensitive & specific



Treatment

Children < 8 yr are usually treated with TMP.1
(10 mg/kg)- SMZ (50 mg/kg) + Rifampin (15-20
.mg/kg)

Children > 8 yr are usually treated with.2
+ Doxycycline (2-4 mg/kg)

Rifampin [or Streptomycin (20-30 mg/kg) or
Gentamicin (3-5mg/kg)].All drugs should be
given for 6 wk except Aminoglycosides
.for 2 wk



Patients with Cxs e.g. osteomyelitis, .3
endocarditis, meningitis should be
treated with Doxycycline + Gentamicin +/_
Rifampin for 4-6 mo(except gentamicin for 1-2
.wk)

Note: Patients should be complaint with this
.prolong therapy to reduce the relapse rate

Prevention

Eradication of infection from animals with
.pasteurization of milk and dairy products

THANKS

