

BRUCELLOSIS

(Undulant fever, Malta fever, Mediterranean fever, Bang's disease)

1. **Agent:** *Brucella* species, gram-negative coccobacillus.
2. **Identification:**
 - a. **Symptoms:** A systemic infection with acute or insidious onset, characterized by continued, intermittent, or irregular fever, headache, weakness, sweating, chills, arthralgia, and generalized aching. The disease may last for several days, many months, or occasionally several years. Recovery is usual but disability is often pronounced. Relapses occur in about 5% of treated cases up to 3 months after onset. Fatality is 2% or less, and is higher for *B. melitensis* infections. Clinical diagnosis is often difficult.
 - b. **Differential Diagnosis:** Febrile illnesses without localizing signs, such as infectious mononucleosis, lymphoma, malaria, and typhoid.
 - c. **Diagnosis:** Isolation of organisms by culture from blood, bone marrow, etc.; four-fold rise in complement fixation titer in paired sera or agglutination titer of $\geq 1:160$.
3. **Incubation:** Variable, usually 5-60 days; occasionally several months.
4. **Reservoir:**
 - Brucella abortus* – Cattle
 - B. suis* - Pig
 - B. melitensis* - Sheep, goat
 - B. canis* - Dog
5. **Source:** Any unpasteurized milk product; tissues, blood, urine, vaginal discharge, aborted fetuses (especially placentas) from infected animals.
6. **Transmission:** Direct contact, inhalation, or ingestion.
7. **Communicability:** No evidence of transmission from person to person.
8. **Specific Treatment:** Rifampin plus doxycycline.

Rifampin stains contact lenses and turns urine orange-red. It is not recommended for use

during pregnancy. It also may decrease the effectiveness of oral contraceptives.

Alternatives: Tetracycline or TMP/SMX. Use streptomycin or entamicin for endocarditis or serious infection.

9. **Immunity:** Duration uncertain.

REPORTING PROCEDURES

1. **Reportable:**(Title 17, Section 2500, *California Code of Regulations*).
 - a. Call Morbidity Unit during working hours.
 - b. Call Chief, ACDC, for all suspects, and Chief, Food and Milk Section if foodborne brucellosis is suspected. After working hours, contact Administrative Officer of the Day through County Operator.
 - c. Any laboratory that receives a specimen for brucellosis testing is required to report to the State Microbial Diseases Laboratory immediately (Title 17, Section 2505, *California Code of Regulations*).
 - d. ACDC must notify the State Division of Communicable Disease Control immediately upon receiving notice of a case of suspected brucellosis.
2. **Report Form: CASE REPORT OF BRUCELLOSIS (UNDULANT FEVER), Q FEVER, TULAREMIA (DHS 8558, 9/99 fillable).**

If a prepared commercial food item is the LIKELY source of this infection, a **FOODBORNE INCIDENT REPORT** should be filed. For likelihood determination and filing procedures, see Part 1, Section 7 - Reporting of a Case or Cluster of Cases Associated with a Commercial Food: Filing of Foodborne Incident Reports.

3. Epidemiologic Data

- a. Relapses.
- b. Recent undiagnosed illness.
- c. Occupation and location: farmer, dairyman, slaughterhouse worker, butcher,

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veterinarian, kennel workers, and persons handling animals and animal by-products.

- d. Contact with cattle, swine, goats, sheep, horses, and dogs.
- e. Use and source of unpasteurized milk, other dairy products or imported foods, especially cheese.
- f. Travel history for 10 months prior to onset.
- g. Brucellosis has been listed by the CDC as one of the agents most likely to be used in a bioterrorist attack because of its potential devastating physical and psychological effects its potential to be weaponized and effectively delivered to a target area. Please see Public Health Bioterrorism Surveillance and Response Plan.

CONTROL OF CASE, CONTACTS & CARRIERS

Notify ACDC immediately and open promptly for ACDC review. ACDC will investigate to identify potential association to bioterrorist activity. If deemed to be unaffiliated with bioterrorism, the responsibility for the control of cases, contacts and carriers will be returned to the district where upon action should be initiated within 7 days.

CASE:

Isolation: None.

CONTACTS: No restrictions. Search for others who may have shared possible common exposure.

CARRIER: Not applicable.

PREVENTION-EDUCATION

- 1. Educate persons working in slaughterhouses, packing plants, butcher shops and farms as to the nature of the disease and how to minimize the risk in handling carcasses or products of animals.
- 2. Search for infection among livestock by the agglutination reaction. Check with the County or State Veterinarian. Infection among cattle and swine requires slaughter of infected animals.
- 3. Pasteurize milk and dairy products from cows, sheep, or goats. Boil milk when pasteurization

is impossible. Educate public to not consume unpasteurized dairy products.

- 4. Handle and dispose of discharges and fetuses from animal abortions with care. Disinfect contaminated areas.
- 5. Inspect meat and condemn carcasses of diseased swine. (Not a useful procedure for cattle or goats.)
- 6. Advise cases of possible recurrence of symptoms on re-exposure.

DIAGNOSTIC PROCEDURES

- 1. **Serology:** Agglutination.

Container: Serum separator tube.

Laboratory Form: Test Requisition and Report Form H-3021 or online request if electronically linked to the Public Health Laboratory.

Examination Requested: Brucellosis.

Material: Clotted blood.

Amount: 8-10 ml.

Storage: Refrigerate until transported.

- 2. **Culture:**

Consult Public Health Laboratory before submitting specimen.