Brucellosis

Epidemiology in New Zealand

Brucella infections are usually seen in farmers, veterinarians and abattoir workers. Laboratory personnel are at increased risk. However, internationally, ingestion of unpasteurised goat cheese and milk is the most common risk factor for brucellosis.

More detailed epidemiological information is available on the Institute of Environmental Science and Research (ESR) surveillance website at www.surv.esr.cri.nz

Case definition

Clinical description

Frequently asymptomatic. Most commonly it is an acute illness with fever, arthralgia, headache, malaise, anorexia, constipation, respiratory tract symptoms and hepatosplenomegaly. If inadequately treated, especially in older cases and in the form of Brucella melitensis infections, persistent suppurative foci of infection in joints, bone, liver or spleen may develop. Other complications include epididymo-orchitis, meningoencephalitis, endocarditis and chronic fatigue syndrome.

Laboratory test for diagnosis

Laboratory confirmation requires at least one of the following:

- isolation of Brucella species or detection of Brucella nucleic acid from a clinical specimen
- a four-fold or greater rise in Brucella antibody titre (by SAT, ELISA, Coombs, IFA) between acute and convalescent phase serum specimens (SAT slide agglutinin test). Consider the possibility of cross-reactivity in the Brucella SAT test with antibodies in people infected with Yersinia enterocolitica, other yersiniae, cholera, tularaemia or certain serotypes of Salmonella, Escherichia coli and Pseudomonas.

Case classification

- Under investigation: A case that has been notified, but information is not yet available to classify it as probable or confirmed.
- Probable: A clinically compatible illness that is epidemiologically linked to a confirmed source.
- Confirmed: A clinically compatible illness that is laboratory confirmed.
Not a case: A case that has been investigated and subsequently found not to meet the case definition.

Consult an infectious diseases physician before the case is classified as confirmed.

Spread of infection

Incubation period
5–60 days; commonly 1–2 months.

Mode of transmission

The bacteria are excreted in milk and urine and found in the placentas and fetal tissues of infected animals. The bacteria can survive in soil for up to 10 weeks, in liquid manure for up to 2 years, in goat cheese for up to 6 months at 4–8ºC and in water for up to 2 months.

Humans may be infected through contact with infective material via cuts or abrasions in the skin, conjunctivae or inhalation, by ingestion of unpasteurised cheese or milk or by accidental needle stick or mucosal splash when vaccinating using live attenuated vaccine.

Aerosols may occasionally transmit *Brucella* to laboratory staff. Rare human-to-human transmission through sexual contact has been reported.

Rare person-to-person communicability. There may be a risk in endemic areas from animal fomites.

Notification procedure

Attending medical practitioners or laboratories must immediately notify the local medical officer of health of suspected cases. Notification should not await confirmation.

Management of case

Investigation

Obtain a history of travel, animal contact, microbiology laboratory work or consumption of unpasteurised cheese or milk.

Ensure laboratory confirmation has been attempted. Species-level identification of the organism through isolation or nucleic acid amplification aids investigation of the source.

Restriction

Cover draining wounds with a dressing.
Treatment
The case should be under the care of an infectious diseases physician. Cases 8 years of age or older should be treated with doxycycline plus either gentamicin or rifampicin. For cases younger than 8 years old, give co-trimoxazole plus either gentamicin or rifampicin.

Counselling
Advise the case and their caregivers of the nature of the disease and its mode of transmission. Discuss the need to cover draining wounds with a dressing and to use condoms for sexual intercourse.

Management of contacts
Definition
All people with a similar exposure to the case.

Investigation and restriction
Nil.

Prophylaxis
There is no recommendation for prophylaxis of contacts, but prescription of an oral regimen may be discussed with any contact who has a very high risk of developing infection, such as having consumed the same unpasteurised milk product as the case within the incubation period.

Counselling
Advise all contacts of the incubation period and typical symptoms of brucellosis. Encourage them to seek early medical attention if symptoms develop.

Other control measures
Identification of source
Check for other cases in the community, household and workplace. If the case may have acquired the infection in New Zealand, liaise with Ministry for Primary Industries staff to investigate potential animal sources of infection on phone: 0800 809 966.

Disinfection
Clean and disinfect surfaces and articles soiled with purulent discharges. For details, refer to Appendix 1: Disinfection.
Health education

If there is a cluster of cases, consider a media release and direct communication with relevant occupational groups and health professionals to encourage prompt reporting of symptoms. In communications with doctors, include recommendations regarding diagnosis, treatment and infection control.

Ensure there are safe procedures in place in meat-processing facilities to prevent exposure, including the use of personal protective equipment, covering broken skin lesions and good ventilation.

Educate farmers, veterinarians and hunters on the risks of handling potentially infected animals and carcasses, especially domestic and wild swine, placentas, discharges and fetuses. Practices aimed at reducing the risk of leptospirosis (for example, using gloves and covering scratches) will also reduce the risk of brucellosis.

Educate the public about the risks of consuming unpasteurised milk and cheese.

Reporting

Ensure complete case information is entered into EpiSurv.

On receiving a notification and where the case is suspected of having contracted the disease in New Zealand, medical officers of health should immediately notify the Director of Public Health at the Ministry of Health.

The Ministry of Health will notify the appropriate staff in the Ministry for Primary Industries so that further investigation of the source can be undertaken.

If the disease is thought to have been occupationally acquired, this should be notified to the Department of Labour via the notifiable occupational disease system (NODS).

If a contaminated commercial food source is identified, liaise with the Ministry for Primary Industries.