

BRUCELLOSIS

What is brucellosis?

Brucellosis is a disease caused by *Brucella* bacteria. It is a zoonosis, meaning that it is primarily an infection of animals but can be transmitted to man. Different species of *Brucella* bacteria mostly infect domestic livestock: cattle (*B. abortus*), sheep and goats (*B. melitensis*) and pigs (*B. suis*). Dogs can also be infected with *B. canis*. While all the four species mentioned can infect humans, *B. melitensis* is thought to cause the most serious disease. In Kiswahili brucellosis is called “UGONJWA YA MAZIWA”.

What is the distribution of this disease?

It is a worldwide infection traditionally associated with farm workers, veterinarians and persons whose occupation includes packing of meat or dairy products. With the advent of easy international travel, the disease is being recognized more and more among travelers, missionaries and aid workers, especially those with a history of working or traveling in developing countries. It is likely, however, that a significant proportion of brucellosis cases still remain undiagnosed.

How do humans get the infection?

The *Brucella* bacteria are excreted in the milk of infected animals and can be transmitted to man by the ingestion of unpasteurized milk or dairy products, such as cheese, butter, yoghurt and ice cream. *Brucella* bacteria can survive for up to a month in frozen, unpasteurized dairy products. This type of transmission is prevalent in areas of the world where traditional farming methods are still used. In the USA, increasing numbers of cases are being diagnosed among travelers returning from countries where unpasteurized milk is sometimes used to prepare cheese. In East Africa, in areas inhabited by pastoralist tribes, brucellosis is fairly prevalent. It only takes an adventurous traveler or a resident missionary to accept a drink of unpasteurized milk in a local homestead to trigger a new infection.

Secondly, the bacteria can be passed to man through skin abrasions from directly handling infected meat, carcasses, manure or products of livestock abortions. This type of transmission is responsible for infection among persons in occupations that involve handling of animals or their products, such as veterinarians, butchers, farm workers and meat packers.

Finally, it is possible that the bacteria can be inhaled (e.g. in dust) since the organism can survive outside the host, in soil or water, for several days. This type of transmission is thought to be rare but may be responsible for some laboratory accidents and some more unusual outbreaks.

What are the symptoms of brucellosis?

The onset of the disease can be insidious, slowly leading to a chronic illness, or it can be acute. The commonest symptom is weakness associated with fatigue. In most acute infections fever is present, but typically fever rises then disappears for several days or even weeks before rising again – a feature which prompted the name “undulant fever”. Chills and heavy night sweats may occur, along with headaches and body aches. Aching can occur in the muscles or the joints and may be quite localized, with variable joint swellings. Pain at the back of the neck is a frequent complaint. There may also be depression, insomnia, irritability, and other mental disorders such as fatigue and forgetfulness. None of these symptoms should be taken in isolation.

Complications due to chronic, untreated brucellosis can affect several bodily systems and organs. Abscesses may form in the bones, or fluids accumulate in joints to cause arthritis. Symptoms vary in severity depending on the species that the patient is infected with and on the amount of bacteria consumed, in addition to other factors.

What is the incubation period?

The incubation period is the time between acquiring the infection and getting symptoms. This is usually from one to three weeks but several months may elapse before the appearance of symptoms.

What is the usual disease outcome?

Fortunately, the mild form of disease is self-limiting after about one year in about 50% of cases. In the other 50%, the majority of cases will improve within a few months on appropriate treatment. A small percentage will progress to irreversible, chronic fatigue, depression and arthritis. Severe organ infections may lead to death. Recurrent attacks of acute symptoms may become a frequent feature of chronic, incurable brucellosis.

How is brucellosis diagnosed?

Because the symptoms are generally vague and variable the disease is difficult to diagnose and can be mistaken for other infections such as malaria and typhoid.

Diagnosis is made on the basis of clinical symptoms together with a suitable diagnostic test. While it is possible to culture the bacteria from blood or bone marrow of infected patients, very few laboratories have the capacity to do so, especially in countries where brucellosis is most prevalent. The commonest diagnostic tests are based on finding specific antibodies in the blood of infected persons. In populations where brucellosis is widespread, such as in traditional pastoralist communities, many people are antibody positive. However, an elevated level of antibodies together with symptoms of disease is considered significant, particularly in newcomers to an endemic area. Antibody levels decline slowly after treatment and may remain circulating in the blood for many months.

How is brucellosis treated?

Treatment of brucellosis tends to be somewhat controversial because of the wide range of clinical symptoms and the possibility of complications with chronic infection. For treatment to be successful it must be lengthy, with the minimum recommended period of 45 days, and must use combination therapy i.e. two or more different drugs taken simultaneously. This leads to poor patient compliance quite often and yet partially treated infection is most likely to relapse enhancing chances of developing drug resistance. The current recommendation is the combination of oral doxycycline with rifampicin for six weeks as a minimum. Streptomycin injections are old-fashioned but this treatment is still in use in less developed communities.

In severe disease, a third drug, Co-trimoxazole, can be added to the treatment. Some cases have to be treated for very long periods, e.g. one year. Some chronic cases require intermittent, repeated treatments for life in order to relieve symptoms, since complete cure cannot be achieved.

What can you do to prevent brucellosis?

There is no vaccine to prevent brucellosis in humans. If you are likely to travel to areas where brucellosis is prevalent, you should avoid eating or drinking any milk or dairy products unless you are sure they are pasteurized. Furthermore, you should cover any cuts or skin abrasions if you are handling animals, raw meat or unprocessed dairy products. In the event of you developing sudden symptoms of fatigue, headaches and body aches, with or without fever, consult a doctor and request for a brucellosis test. Remember, early treatment will save you from a long and depressing illness.