



BRUCELLOSIS DISEASE: CAUSES, CLINICAL FEATURES AND PREVENTION

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Abstract

Brucellosis is an important infectious disease that affects both animals and humans. It belongs to the group of zoonotic diseases, because the infection is transmitted from animals to people. Because the symptoms are often nonspecific, laboratory diagnosis is very important. Prevention of brucellosis requires cooperation between medical workers, veterinary specialists and the population. Health education, pasteurization of milk, vaccination of animals, use of protective equipment and regular veterinary supervision are the main measures for reducing the spread of the disease.

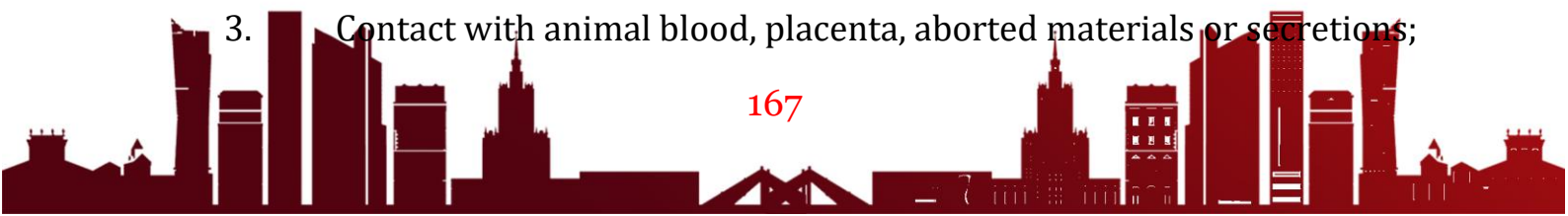
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Brucellosis is one of the most widespread zoonotic bacterial infections in the world. It has medical, social and economic importance because it affects human health and reduces productivity in animal husbandry. The disease is commonly associated with cattle, sheep, goats, pigs and other domestic animals. Infected animals may spread the bacteria through milk, urine, blood, placenta, aborted fetuses and other biological materials. Therefore, people who work with animals have a higher risk of infection. The relevance of this topic is connected with the fact that brucellosis can become chronic if it is not diagnosed and treated in time. In rural areas, people may consume raw milk or homemade dairy products, which increases the risk of infection. In addition, farmers, veterinarians, laboratory workers, slaughterhouse workers and medical staff may be exposed to the pathogen during their professional activities. For this reason, public awareness and preventive measures are essential.

The causative agents of brucellosis are small gram-negative bacteria belonging to the genus *Brucella*. The most important species for human disease include *Brucella melitensis*, *Brucella abortus*, *Brucella suis* and *Brucella canis*. Among them, *Brucella melitensis* is often considered one of the most pathogenic species for humans.

The main routes of transmission are:

1. Consumption of unpasteurized milk and dairy products;
2. Direct contact with infected animals;
3. Contact with animal blood, placenta, aborted materials or secretions;





4. Inhalation of contaminated aerosols in laboratories or animal facilities;

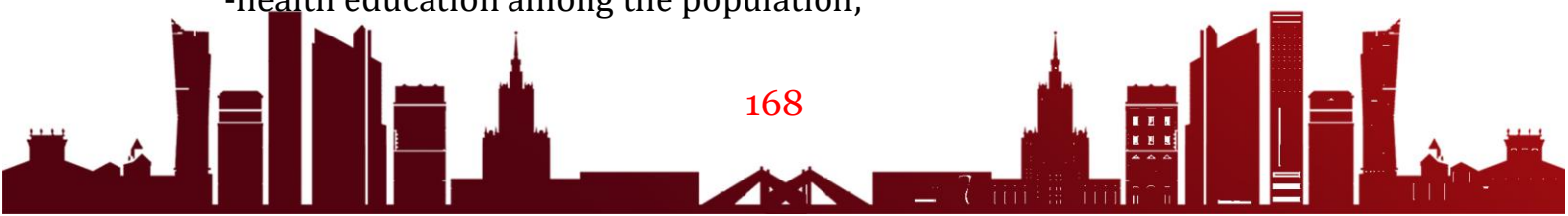
5. Occupational exposure among veterinarians, farmers and slaughterhouse workers.

Person-to-person transmission is very rare. In most cases, the disease is connected with animal sources. That is why the control of brucellosis in animals is a key factor in preventing human infection. The incubation period of brucellosis usually lasts from one to several weeks. However, in some cases symptoms may appear later. The disease may begin gradually or suddenly. The most common symptoms include fever, sweating, chills, fatigue, headache, loss of appetite, muscle pain and joint pain. Some patients may also have back pain, weight loss, enlarged liver or spleen. A characteristic feature of brucellosis is that fever may rise and fall over time. For this reason, the disease has sometimes been called “undulant fever”. If brucellosis is not treated properly, it may lead to chronic complications. These complications may involve the musculoskeletal system, nervous system, cardiovascular system or reproductive system. Joint and spine involvement are among the most common long-term problems. Because the symptoms of brucellosis are similar to many other infectious diseases, diagnosis based only on clinical signs is not enough. Laboratory confirmation is necessary.

Diagnosis of brucellosis is based on epidemiological history, clinical symptoms and laboratory tests. The doctor should ask whether the patient has had contact with animals, consumed raw milk, or worked in a high-risk profession. Laboratory diagnosis may include blood culture, serological tests and molecular methods. Treatment of brucellosis should be carried out under medical supervision. The disease usually requires combined antibiotic therapy for several weeks. Early diagnosis and proper treatment help prevent complications and reduce the risk of relapse. Self-treatment is not recommended, because incorrect use of antibiotics may worsen the condition or lead to recurrence of the disease.

Prevention is the most effective way to control brucellosis. The main preventive measures include:

- avoiding raw milk and unpasteurized dairy products;
- boiling or pasteurizing milk before consumption;
- using gloves and protective clothing when working with animals;
- proper disposal of animal birth materials and aborted fetuses;
- vaccination of livestock in high-risk areas;
- regular veterinary control and testing of animals;
- health education among the population;





-maintaining hygiene in farms, slaughterhouses and laboratories.

Medical and veterinary services should work together according to the “One Health” approach. This approach recognizes that human health, animal health and environmental health are closely connected. Brucellosis cannot be effectively controlled only by treating human cases. The infection must also be prevented and controlled among animals.

Brucellosis is a serious zoonotic disease that remains important for public health, especially in regions where livestock breeding is common. The disease is caused by *Brucella* bacteria and is mainly transmitted through infected animals and contaminated animal products. Its symptoms are often nonspecific, which makes early diagnosis difficult. Fever, sweating, weakness, headache, muscle pain and joint pain are the most common clinical signs. The prevention of brucellosis depends on sanitary culture, veterinary supervision, safe food practices and public awareness. People should avoid consuming raw milk and should follow hygiene rules when working with animals. Medical workers should pay attention to epidemiological history and recommend laboratory testing when brucellosis is suspected. The effective control of brucellosis requires cooperation between healthcare institutions, veterinary services and the community.

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