



What is listeriosis?

Listeriosis is a serious but rare infection, mainly caused by eating food contaminated with the bacteria *Listeria monocytogenes*. It is considered an emerging food-borne infection due to changing food habits, technological advancements for longer shelf-life of food products, and the ability of this microorganism to survive and continue to grow even in the refrigerator.

Where is *Listeria* found?

Listeria species are found in soil, water, effluents, a large variety of foods, and the feces of humans and animals. However, only *Listeria monocytogenes* and, rarely, *L. ivanovii* are pathogenic for humans, out of ten known *Listeria* species (*L. monocytogenes*, *L. ivanovii*, *L. innocua*, *L. seeligeri*, *L. welshimeri*, *L. grayi*, *L. marthii*, *L. rocourtiae*, *L. fleischmannii*, *L. weihenstephanensis*).

Healthy animals may harbour pathogenic *Listeria* in their gastrointestinal tracts. Vegetables may become contaminated through soil or manure used as fertilizer.

Food items which may occasionally contain *L. monocytogenes* include a wide variety of ready-to-eat or raw foods, such as raw milk or meat and their products, raw mushrooms, soft cheese and seafood.

Foods contaminated with *Listeria* look, smell, and taste normal.

Why is listeriosis so important?

The *Listeria* species of bacteria are able to multiply even at high salt concentrations and in acidic conditions. Unlike most bacteria, *Listeria* can grow and multiply in some foods in the refrigerator.

The mortality rate due to infection with *L.monocytogenes* is very high, on average approaching 30 % i.e. almost one in three infected cases will be fatal.

Who are at the greatest risk of serious illness due to this disease?

Pregnant women, the elderly or individuals with a weakened immune system, i.e. people in immuno-compromised status due to AIDS, leukaemia, cancer, kidney transplant and steroid therapy, are at greatest risk of severe listeriosis.

Pregnant women are about 20 times more likely to get listeriosis than other healthy adults. It can result in miscarriage or stillbirth. Newborns may also have low birth weight, septicaemia and meningitis.

People with AIDS are at least 300 times more likely to get listeriosis than those with a normal immune system.

How is it transmitted?

The main route of transmission of the pathogen is by eating or drinking contaminated food or water. Food-borne transmission is the most prominent means of infection.

Neonates can be born with listeriosis if their mothers are infected during pregnancy.

The incubation period is usually less than three weeks, although it can be longer (up to 70 or 90 days). The course of the disease is, in most cases, mild.

How widespread is it in South-East Asia?

The incidence of listeriosis varies between 0.1 and 11.3 cases per 1,000,000 per year in different countries.

Reports of listeriosis in countries of South East Asia are scarce, either because of failure to detect, failure to report, or low incidence rate or failure to consider listeriosis for differential diagnosis by clinicians.

The disease remains largely undiagnosed and unde-reported. However, *Listeria monocytogenes* has been found to be one of the etiological factors in causing spontaneous abortions and premature births in India.

What are the symptoms or clinical manifestations?

The symptoms depend on the physiological and immune status of the patient.

A person with mild listeriosis usually has fever and muscle aches, preceded by diarrhoea or other gastrointestinal symptoms.

The most frequent clinical manifestation of severe listeriosis is a neurological syndrome e.g. severe headache, meningitis or encephalitis (an infection of the brain or its surrounding tissues). This is particularly seen among persons with weakened immune systems.

Clinical manifestations in pregnant women include fever, diarrhoea, abortion or stillbirth; newborns get sepsis, pneumonia. The mother usually becomes infected in the last 3 months of pregnancy, but is often asymptomatic, or has mild fever.

How is it diagnosed?

Initial diagnosis of listeriosis is on the basis of clinical symptoms and presence of the bacteria in a smear from blood, cerebrospinal fluid (CSF), meconium of newborns and vaginal secretions. The organism can be isolated from clinical specimens such as blood, CSF, and the meconium of newborns (or the fetus in abortion cases), as well as faeces, vomitus, food stuff/animal feed.

Various detection methods including polymerase chain reaction (PCR) are available for diagnosis of listeriosis in humans. Blood tests to detect antibodies are unreliable.

During pregnancy, blood cultures and culture of the placenta are the most reliable ways to find out if symptoms are due to listeriosis.

Is there any treatment?

Listeriosis is a treatable disease if diagnosed early. When infection occurs during pregnancy, prompt administration of antibiotics can often prevent infection of the foetus or newborn. Depending on the form of the disease, the recommended treatment is amoxicillin with gentamicin. An alternative treatment is trimethoprim/sulfamethoxazole. *Listeria* is naturally resistant to cephalosporins.

How can you reduce your risk of listeriosis?

The *Listeria* in food is drastically reduced or killed by pasteurization and cooking.

In general, guidance for the prevention of listeriosis are similar to those used to help prevent other foodborne illnesses, such as salmonellosis.

- Thoroughly cook food from animal sources, such as beef, pork, or poultry.
- Wash raw vegetables thoroughly with clean water before eating.
- Keep uncooked meats separate from vegetables as well as from cooked foods and ready-to-eat foods.
- Avoid unpasteurized (raw) milk or products made from unpasteurized milk.
- Wash hands, knives, and cutting boards with soap and water after handling and processing uncooked foods.
- Consume perishable and ready-to-eat foods as soon as possible.
- Refrigerate or freeze perishable food, prepared food and leftovers within two hours.
- Defrost food in the refrigerator, in cold water or in the microwave but never at room temperature.
- Keep leftovers for a maximum of 4 days, preferably 2-3 days, and reheat them to an internal temperature of 74°C before consuming them.
- Refrigerators should be periodically well cleaned, and maintained at +4°C
- Read and carefully follow the period of shelf life indicated on the label of the product

Special precaution to be taken for persons at high risk:

- Avoid milk or dairy products such as soft cheese made from unpasteurized milk.
- Do not eat luncheon meat, or deli meats, unless they are reheated until steaming hot.
- Do not eat soft cheeses such as unless they have labels that clearly state they are made from pasteurized milk.
- Do not eat refrigerated pâtés or meat spreads. Canned or shelf-stable pâtés and meat spreads may be eaten.
- Do not eat refrigerated smoked seafood.

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For more information on foodborne diseases of international concern:

http://www.who.int/topics/foodborne_diseases/en/