

## Tuberculosis: A Milk Borne Disease

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### Introduction

Tuberculosis (TB) is a highly contagious infectious disease caused by the bacterium *Mycobacterium tuberculosis*. It primarily affects the lungs but can also affect other parts of the body, such as the brain, spine, or kidneys. TB is a significant global health concern, with millions of new cases and deaths reported each year. While TB is mainly transmitted through the air when an infected person coughs, sneezes, or talks (pulmonary TB), there is a rare form known as milk-borne tuberculosis, where the disease can be transmitted through the consumption of contaminated milk.

### Causative Agent

The bacterium *Mycobacterium tuberculosis* is responsible for causing tuberculosis. It is an acid-fast bacillus, which means it is resistant to the decolorizing effects of acid-alcohol during staining procedures, leading to its characteristic red staining under a microscope.

### Transmission

In the case of milk-borne tuberculosis, the transmission occurs when people consume raw or unpasteurized milk from infected animals, particularly cows. Cows can contract tuberculosis from humans with active TB or from other infected animals. When the bacteria are present in the cow's udder, the milk can become contaminated. Drinking this infected milk exposes humans to the bacteria, leading to milk-borne tuberculosis.

## Symptoms

The symptoms of milk-borne tuberculosis are similar to those of pulmonary tuberculosis. However, it is essential to note that not everyone infected with *M. tuberculosis* will develop active tuberculosis; some may have latent tuberculosis, where the bacteria remain inactive and do not cause symptoms. Common symptoms of active milk-borne TB include:

- Persistent cough that may produce blood-tinged sputum.
- Unexplained weight loss and loss of appetite.
- Fatigue and weakness.
- Night sweats.
- Fever and chills.
- Chest pain and difficulty breathing.

## Diagnosis

Diagnosing milk-borne tuberculosis requires a combination of clinical evaluation, laboratory tests, and a thorough history of milk consumption. The following diagnostic methods are used:

- ❖ Tuberculin skin test (Mantoux test): A small amount of purified protein derivative (PPD) is injected under the skin, and the reaction is measured after 48 to 72 hours. A positive reaction indicates exposure to TB but does not differentiate between active or latent infection.
- ❖ Chest X-ray: An X-ray of the chest can reveal characteristic changes in the lungs suggestive of tuberculosis.
- ❖ Sputum culture: Examination of sputum samples for the presence of *M. tuberculosis* bacteria.
- ❖ Milk testing: Testing of milk samples to detect the presence of the bacteria.

## Prevention and Control

Preventing milk-borne tuberculosis involves a combination of measures targeted at both animals and humans:

- Pasteurization: To prevent transmission through milk, pasteurization is essential. Pasteurization involves heating milk to a specific temperature to kill harmful bacteria, including *M. tuberculosis*.
- Proper screening of animals: Regular screening of animals, especially cattle, for tuberculosis is crucial to identify infected animals and prevent them from entering the food chain.
- Health education: Raising awareness among the public about the risks of consuming raw or unpasteurized milk and the importance of pasteurization can help reduce the incidence of milk-borne tuberculosis.



- Improved hygiene: Maintaining good hygiene practices during milking and handling of milk can minimize the risk of contamination.

### **Conclusion**

In conclusion, tuberculosis is a serious infectious disease caused by *Mycobacterium tuberculosis* and can be transmitted through contaminated milk in rare cases. Pasteurization of milk and proper animal screening are essential measures to prevent the transmission of milk-borne tuberculosis. Early diagnosis and treatment are crucial to controlling the spread of the disease in both humans and

