Trichinella Spiralis (Trichinellosis)

Trichinella spiralis is a nematode that causes the parasitic condition trichinellosis. T. spiralis is often found in undercooked meat, especially pig meat. Consumption of meat with T. spiralis larvae allows them to be transported across the gastrointestinal mucosa into the blood, where they travel and encyst in striated muscle. A patient with trichinellosis often presents with nausea/vomiting, myalgias, and fever. Periorbital edema can also sometimes be evident on clinical examination. Laboratory results often show eosinophilia. Treatment of trichinellosis is supportive in mild cases but may require albendazole if symptoms do not resolve.



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Characteristics

Nematode
Knee-toad with Roundworms
Trichinella spiralis is a nematode (roundworm) that can be found in carnivorous mammals. Humans may acquire it by consuming larvae present in the muscle tissue of domestic or wild animal meat.

Pathogenesis

Undercooked Meat (Especially Pork)
Undercooked Meat (Especially Pork)
Trichinellosis is caused by the ingestion of undercooked meat containing encysted larvae of Trichinella species from domestic or sylvatic (or wild) animals. The most frequent mode of transmission is consumption of inadequately cooked pork from domestic pigs.

Larvae Enter Bloodstream and Encyst in Striated Muscle
Larvae Cyst-sisters In Striated-ribbon Muscle
Trichinosis can be divided into two phases: an intestinal phase, which occurs following the consumption of contaminated food, and a muscle phase. In the intestinal phase, encysted larvae are liberated by digestive enzymes. This phase may be asymptomatic or present with gastrointestinal disturbances. The muscle phase occurs within 1 month of ingestion and is caused when adult worms in the intestine release new larvae, which enter the bloodstream and encyst in muscles. This phase presents with symptoms such as myalgia.

Signs and Symptoms

Nausea and Vomiting
Vomiting
The intestinal stage occurs between the second and seventh day following ingestion, when encysted larvae are liberated from the meat by gastric juices. Larvae mature into adult worms that burrow into the intestinal mucosa. Fertilized female worms release new larvae about one week after ingestion; this continues for up to five weeks. This stage may be asymptomatic or may be accompanied by symptoms, including abdominal pain, nausea, vomiting, and diarrhea.

Myalgia
Mayo-Algae
The muscle stage occurs after the larvae burrow into the intestinal mucosa and reach the bloodstream. Once they disseminate hematogenously, they reach skeletal muscle and encyst. This stage is characterized by inflammation of the affected muscles, which is termed myositis. Symptoms of the muscle phase include myalgia, muscle swelling, and weakness.

Fever
Fever-Beaver
Fever can also be seen in trichinellosis. This symptom occurs as an inflammatory response to the parasite in muscle tissue.

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Periorbital Edema

Pear-eye Edamame

Patients may present with periorbital edema and other ocular findings such as conjunctival hemorrhages.

Eosinophilia

Eosinophilia-eagle

Eosinophilia is common in trichinellosis during the muscle phase. It usually represents 15–50% of leukocytes and reflects the body's immune response to the larvae encysting in striated muscle.

Treatments

Albendazole

Abe-Bond

In mild cases, analgesics are enough since the infection is self-limiting. Antihelminthics are indicated in more serious cases with systemic manifestations. Albendazole helps to kill adults, thereby limiting the production of new larvae. Steroids are sometimes prescribed to decrease inflammation, especially if cardiac, central nervous system, or pulmonary tissues are involved.

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