Trichinella Spiralis (Trichinellosis)

Trichinella spiralis is a nematode which 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.

PLAY PICMONIC

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 Pigs

Trichinellosis is caused by the ingestion of undercooked meat containing encysted larvae of Trichinella species from a domestic or sylvatic animal. The most frequent mode of transmission is consumption of inadequately cooked pork from domestic pigs.

Larvae Enter Bloodstream and Encyst in Striated Muscle

Larvae In Striated-Muscle-Steak

Trichinellosis can be divided into an intestinal phase and a muscle phase. In the intestinal phase, encysted larvae that are consumed from undercooked meat 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 that burrow through the intestinal mucosa, access 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 after ingestion when the encysted larvae are released. Larvae then mature into adult worms that burrow into the intestinal mucosa. Female worms release new larvae one week after ingestion. This initial 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 occurs as an inflammatory response to the parasite in muscle tissue.

Periorbital Edema

Edamame Covering Inspectors Eyes

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

Eosinophilia

Eosinophilia-Eagle

Patients with trichinellosis often have massive eosinophilia with eosinophils count > 5000 mm³ (from 20% to 90% over the course of the disease).

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 tissue is involved.
