

COMMON WORMS

Worms are probably the best known of human parasites. Records from ancient civilizations show that worms have been infecting man for centuries. Yet few people like to face the embarrassment of a diagnosis, perhaps because of the myth that having worms means you are dirty.

Where is the prevalence high?

Worms are cosmopolitan but like most other parasitic infections, they prefer the tropical regions of the world where warm, moist conditions prevail in conjunction with poor hygiene and sanitation. Worm eggs and their infective larval stages can survive for many months in stool-contaminated water or soil. Any basic improvement in the disposal of faecal waste will go a long way in reducing the prevalence of worms. In general, cold winter temperatures discourage the survival and transmission of these parasites.

Types of worms

There are three groups of parasitic worms commonly known as roundworms, tapeworms and flukes.

Roundworms

Roundworms are cylindrical and smooth and most of the human roundworms live in the intestine. Intestinal roundworms include the commonest worm of all, *Ascaris*, as well as hookworm, whipworm (*Trichuris*) and pinworm or threadworm (*Enterobius*). *Ascaris* can reach about a foot in length while pinworms look like tiny white threads. Female roundworms lay eggs that are passed out in the faeces of an infected person. One species called *Strongyloides* actually gives birth to larval worms that pass out in stools. Faecally contaminated soil is a feature of all urban and rural areas where sanitation is poor and worms such as *Ascaris* and *Trichuris* are transmitted when soil-contaminated fruits and vegetables are eaten without washing, or, in the case of hookworms, when larval worms in the soil penetrate the skin of persons walking barefoot.

Pinworm eggs are sticky and the female lays them around the anus of the host at night. The eggs cause intense “itchy bottom” and inevitable scratching. The eggs can lodge under fingernails or in bedding leading to a vicious cycle of infection and re-infection. Several members of the same family can be infected at once, especially if they share beds.

Not all the roundworms which parasitize man are intestinal species. The filarial worms, which inhabit blood, tissues or skin, are also roundworms and are transmitted by biting insects.

Tapeworms

Tapeworms are flat, segmented and ribbon-like. Man is infected with *Taenia* by eating the larvae in meat, either beef or pork, which is undercooked or raw. The enjoyment of “rare” meat contributes to transmission in areas where meat inspection is not thorough.

Tapeworm eggs and segments are passed in the faeces of infected persons and if they contaminate pasture, are ingested by cattle or pigs. Once in the animal, the eggs hatch and the larvae settle in the muscles as cysts, which remain infective to man. Only thorough cooking will kill the cysts. Much to the horror of the infected person, the live, active and very visible segments of the tapeworm can exit out of the anus with or without stool and be seen publicly on its long journey down the leg.

Smaller tapeworms also exist, the most exotic being *Echinococcus* (Hydatid), which lives in the intestine of dogs. If a human (instead of a sheep) accidentally swallows the eggs from the dog faeces, the eggs hatch and become “hydatid cysts” in the infected human, lodging in various organs of the body to disrupt normal functions due to pressure effects. Pastoralists living in close association with their dogs, such as the Turkana of northwestern Kenya, are especially at risk.

Flukes

Flukes are flat and leaf-shaped with the exception of the bilharzia or schistosome flukes, which are cylindrical. All flukes spend part of their life cycle in snails, in which they multiply. The larvae shed from the snails are infective to man, either directly through the skin, or by eating raw plants, fish (especially in the Far East) or small animals in which the larval cysts hide. The larval forms of schistosomes are found in water and penetrate the skin of persons through water contact. The adult schistosome flukes live inside blood vessels feeding on blood. Their eggs escape from the human body in faeces or urine where they reach by digging burrows in body tissues causing bleeding and pain. Some eggs never complete their journey and lie trapped in body tissues where they cause slow damage, pain and bleeding. These injuries can progress quietly for over 15 years before major complaints arise.

What do people infected with worms complaint about?

Many healthy individuals will harbour worms without having symptoms. In general though, infection with intestinal worms will cause disturbances such as tummy aches, abdominal discomfort, nausea, bloating, indigestion, acidity, tiredness, coughing, occasional vomiting and diarrhoea. Bloody diarrhoea can be a symptom of early bilharzia. Headaches, dizziness, irritability, muscle pains, skin rashes and even backache may occur. Filarial worms can lead to elephantiasis, blindness and skin damage in addition to allergic manifestations in the lungs and blood. Some people with worms end up being treated wrongly for asthma.

Do worms cause death?

Sometimes death may occur when worms such as *Ascaris* coil up together blocking the intestinal lumen, especially in children. Death may also occur as an indirect result of worm infection due to exhaustion, incapacitation, blindness, anaemia, pressure in the brain or lungs and vomiting.

While fatality is rare, studies have shown that a heavy worm load consistently lowers the performance of children in schools and can lead to nutritional deficiencies including anaemia.

How to detect worm infection

Simple laboratory tests on stool and urine can diagnose most common intestinal worms by identification of eggs and larvae. Filarial worms are identified by examining blood or skin microscopically. More complicated tests can also be performed on blood. Radiological methods such as ultrasound and x-rays are useful for certain infections.

Advice to travellers in the tropics

- Avoid consuming contaminated or suspicious food or drink.
- Avoid eating raw or undercooked meat and fish.
- Avoid walking bare-feet on soil which might be faecally contaminated.
- Try to prevent insect bites by using repellents or bed nets.
- Avoid swimming in fresh water lakes or rivers.
- Peel fruits when there is no clean water to wash them.
- Wash hands with soap and water before eating.
- De-worm yourself regularly (every six months) using self-administered Albendazole or Mebendazole, especially if you are far from medical facilities.

In conclusion, it is wise to take precautions but when they fail there is effective treatment for all worm infections.