

Understanding Parasites

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Introduction

Many of us have heard about illnesses such as giardiasis or amoebiasis, but we tend to overlook the relationship between these parasites and digestive and systemic diseases and disorders. The common belief that people in the US are free of parasites is a great illusion. Some estimate that about 50 million American children are infected with worm parasites; only a small portion of which is detected and reported. This is particularly worrisome when one recognizes that microscopic (single-celled protozoans) make up about 90% of all parasitic infections in the US according to the Centers for Disease Control and Prevention. If existing parasitic infections are evenly distributed, there would be more than enough parasites for every living person to have one. The most recent statistics of the worldwide prevalence of some selected parasites follows:

| Disease | Human infections | Annual deaths |
|----------------|------------------|--------------------|
| Malaria | 489 million | 1 - 2 million |
| All worms | 4.5 billion | |
| <i>Ascaris</i> | 1.0 billion | 20 thousands |
| Hookworms | 900 million | 50 - 60 thousands |
| Whipworms | 750 million | |
| Filarial worms | 657 million | 20 - 50+ thousands |
| Schistosomes | 200 million | 0.5 - 1.0 million |

This is only a sample of the many parasitic diseases compromising human health worldwide. In temperate areas, we are uneducated about the seriousness of parasitic diseases that reach their greatest impact in “tropical” countries from which many immigrate to the US. Contributing factors to parasitic diseases in the US, other than our own endemic parasites and immigration, include malnutrition, population density, economic conditions, sanitary practices, and life styles. Compounding factors in North America include the lack of public/media awareness, educational materials/counseling and training of the public, as well as in some cases, the professional community. It is in this spirit that this educational pamphlet is offered to you.

How we contract parasites

A parasite is a micro- or macro-organism that needs to satisfy its vital nutritional requirements by feeding off certain host tissues or body fluids that contain the specific biochemicals that it needs. There are parasites for every single tissue of the human body, once they gain access. An intestinal parasite has to gain access via the oral cavity with contaminated food or drink if it is to cause infection. Other portals of entry are irrelevant. Eight ways by which humans can contract parasitic infections are briefly summarized below.

Drinking water

Some of the most common microscopic human parasites (Protozoa) are transmitted via drinking water contaminated with fecal material from infected persons. This simple cycle occurs in water from running streams as well as from tap water in homes in large US and Canadian cities served by surface water treatment plants. Parasites transmitted in this manner include *Cryptosporidium* and *Giardia*.

Skin contact with contaminated water

This is the only method of infection available to certain parasites such as the schistosomes, some of the deadliest fluke (trematode) parasites of mankind. After emerging from the snail host, the infective larvae (cercariae) penetrate the skin of a person (swimmer, agricultural worker, children playing, etc.) and migrate in the human body ending up as adults in blood vessels (hepatic portal system). To get infected, one has to be exposed in an endemic area, ex., Africa, China, Mexico, Puerto Rico. At PCI, we have identified eggs in fecal samples from an isolated area near a stream in California nearby where a population of Vietnamese immigrants have settled.

Food

Food intake is perhaps one of the most common ways of transmission of parasitic infections caused by microscopic (Protozoa) and macroscopic (worm, helminth) parasites alike. For example, *Blastocystis* and the cysts of the amoebas (both are protozoans) are infective when swallowed with contaminated food via the fecal-oral route. This can occur in a household setting or a restaurant. Similarly, the ingestion of the eggs of the human roundworm, *Ascaris*, readily occurs when fresh vegetables, ex., lettuce, grown in farms fertilized with infected human waste, are eaten without proper washing.

Insects

Most blood sucking insects are capable of transmitting infectious agents via their bite as they attempt to feed on human blood. In the US, ticks transmit Lyme disease, Rocky Mountain spotted fever, relapsing fever, Colorado tick fever, babesiosis, and rabbit fever; fleas transmit plague and endemic typhus, mosquitoes transmit malaria and dog heartworm, *Triatoma* (kissing) bugs transmit Chagas disease, and head lice can transmit epidemic typhus. If a person has had a history of a recent insect bite in any temperate or tropical part of the world, his/her blood should be tested for parasites. Insect-borne pathogens normally cause no harm to their natural (reservoir) hosts, ex., rodents, but become highly pathogenic in humans (their unnatural hosts).

Air

Air-borne viruses, bacteria, and fungi are usually eliminated with the feces (occasionally orally) of a natural reservoir (usually wild-life) host but infect humans upon accidental inhalation. Examples in North America include histoplasmosis, Valley fever, and Hanta virus. These diseases are associated with bat guano, dust, and rodent feces, respectively.

Pets

Despite what you may have been told, dogs, among other pets, are not man's best friend, parasitologically speaking. Dogs carry an intestinal tapeworm, *Echinococcus*, whose eggs spread all over their fur from the anal orifice during grooming. Unhealthy human contact with infected dogs, e.g., by kissing, brings the eggs into the human intestine which they penetrate as larvae and encyst in the body cavity, e.g., the liver or even the brain, as the life-threatening hydatid cysts. Other worm parasites (helminths) are also readily transmitted from pets and other animals to man. Most notable are the beef and swine tapeworms, *Taenia*, by the consumption of beef and ham contaminated with larvae of these tapeworms.

People

Close human-to-human contact is conducive to transmission of quite an assortment of sexually transmitted diseases including AIDS and herpes as well as other viruses causing cold and flu. Eating food in a restaurant or at home that may have been contaminated with *Taenia* eggs or *Entamoeba* cysts from the servers fecal through improper sanitary practices will surely produce infections with cysticercosis (appearing as lumps in the body or nerve organs) or amebiasis (causing severe gastrointestinal distress, etc.), respectively. A recent inspection of an expensive restaurant in Los Angeles showed that 100% of all employees (not just servers) had fecal matter under their nails.

Soil

Certain roundworm (nematode) parasites spend their transitional stages between one host and another as immature larvae in warm moist soil. Walking bare-footed or sitting on such fecally contaminated "seeded" soil in a wooded area or by a lake side, etc. will invite the

larvae of hookworms or *Strongyloides* to penetrate the exposed skin and migrate in the body to finally become adults in the intestinal tract where the damage is done.

Common Parasites in North America and their Health Implications

The most common parasites identified from North American patients at the Parasitology Center, Inc. (PCI), Tempe, Arizona are listed below in order of their prevalence from high to low:

Protozoa (microscopic single-celled organisms)

Blastocystis hominis

Endolimax nana

Cryptosporidium parvum

Entamoeba histolytica

Entamoeba coli

Entamoeba hartmanni

Giardia lamblia

Chilomastix mesnili

Cyclospora cayentanensis

Helminths (macroscopic multicellular worms)

Ascaris lumbricoides (human roundworm)

Strongyloides stercoralis (threadworm)

Ancylostoma duodenale/*Necator americanus* (hookworms)

Enterobius vermicularis (pinworm)

Trichuris trichiura (whipworm)

In the USA, one-third of about 6,000 fecal specimens tested at PCI were positive for 19 species of intestinal parasites (Amin, O. 2002. Seasonal Prevalence of Intestinal Parasites in the United States during 2000., *American Journal of Tropical Medicine and Hygiene* 66(6): 799-803).

Protozoa

All the protozoan parasites listed above cause various degrees of gastro-intestinal (enteric) and systemic (extra-intestinal) symptomatology and pathology, with *Endolimax* causing the mildest infections, and all are transmitted via contaminated food/drink. Enteric symptoms usually include bloating, diarrhea, flatulence, constipation, cramps, and maldigestion/malabsorption. Less frequent enteric symptoms include bleeding, irritable bowel, leaky gut, and excess mucus secretion. Extra-intestinal symptoms include allergies, fatigue, nausea, nervous-sensory disorders (ex., brain fog, memory loss, poor coordination), skin rashes and disorders, pain, and muscle problems. Less frequent extra-intestinal disorders include fever, headache, immune deficiencies, insomnia, and weight changes. Some of these symptoms are probably related to parasite toxic metabolic byproducts particularly in immune compromised patients. Some of the above protozoans are sufficiently invasive to become blood-borne, e.g., *Entamoeba histolytica*, that it may cause serious liver or brain damage.

Helminths

Worm parasite damage depends largely on which tissues are invaded by the migrating larvae or the type of intestinal damage caused by adults. For example, after the ingestion and hatching of *Ascaris* eggs in the intestine of a new host, the emerged larva will migrate through the intestinal lining, lymphatic/blood vessels, the hepatic portal system, liver, right heart, lungs, then get re-swallowed and establish as one-foot long adult in the small intestine. Allergic responses to the metabolic byproducts of adult worms are known to cause asthma, insomnia, eye pain, and rashes. Aberrant larval migration can cause inflammatory reaction in the spleen, liver, lymph nodes, and brain. Pulmonary hemorrhagic sites may be accompanied by coughing, fever, and breathing difficulties. Fatal pneumonitis is a possible

complication. Mechanical blockage may be caused by a large number of adults in the intestinal tract leading to toxemia and death. Adult worms occasionally penetrate the intestinal wall or appendix causing local hemorrhage, peritonitis, and/or appendicitis.

See Section 2 above (food, pets, people, soil) for methods of contracting worm parasites.

Periodicity and Cyclic Parasites

In a recent detailed PCI study of about 700 PCI patients, it was noted that:

- a. A number of patients testing positive for parasites had subclinical infections and showed no overt intestinal or extra-intestinal symptoms. Those patients have been treated and their overall health has improved.
- b. Another group of patients was symptomatic but no parasites were detected from fecal samples provided. These latter cases are related to one or both of the following factors:

Factor # 1: Other pathogenic organisms, ex., pathogenic bacteria, can cause symptoms comparable to those produced by typical parasites. These include enterotoxigenic *Escherichia coli*, *Salmonella*, *Shigella*, or *Campylobacter*. Like the typical parasites, these bacterial parasites are also amenable to successful treatment with herbal products.

Factor # 2: Because of the heterogeneous distribution and the cyclic nature of some of the most common human parasites, infections may not be detected in fecal sample if collected when parasites are not running in the main fecal flow. For instance, intervals of many days may intervene between amebic “runs” which may make the microscopic examination of multiple stool specimens necessary to confirm a positive *Entamoeba histolytica* infection. The same kind of periodicity and/or adherence to the intestinal lining are also known to occur in *Giardia lamblia* and *Cyclospora cayetanensis*. This explains the intermittent shedding and cyclic recovery of these parasites in fecal samples collected for testing. It is important to test for cyclic parasites when they are “running.” The PCI kit is designed to collect 2 separate fecal samples on 2 different days to maximize parasite recovery rate. On some occasions, however, testing may have to be repeated.

Management of Parasitic Infections

Parasites will compromise the host immune system as well as his state of physical, mental, and emotional well-being to various degrees. The tapeworm *Diphyllobothrium latum* will deplete the body of half its vitamin B 12 resources, which are essential for proper central nervous system function, propagation of nerve impulse, muscle coordination, and recall. When this 30-foot-long worm is expelled after proper treatment, above functions will be restored to normality. Host-parasite relationships causing physical or psychological trauma, may be operative at the subclinical level or go undetected since early childhood years. Progressive or sudden overt disease outcome may occur later on in life. This reactivation of infection is usually related to depressed immune status, age, hormonal changes, and physical or psychological pressures.

Considering the above, it is absolutely important to achieve wellbeing by the elevation of ones physical, mental, emotional, and intuitive energies to a state of balanced and functional equilibrium. Experience demonstrates that antibiotics depress host immunity, kill off beneficial intestinal flora, and enhance fungal growth, e.g., *Candida*, which subsequently competes with/excludes good bacteria. Herbal treatments, thus, appear to be the natural way to manage parasitic and other pathogenic infections with no side effects to be concerned about. At PCI, we have worked with many good herbal formulas and have followed up on a number of herbal protocols. We found out that the best are those that provide healing through the integration of 3 functions: treatment, cleansing, and restoration. In other words, the formulas need to get rid of the parasite(s), cleanse the body from its toxic byproducts, and restore intestinal lining and other damaged tissue(s) to their normal healthy state.

Testing for parasites; how, when, where

If you have any one or more of the above symptoms (Section 3 above), or if you have reason to believe that you may be an asymptomatic patient by reason of foreign travel, infected household contact, bad meal, etc., you should consider being tested for parasites. While there

are many hospital labs, throughout the country that will test for all kinds of pathogens, including parasites, PCI is the only lab that specializes only in parasitology and has by far the best track record and national and international reputation in parasite testing and identification. PCI has a mailable kit for home collection and mailing of fecal and other body samples from anywhere in the world. PCI will also identify separately worm parasites, worm parts, biopsy material, and blood and bacterial parasites. Our web site is www.parasitetesting.com.

Treatment for parasites

Many allopathic and herbal/natural parasite remedies are available in the market place. We stay away from working with antibiotics for obvious reasons related to side effects, intolerance and sensitivities, efficacy rates, and the building of resistance in pathogenic organisms. We have therefore developed our own herbal remedy which is the only broad spectrum natural remedy currently available for parasites, pathogenic bacteria, *H. pylori*, fungus, and a variety of systemic and chronic conditions that may include cancer by some patients' accounts. The following is a table of some commonly used parasite remedies in the USA.

| Herbal/ Natural Remedies | Allopathic Remedies |
|--|--|
| Clear/experience/harmony by awareness Corp Protozoan, some worms | Albendazole Round worms, Giardia, Microsporidia |
| Tricycline by Allergy Research Group Protozoan | Clindamycin and quinine Babesia bigemina and B. microti, malaria |
| Biocidin and Biotonic by Biobotanical Res. Gr. Protozoan | Metronidazole (flaqyl) or iodoquinol Blastocystis hominis, amebiasis |
| Tanalbit by Intensive Nutrition Yeast | Nitazoxanide (illinia) by Romark labs. Cryptosporidium parvum, other protozoans |
| Freedom/Cleanse/Restore by Parasitology Ctr Protozoan, worms, bacteria, fungi | Mebendazole (Vermox) Worms (trematodes, cestodes, round worms) |
| Paraqone I and II by Renew Life Parasites and Candida | Praziquantel Tissue invading worms and invasive amebiasis |
| Unikey verma-key I and II by Unikey Hlth. Syst. Protozoan, worms (?) | Tinidazole Blastocystis and other protozoans |
| Natural Cleanse I, II, III by AHR, LTD, UK Protozoan, yeast, fungi | Permethrin or Iyermectin Skin ectoparasites and some worms |
| Para-Gard by Tyler Protozoan | Niclosamide Tissue invading worms |

The list of herbal/natural remedies tabulated above includes our PCI formulation Freedom, Cleanse, Restore which is described below based on the following principle:

A good botanical remedy for the restoration of optimal digestive health is one that accomplishes three things. (1) Defends the body from parasitic infections and agents of chronic illness, (2) Cleanses the colon from toxins and metabolic byproducts of foreign organisms, and (3) Supports the integrity of and restoration to health of tissues damaged by feeding or movement activities of pathogenic agents. Our Freedom, Cleanse, Restore formulations accomplish just that and with immaculate success. Ingredients, publications, and directions are available upon request.

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