

Correspondence

Parasitic Worm May Be Beneficial in the Treatment of Inflammatory Bowel Disease

We thought that the following might be of interest to your readers. How many of us work diligently to keep our intestines free of parasites, bacteria and yeast? In the last 20 years or so, it has become the central focus of many to clean out every possible pathogen from the digestive tract. The number of anti-parasitic herbal formulas is growing every day. People are passing things in their stool that they never knew existed. But what if we were told that some parasites are good for us? That is exactly what Professor Joel Weinstock and colleagues at the University of Iowa have been saying and they're not alone. There are an increasing number of articles being written on the subject. Weinstock believes that ingesting a very specific species of parasitic worm may be highly effective in the treatment of inflammatory bowel diseases such as ulcerative colitis and Crohn's disease, which are believed to be caused by an overactive immune response to normal intestinal bacteria.

The human digestive tract has a very complex and delicate ecosystem, which may include as many as 200 to 300 species of bacteria, viruses, and parasites. It is believed by some that certain microorganisms may play a key role in modulating intestinal immunity, which is predominantly made up of two types of T cells: TH1, which induces the inflammatory response, and TH2, which neutralizes it. By mechanisms still unknown, many parasitic infections induce production of TH2. For a survival mechanism, parasites suppress the immune system of their host in an attempt to avoid being eliminated. In this case, it is believed that certain types of parasites suppress the immune system only slightly—just enough to pull the immune system away from autoimmunity. Dr. Wienstock feels that without these parasites, our immune systems are left unchecked and are much more likely to over-react and produce pow-

erful inflammatory agents such as gamma-interferon, which initiates heightened macrophage activity.

From a historical perspective, Weinstock has observed that a rise in the incidence of inflammatory bowel disease was preceded by a decline in intestinal worm infections. Weinstock points out that about 70 years ago, approximately 40% of all American children had worm infections such as *Ascaris lumbricoides*, which can grow up to 20 centimeters in length. In the 1940's, many children were infected with smaller whipworms such as *Trichuris trichuria*, and then by the 1960's, "kids no longer had it." It is interesting to note that the incidence of inflammatory bowel disease is rare in underdeveloped countries, where parasitic infection is high. In contrast, the incidence of such diseases is higher in industrialized countries, where the incidence of parasitic infection is much lower. Says Weinstock, "We're living in sterile boxes, breathing sterile air and drinking sterile water.... The worms living in the gastrointestinal tract have been with us for over 3 million years...our immune systems have grown used to their presence."

Animal and Human Studies

Dr. Weinstock and colleagues initially infected mice with intestinal parasitic worms known as helminths. This study revealed that the infected mice were less likely to develop inflammatory bowel disease. The research team then went on to perform their first human study: Six patients were chosen with inflammatory bowel disease that had not responded to conventional treatments such as steroids and other immune-suppressing drugs. Weinstock and colleagues gave each patient a drink containing the microscopic eggs of a species of intestinal parasitic worm that was capable of growing to about one half-inch in length. However, these worms were not capable of reproducing, and are eliminated within a few months. All six patients

experienced symptomatic improvement, and five out of six patients eventually experienced complete remissions. There were no side effects reported and the benefits of just one dose lasted between one and five months.

Future Studies

Due to the overwhelming success of their first trial, Weinstock and colleagues are planning a larger, double-blind study in an attempt to prove their theory. Such proof would provide researchers with insights on the mechanisms in which parasites suppress the immune system, which may lead to an exciting new approach to the treatment of inflammatory bowel disease.

In China, Korea, Vietnam, and most of Southeast Asia, earthworms, or *lumbicus*, have been used for their therapeutic benefits for thousands of years, (both in fresh and dried form), and are commonly referred to as "Earth Dragons." In Korea, it has been a longstanding tradition to have a bowl of "earthworm soup" before going to bed. It is believed to promote general health and prevent a wide variety of diseases. On any given evening in Korea, one can find a bowl of earthworm soup in just about any restaurant. In Vietnam, the dried and powdered form of earthworm (which is prepared by using a highly sophisticated technique that ensures purity) is a principle ingredient in a traditional Vietnamese remedy known as "Miracle Medicine that can Save Lives in 60 Minutes". This "Miracle Medicine" is often used for acute multiple organ dysfunction and failure due to severe bacterial and viral infections. It is also used for blood infections, hemorrhagic fevers, severe burns, and strokes, and as it's name suggests, the benefits of this remedy are expected to occur within one hour.

Dr. Do Tat Loi, M.D., Ph.D., a well-known author and longstanding Director of the Hanoi National Institute of Pharmaceuticals in Vietnam, has written extensively about the health benefits of earthworms. According to Dr. Ba X. Hoang,

M.D., Ph.D., who comes from three generations of medical doctors integrating Western and Chinese medicine, there has been extensive clinical use of the earthworm in Vietnam where it has demonstrated safety and effectiveness for a variety of health conditions such as stroke, hypertension, arteriosclerosis, seizures and epilepsy, urinary problems, malaria, fever, blood infections, acne, and cough. In addition to the health conditions listed above, Dr. Ba uses the earthworm for inflammatory bowel health and cellular oxygenation.

Because it originates from soil, the earthworm has a dense nutritional content, as well as oxygen-enhancing, and anti-oxidant properties. For these reasons, it has been used successfully for additional health conditions such as joint pain, migraines, and insomnia. But according to Dr. Ba, the most beneficial property of the earthworm is its liver calming action. Dr. Ba feels that the liver plays a central role in human health and disease: "We combine the earthworm, which is cooling in nature with *acorus*, an herb that has very similar properties, but is warming, to make a natural supplement compound that not only supports the liver, but releases liver congestion, reverses functional hypoxia (lack of cellular oxygen), and enhances the antioxidant and detoxification functions of the liver to help it combat and prevent the many liver-related problems that we see occur as a result of the industrialized world." After conducting a Medline search, we found the following additional supportive material: Abstract: Concurrent Enteric Helminth Infection Modulates Inflammation and Gastric Immune Responses and Reduces Helicobacter-Induced Gastric Atrophy. (Fox JG, Beck P, Dangler CA, Whary MT, Wang TC, Shi HN, Nagler-Anderson C, Division of Comparative Medicine, Massachusetts Institute of Technology, Cambridge, Massachusetts, 02139, USA).

Helicobacter pylori is causally associated with gastritis and gastric cancer. Some developing countries with a high prevalence of infection have high gastric cancer rates, whereas in others, these rates are low. The progression of helicobacter-induced gastritis and gastric atrophy mediated by type 1 T-helper cells may be modulated by concurrent parasitic infection. Here, in mice with concurrent helminth infection, helicobacter-associated gastric atrophy was reduced considerably despite chronic inflammation and high helicobacter colonization. This correlated with a substantial reduction in mRNA for cytokines and chemokines associated with a gastric inflammatory response of type 1 T-helper cells. Thus, concurrent enteric helminth infection can attenuate gastric atrophy, a premalignant lesion.

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