DEADLY PARASITES

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Why are parasites so dangerous?

2. OBJECTIVES

2.1. General Objective

To learn how parasites can disrupt the body's equilibrium

2.2. Specific Objectives

- ✓ To show different kinds of parasites, especially found in Colombia
- ✓ To learn in wich part of the body the parasites develop
- ✓ To learn wich part of the body is specially affected by the parasite

3. INTRODUCTION

Why is important to know about parasites? Well, people think that a symptom is only hurting, but they don't really know that those symptoms can lead to a parasite. Our objective is to let you know some parasites so you can be aware and protect your pets when you or them get their symptoms, also in wich organ do they develop and how do they affect us.

We wil discuss about three parasites that are usually found in Colombia. This parasites are the brain eating amoeba, lung worm, and toxoplasma gondii.

Brain eating amoeba: the scientific name is naegleria fowleri. It reproduces by cell división. They can become inactive cysts.

Lung worm: parasite that damage the airways or lung tissue by causing an inflamatory reaction inside the tissue and affect animals.

Toxoplasma gondii: parasite that usually affects felids and can be found in all the world.

If you know the treatment you will be able to tell your doctor almost what he need to do or what he needs to recomend you. Also when you travel to other countries you need to have caution because other countries also have this parasites and you could get sick.

4.WHAT IS A PARASITE?

A parasite is an organism that lives in another ine called the host. Usually the parasite harms the host and depends of it to grow, evolve, reproduce and multiply. A parasite can't live independently.

Parasites can cause disease in human sor animals some of them are easily treated and some are not. Parasites can be found in rests in communities, tropics subtropics and even in countries.

Some times the parasite kills the host so that means that it needs to find another host for surviving. The parasite uses the host to get stronger, while the host gets weaker.

The parasites are divide in three ways according to the disease they can cause. These three ways are Prtozoa, helminthes and ectoparasites.

PROTOZOA:

These kinds of parasites are unicellular organisms that can live free in nature. When they reproduce they can survive but also cause a dangerous disease for humans. It lives in human's blood or in their tissue. It tranfers from a moquito's bite or from the bite of a sand fly. To transfer between humans it needs to be contaminated wáter or contamiated food.

HELMINTHS:

These kind of parasite is a multicellular organisms that seem to be like worms. They as well as protozoa, can live free in nature. When they become adults, they cannot reproduce anymore in humans. The helminthes are divide in three groups:

- ✓ Flatworms that are like flukes and tapeworms
- ✓ Thorny-headed worms that live in the stomach and intestines
- ✓ Roundworms that live in the stomach, intestines, blood, lymphatic system, and tissues.

ECTOPARASITES:

These parasites live in dog's skin but they don't kill them. For example fleas are ectoparasites.

FUN FACTS:

- ✓ There exist about 1000 species of parasites that can live in humans
- ✓ Some parasitic worms can grow to over 30m of length
- ✓ Some parasites are plants

- ✓ Many animals spend hours grooming each other to remove parasites
- ✓ The most deadly human parasites are protozoa
- ✓ Parasites arethe most common for pf life on earth
- ✓ Babesiosis is parasitic diseases that affect red blood cells
- ✓ Sleeping sickness is caused by a parasite

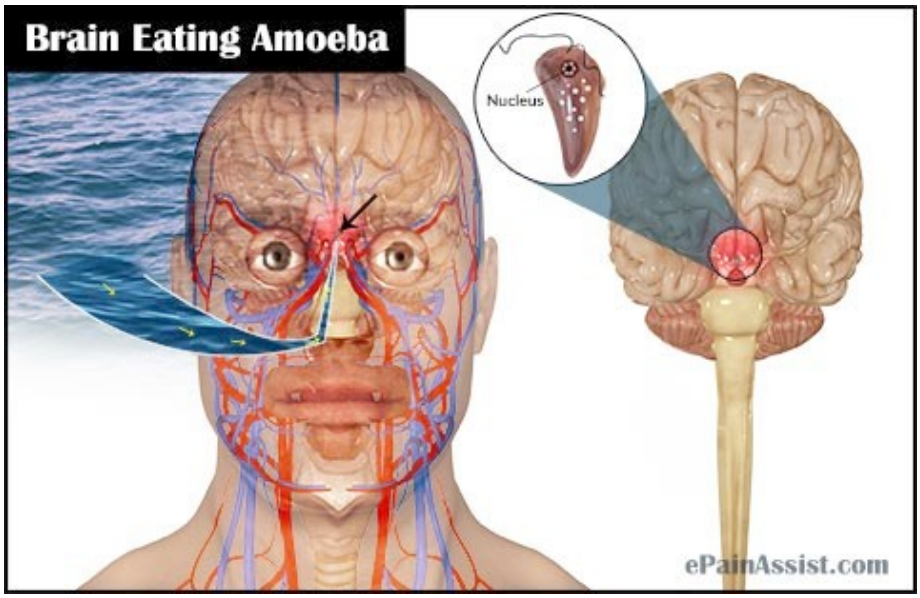
4.1 BRAIN EATING AMOEBA

Its a parasite that can enter the brain and lead to deadly inflamation of the brain. This parasite can lead to a disease called alzaihmer. The symptoms appear two to fifteen days after a person has been exposed to the amoeba and are nonspecific.
Symptoms:
Symptoms usually include nausea and a general ill fealing.

- ➢ A change in sense of smell or taste
- ➢ Sensibity to light
- ➢ Lost of balance
- ➢ Confussion
- ➢ Sleepyness
- ➢ Fever

Treatment:

If the infection is treated quickly enough, there is a small chance that the person will recover. When the infected person knows that he/she is infected they need to go to the hospital and the doctor or nurse can apply the vaccine called Impadio that is used to kill the parasite. In some cases there are some persons that aren`t that lucky, maybe when the found out that they have a parasite it will be too late.



4.2 HIDDEN LUNGWORM

Are parasites that infest the lungs of vertebrates. These parasite causes gradually damage in the air ways or lung tissue by making an imflamatory reaction inside the tissue. It can cause bronchitis or pneumonia, wich can lead to dead.

These parasites are found in animals like cattle, sheep, deer, horses, pigs, dogs and cats.

The lifecycle of a lungworm starts with an injeccion of an infected larva. The larva penetrates the intestinal wall and then passes to the bloodstream to reach the lungs. These larva stays in the lungs until it becomes an adult. When it does, the larva puts eggs. Only one egg hatches and the other ones cause cauphing until they are remove in feces.

The most common symptom is coughing and other typical symptoms are wheezing and weight loss. These symptoms are caused by larvae that reside in the lungs where immunity develops and the accumulation of mucus cause blockage of the airway into the lungs.

These disease can be treated with drugs such as corticosteroids, prednisone and, fenbendazole or moxidectin. Exists another kind of lungworm that needs to be treated with a mixture of drugs.

4.3 TOXOPLASMA GONDII

This parasite is an intracellular parasite that causes the disease Toxoplasmosis. These parasite can be found all over the universo that means you get toxoplasmosis in any country of the world.

Toxoplasma Gondii can also infect warm-blooded animals such as felids like cats that are known as definitive hosts. Symptoms occasionally occur during the first few weeks with the infection.

Toxoplasmosis has been shown to alter the behavior like neurological disorders, particulary schizophrenia.

The life cycle of the Toxoplasma beguins when the parasite enters to the feline and reproduce instantaneously letting their babies into the host`s body. Few weeks later when the parasite is already mature can leave the body and find another host where the life cycle continues.

A 2015 study scientists found that the cognitive déficits in adult to be associated with join injection by the Toxoplasma and helicobacter pylori.

A toxoplasma infection occurs by:

- Eating uncooked, contaminated meat (specially pork, lamb, and venison).

- Accidental ingestión of undercooked, contaminated meat after handling it and not washing hands thoroughly (Toxoplasma cannot be absorbed through intact skin).

- Eating food that was contaminated by knives, utensils, cutting boards and other foods that have had contact with raw, contaminated meat.

- Drinking wáter contaminated with Toxoplasma Gondii

- Accidentally swallowing the parasite through contact with cat feces that contain Toxoplasma. This might happen by:

    1. Cleaning a cat`s box when the cat has shed Toxoplasma.

    2. Touching or ingesting anything that has come into contact with a cat feces that contain Toxoplasma.

    3. Accidentally ingesting anything that has contaminated soil (e.g., not washing hands after gardening or eating unwashed friuts or vegetables from a garden).

- Mother-to-child (congenital) transmission.
- Receiving an infected organ transplant or infected blood via transfusión, though this is rare.

What are the signs and symptoms of Toxoplasmosis?

Symptoms of the infection vary.

- Most people who become infected by Toxoplasma are not awere of it.

- Some people who have Toxoplasmosis may feel as if they have “flu” with swollen lymph glands or muscles aches and pains that last a month or more.

- Severe Toxoplasmosis, causing damage to the brain, eyes, or other organs, can develop from an acute Toxoplasma infection or one that had occured earlier in life and is now reactivated. Severe cases are more likely in individuals who have weak immune systems, though occasionally, even

persons with healthy immune systems may experience eye damage from Toxoplasmosis.

- Signs and symptoms of ocular Toxoplasmosis can include reduced vision, blurred vision, pain (often with bright light), redness of the eye, and sometimes tearing. Ophthanmologists sometimes presribe medicine to treat active disease. Weather or not medication is recommended depends on the eye lesion, the location, and the characteristics of the lesion (acute active, versus chronic not progressing). An ophthanmologist will provide the best care for ocular toxoplasmosis.

- Most infants who are affected while syill in the womb have no symtoms at birth , but they but they may develop symptoms later in life. A small percentage of infected newborns have serious eye or brain damage at birth.

Who is at risk for developing severe toxoplasmosis?

People who are most likely to develop severe toxoplasmosis include:

- Infants born to mothers newerly infected with toxoplasma during or just before pregnancy

- Persons with severly weakened immune systems, such as individuals with AIDS, those taking certain types of chemotherapy, and those who had recently received an organ transplant.

What should I do if I think I am at risk for severe toxoplasmosis?

If you are planning to become pregnant, your health care provider may test you for toxoplasma. If the test is positive it means you have already been infected sometime in your life. There usually is little need to worry about passing the infection to your baby. If the test is negative, take necessary preventions to avoid the infection.

If you are already pregnant, you and your helth care provider should discussyour risk for toxoplasmosis. Your provider may order a blood simple for testing.

If you have a weakened immune system, ask your doctor about having your blood tasting for toxoplsma. If your test is positive, your dr. can tell you if and when you need medicine. If your test is negatie, it needs you need precaution to avoid the infection.

What should I do if I think I may have toxoplasmosis?

If you suspect that you may have toxoplasmosis, talk to your health care provider. Your provider may order varieties of blood tests specific for toxoplasmosis. The results from the different tests can help your provider determine if you have this infection and weather it is a recent one.

What is the treatment for toxoplasmosis?

Once a diagnosis of toxoplasmosis is confirmed, you and your provider can discuss if the treatment is necessary. In an otherwise healthy person who is not pregnant, treatment usually is not needed. If symptoms occur, they typically go away within a few weeks to months. For pregnant women or persons who have weakened immune systems, medications are available to treat toxoplasmosis.

How can I prevent toxoplasmosis?

There are several and general santiation and food safety steps you can take to reduceyour chances of becoming infected of toxoplasma.

Cook food to safe temperatures. A food termometer should be used to meassure the internal temperature of cooked meat. Do not simple meat until it is cooked. USDA recommends the following for meat preoaration.

For whole cuts of meat (excluding poultry):

Cook to at least 145º F (63º C) as meassured with food thermometer placed in the thikest part of the meat, then allow the meat to rest for 3 minutes before carving or consuming.

For ground meat (excluding poultry):

Cook to at least 160º F (71º C); ground meats do not require a rest of time.

For all poultring (whole cuts and ground):

Cook at least 165º F (74º C), and for whole poultry allow the meat to rest for 3 minutes before carving or consuming.

According to USDA , “ A rest time is the amount of time the product remains at the final temperature, after it has been removed from a grill, oven, or other heat source. During the 3 minutes after meat is removed from the heat source, its temperature remains constant or continues to rise, wich destroys phatogens”.

5. TOXOPLASMA CASES IN COLOMBIA

5.1. NEWS EL ESPECTADOR

Cats and toxoplasmosis
Live
15 Jul 2011 - 10:52 PM
Living Writing
19% of the cases of the disease in Colombia are explained by direct contact with cats less than six months old.

The publication of the article "Toxoplasmosis, a disease on the rise", last July 12 in this same section, caused a great discussion among animal advocates. In their messages they argued that it was false that cats are the cause of the transmission of this disease while calling for not kill or abandon animals for fear of a contagion.

Jorge Enrique Gómez Marín, a researcher at the Center for Biomedical Research at the University of Quindío and who led the National Study of Congenital Toxoplasmosis in Colombia, explained some myths and truths about the parasite Toxoplasma gondii, at the center of the debate.

As defenders of animals assert, it is not true that pregnant women can not live with pets. "Domestic cats and adult cats hardly transmit the parasite because they acquire immunity after the first infection and do not transmit it again," the specialist explained. But he clarified that expectant mothers should avoid direct contact with land, with feces and with small cats. Dogs do not transmit toxoplasmosis.

According to Gómez, the cat is a definitive host, "in it occurs the sexed and asexual cycle of the parasite, which is a biological fact verified and verified and on which there are more than 1,234 articles in the PubMed bibliographic database." This association between cats and infection varies by country. In Colombia there is only one study of risk factors in pregnant women in the city of Armenia, and the attributable fraction of risk was 26% for the consumption of undercooked meat, another 19% of cases were explained by contact with cats less than Six months and 50% by the water consumption of the unboiled wrench.

"Cats play a key role for man in controlling infections (eg pest produced by Yersinia pestis) and are not recommended for elimination, but it is important for society to not abandon them and provide them with Affection and care they deserve. It is not fair that cats suffer the abuse and neglect that we are observing in our cities. This is the task and responsibility of all, "said the expert.

It is true, as Johan Daniel Torres, representative of the Angelitos Gatunos Foundation, expressed that "harmonious coexistence between people and cats is perfectly possible. The contagion of toxoplasmosis is not so frequent and with basic care we can prevent it and live with them without problems or worries.

5.2. TOXOPLASMA GONDII, A LATENT THREAT

When cats are outdoors, they can more readily contract T. gondii, which then releases the environment and other animals become contaminated.

DONALDO ZULUAGA
SCIENCE HEALTH
BY RAMIRO VELÁSQUEZ GÓMEZ | PUBLISHED ON DECEMBER 10, 2016
7 to 15 days remain the oocysts in the environment in which they can contaminate
Up to 95% of the population is infected in several regions of the planet.
Toxoplasma gondii, a successful parasite.
Most do not know that it was infected and several studies have suggested that it makes significant changes in their behavior in the human brain.
For the past four or five decades it has been known that once infected the person contracts immunity against the parasite, a fact of the first order for women in

pregnancy or who plan to become pregnant.
Infection in the first few months of gestation can lead to malformations of the fetus, such as blindness.
But, if that immunity is real? Women are serologically tested for antibodies to T. gondii. If you have them, you are considered protected for life and the future fetus will have no problems. Although scientists have reported cases in which despite giving positive the mother, the child has resulted in sequelae.
In an article this week in Trends in Parasiology, Solène Rougier, Jose G. Montoya and François Peyron question the dogma of the total immunity of the person.
"We propose that it is in fact possible for humans to maintain a lifelong immunity against T. gondii, not necessarily due to a single infection by the parasite but, hypothetically, after subsequent antigenic stimulation through reinfections during life Of the individual, "they wrote.
A second infection triggers another response, which would help maintain protection.
Some cases of congenital toxoplasmosis have been described in children of immunocompetent women known to be immunized against the parasite.
In one case, the strain of the parasite responsible for reinfection was isolated and found to be atypical, mostly described in South America.
The reasons why this immunity "ends" are several, including the variety of strains of the parasite: the person could be protected against one, but not against others.

6. CONCLUSIONS

- Parasites are divided into protozoa, helminthes, and ectoparasites depending on the damage they cause.

- Brain-eating amoeba can lead to diseases like alzaimer.

- If you notice that your pet isn't breathing properly, take it to the veterinarian for a check out, maybe it could have lungworm disease.

- It is very important to cook correctly the meat and clean your hands after having contact with your cat's hair, because you coulg get toxoplasmosis.

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