



# Important Zoonotic Helminthes Affecting the Human Eye

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Nowadays, parasitic zoonoses are of the main causes of human parasitic diseases worldwide and considered a major threat to social and economic development, especially in developing countries. The main agent is the zoonotic worms which affect the eye and may cause blindness and also severe socio-economic consequences in human societies (1). These worms include nematodes, cestodes, and trematodes that can be transferred by insects (dirofilariasis, Onchocerciasis, thelaziasis), through contaminated foods (sparganosis and Trichinellosis) or indirectly through contact with the environment (Ascaris, Fascioliasis, and Echinococcus). Adult and larval forms of worms affecting human eye may either attack the external tissues of the eye (for example, lacrimal glands, eyelids, and conjunctiva bag) or penetrate into the eyeball (retina and the anterior or posterior chamber of the eye) and cause various symptoms depending on the site they affect. In addition, they can cause disease through the immune response in the host.

Unfortunately, there is little information the worms affecting human eye and the knowledge on this area is largely limited to case reports from different countries. Biological and epidemiological information on worms is mainly restricted to several reports as clinical description of diseases, diagnostic considerations video clips, and surgical treatment. Blindness and ocular disease represent one of the traumatic events for human patients, severely disturbing the quality of life and mental balance in the blind (2). Blindness has always been an important issue in human medicine. For instance, evaluation of emotional blindness and its impact on quality of life in these patients is similar to what affects humans in some diseases such as macular degeneration, AIDS, chronic obstructive pulmonary, cardiac disorders, and leukemia (3).

There are many causes for blindness, and parasitic agents (for example protozoa, worms, and Diptera) are of major public health concerns in developed and developing countries in this regard. For instance, the eye disease caused by river blindness (*Onchocerca volvulus*), causing visual impairments and blindness to more than 17.7 million people, occurs due to the placement of adult female worm and microfilar in the subcutaneous tissue and its immigration to the eye and transforming into the adult female worm there (3).

As a result of being affected by a certain neurotropism (for example, toxoplasma gondii in the nervous system of the fetus), a number of parasites immigrate and deploy in human eye (for instance, Ascarids, *Dirofilaria* spp., and *Trichinella* spp.) or attack eye as a permanent and natural seating (such as *Thelazia callipaeda* eye worm, and fly larvae myiasis) (4).

The present research aims to study zoonotic worms which are transferred from animals to humans and affect their eye. Undoubtedly, epidemiology of zoonotic parasitic diseases is influenced by several factors such as abiotic factors (e.g. temperature increase) and biotic factors (e.g. demographic changes, political changes, and land use practices). Scientific communities are really interested in these subjects (5). Additionally, the effects of zoonotic diseases may be associated with economic and social contexts and public health systems in different geographical areas (6). Some of these infections are a major threat to human populations in developing countries (7). Zoonotic worms affecting human eye are worms transferred to human through carriers (vector-borne zoonoses), foods (food-borne zoonoses), direct contact with the environment (for example, water, soil, etc.), known as eco-borne zoonoses) (8).

Unfortunately, there is little information the worms affecting human eye and the knowledge on this area is largely limited to case reports from different countries. Therefore, a comprehensive study on these zoonotic parasitic worms can lead to improved public health and increased information of ophthalmologists for managing diseases of the eye and providing proper diagnosis and treatment options for them. The present research has studied zoonotic worms that normally infect animals but sometimes are transmitted to humans and affect the eye. New achievements regarding the diagnosis and control of these parasitic diseases are the result of their distribution in different geographical areas and interest in travel medicine.

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### Ethical Issues

None.

### Conflict of Interests

None.

### Acknowledgments

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