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Most Common Zoonotic Diseases: Transmitted from Animals to Humans

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Review Article

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ABSTRACT

An infectious disease that can be transmitted between animals and humans with or without vectors. Main concept of this article is on the most common bacterial zoonotic diseases in the animals. Approximately 1500 pathogens have been identified which are infected to humans and 61% of these cause zoonotic diseases. There are number of microbial agents that cause zoonotic diseases such as bacterium, fungus, virus, parasites and other types of agents.

INTRODUCTION

A disease can be transmitted to humans by vertebrate animals known as zoonotic diseases. Vertebrate animals such as mammals, birds, reptiles, amphibians and fish. All types of disease agents can cause these diseases. It can be classified according to their life cycle. There are different types of zoonotic diseases like Rabies, Blastomyosis, psittacosis, Trichosis, Coccidomyosis and etc. These zoonotic diseases can be transmitted to humans in many ways like animal bites and scratches, food animals, farmers and veterinarians, vectors like mosquitoes, tick, fleas, and lice's [1,2].

It is probably occur due to the closer contact with animals and the one who treated as a family member in houses. These people have higher risk in the contracting these zoonotic diseases and also the immune-suppressed people are especially at high risk for infection with zoonotic bacterial diseases.

Common Zoonotic Diseases in Animals

Hookworm

These worms are in round shape and it lives in small intestine of the animals like cats and dogs. This infection is transmitted from food animals to humans. There are two types of hookworms which are commonly infecting to humans such as Ancylostoma duodenale and Necator americanus [3-8]. There are no particular signs and symptoms to this hookworm infection but it can give rise to protein deficiency, intestinal inflammation, and etc. If the pregnant lady got affected by this disease, it can cause retarded growth of the fetus, premature birth and a low birth weight (Figure 1).

Figure 1. Hookworms in the animal intestine.

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Tapeworm

Cestoda is a category of these tapeworms. All the cestodas live in the digestive tract and vertebrates as adults, and often in the bodies of animals [9-15]. The one who eats the undercooked meat like pork, beef, and fish that people got infected by these tapeworm infections. In USA, certain drugs (praziquantel or albendazole) are used to remove these tapeworm infections [16-25].

There are no specific symptoms to this tapeworm infection but some people experienced upper abdominal pain, loss of appetite and diarrhea [26-38]. Rarely this *T. solium* larva can migrate to the brain. At that time, people suffered with severe headaches and other neurological problems (Figure 2).

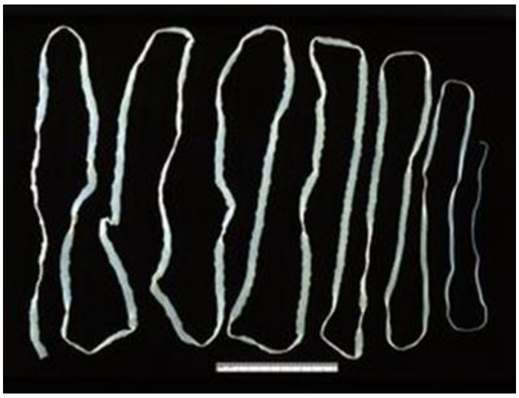

Figure 2. Tapeworm Infection.

Toxoplasmosis

This disease caused by the parasite called as *Toxoplasma gondii*. It usually spreads by eating poorly cooked food that having cysts, exposure to infected cat feces. It can occur in the retinas and alveolar lining of the lungs [39,40], skeletal muscle, and the central nervous system and also in the brain (Figure 3).

This infection has three stages like acute toxoplasmosis, Latent toxoplasmosis [41-47], Cutaneous toxoplasmosis. Diagnosis of this infection in humans made by serological, biological and molecular or histological methods.

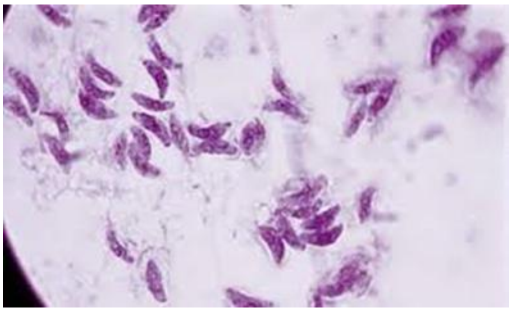

Figure 3. Toxoplasmosis gondi.

Cryptosporidiosis

This parasitic disease is caused by Cryptosporidium with a genus of protozoan parasites. It lives in soil, water and food [48-55]. It affects the small intestine and respiratory tract, both immunocompromised and immunocompetent individuals finally causes a severe watery diarrhea with unexplained cough (Figure 4). Most common symptoms include weight loss, dehydration [56-60], fever, nausea, vomiting and stomach pain. The prevention of this disease is wash your hands often and clean the fruits or vegetables before eating [61-70].

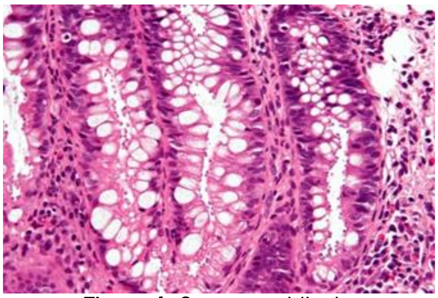

Figure 4. Cryptosporidiosis.

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Lyme disease

It is caused by bacteria named as borellia type and this disease also known as Lyme borreliosis (Figure 5). Main symptom of this disease is erythema migrans (expanding area of redness) and it begins at the site of tick bite. Duration of a week this can be occurred [71-80].

Figure 5. An adult deer tick.

Other symptoms include fever, feeling tired and headache. If cannot be taken the treatment, it can cause heart palpitations and severe headaches with neck stiffness and etc. [81-90].

This disease transmitted to humans by the bite of ticks, a genus of Ixodes (Figure 6). Lyme disease cannot spread person to person and animals, through food. Treatment is based on the patient's symptoms, tick bite exposure [91-100], and possibly testing for specific antibodies in the blood.

Figure 6. A rash caused by tick bite.

CONCLUSION

Wash your hands after handling animals, and clean the fruits and vegetables before you eat. Avoid undercooked meat like pork, beef, and fish. Wearing appropriate clothing in tick-infested areas (a long-sleeved shirt and trousers tucked into your socks).

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