

COMMON ZONOTIC DISEASES OF SMALL ANIMALS

Zoonoses are those diseases common to both animals and humans (often but not necessarily transmitted from animals to people). Common zoonotic diseases are described below.

SKIN DISEASES

Ringworm (*Microsporum canis*):

Ringworm is a fungus affecting the skin. Lesions in pets are typically non itchy, circular and expanding. In people lesions are typically itchy expanding circular areas of redness with associated scale and crust.

The most important animal reservoirs for ringworm are cats (especially kittens) but dogs, rodents and cattle can also be affected.

Transmission occurs by direct contact with infected animals or indirectly by means of contact with spores on hairs or dermal (skin) scales shed by infected animals into the environment. People at risk are those people (especially the young and elderly) handling cats with lesions. *Microsporum canis* can also result in asymptomatic carriers. These are animals (especially long haired cats) which do not show lesions themselves but remain a shedder of infective spores into the environment infecting people and other animals (this makes control difficult).

Prevention

- Avoid handling infected pets
- Wash hands with appropriate disinfectant
- Vacuum regularly to remove spores contaminating the environment
- Disinfect hard surfaces
- Discuss treatment of your pet with a veterinarian
- Seek medical advice for treatment of human infection

Fleas:

Fleas are usually transmitted to people from dogs and cats (but rabbits and rodents can also be affected). People can become infected directly from infected pets or from a contaminated environment.

Prevention

- Avoid contact with infected animals
- Treat every pet in the household with topical flea or tick products (advantage/revolution/frontline)
- Environmental control - fumigation indoors and outdoors – with adulticides (pesticides that kill adult fleas) and insect growth regulators (prevent eggs from hatching or kill larval stages), regular vacuuming to remove eggs inside, keeping the lawn mown short and preventing access to underneath houses.
- Seek medical advice for treatment of human infection

Scabies (*Sarcoptes spp*):

Scabies is a burrowing mite affecting the skin of both dogs and cats. Affected animals and people are incredibly itchy. Signs occur due to a hypersensitivity reaction to saliva and excretions from the mites.

Transmission generally occurs through contact with infected animals but can also occur through contact with a contaminated environment.

Prevention

- as for ringworm (omit vacuuming regularly)

Hookworm (*Ancylostoma spp*):

Dogs and cats with hookworm infection may be asymptomatic or show signs of diarrhoea, weight loss, anaemia and inappetance. The source of infection to people is soil contaminated with infected faeces of dogs or cats. Eggs are shed in faeces and develop into infective larvae in the soil. Human contact with infective larvae occurs when gardening without gloves or when children play in sandpits soiled by cats. In people hookworm larvae penetrate exposed skin and lesions appear as tracks under the skin (referred to as cutaneous larval migrans).

Prevention

- worm your pet regularly
- wear gloves when gardening
- cover sandpits
- do not allow pets to lick you
- wash hands after handling pets especially before eating.

Cheyletiellosis (*Cheyletiella spp*):

Mites found on cats and dogs but mostly rabbits. *Cheyletiella* is also referred to as walking dandruff. Transmission is usually though direct contact with infected animals

Prevention

- Avoid contact with infected animals
- Seek medical advice for treatment of human infection
- Discuss treatment of your pet with a veterinarian

Ear mites (*Otodectes cyanosis*):

Otodectic mange affects dogs, cats and ferrets resulting in an intense itch in the ears. Typically puppies and kittens are affected in litters. Human infection occurs by direct contact with infected animals – these mites normally affect people on the arms and torso (not ears)

Prevention

- as for fleas & *Cheyletiella*

Paralysis ticks (*Ixodes holocyclus*):

Ticks affect domestic and native animals. Transmission to people may be by direct or indirect contact. In dogs and cats infection with a paralysis tick results in an ascending paralysis and death (hind limbs, forelimbs then respiratory muscles). In people tick attachment results in irritation and local swelling and may result in infection if inappropriately removed (mouth parts left beneath the skin).

Prevention

- Tick search pets daily if travelling to high risk areas
- Treat dogs with frontline topspot every 2 weeks
- Treat cats with frontline spray every 3 weeks
- Remove ticks promptly if identified
- Seek veterinary advice ASAP if sign of paralysis or other abnormal behaviour develop on affected pets

GASTROINTESTINAL DISEASES

Salmonella, Campylobacter, Giardia, Helicobacter and Cryptosporidium:

Companion animals are rarely the animal reservoir for human contamination of the diseases above although have been implicated. Transmission normally occurs from large animals due to poor meat hygiene, undercooking poultry products etc. Human infection results in typical signs associated with food poisoning.

Transmission from domestic pets occurs through water and food contaminated with animal faeces (faeco-oral transmission) and possibly by the oral-oral route (helicobacter).

Prevention:

- Prevent facial licking of people by your pet
- Wash hands after handling animals especially before eating.
- Practice strict food hygiene
- Cook meats and chicken well

SYSTEMIC DISEASES

Hydatid Tapeworm (*Echinococcus granulosus*):

Echinococcus is an infection with the larval (cystic) stage of hydatid tapeworm (not the same tapeworm which is transmitted by fleas common to suburban pets). Cats are not affected by hydatid tapeworm.

Dogs may be infected either by

- Eating sheep viscera (offal/guts) infected with tissue cysts. Affects farm dogs in rural areas.
- Eating infected wild pig or kangaroo offal. Affects hunting dogs, feral dogs and dingos

Adult tapeworms live in the intestine of carnivores (dogs, dingos, foxes) and produce eggs. Eggs develop infective embryos in faeces. When ingested by susceptible intermediate hosts (sheep, kangaroos, pigs, people) eggs release their embryos which penetrate the intestines and migrate to organs where they form cysts.

Inside the cyst, thousands of protoscolices (next development stage) develop. If the organs of a sheep, kangaroo or pig are consumed by a dog, each of these protoscolices develops into an adult worm and the cycle begins again.

Humans (especially children) are infected by ingestion of faeces containing eggs from infected dogs. Contamination of food occurs by contact with soil and water contaminated with infected faeces or by flies after feeding on infected faeces.

Cysts are tolerated well by animals and dogs can carry thousands of adult tapeworms without becoming unwell. Cysts in humans commonly affect the liver but also the lungs, kidney, spleen, nervous system, brain and eye. Signs depend on the location of the cyst.

Prevention

- Wash hands after handling dogs especially after contact with faeces and before eating.
- Do not allow dogs to scavenge offal.
- Ensure pet dogs are up to date with tape worming (Droncit, Drontal or Popantel tapewormer). Top spot products such as advocate and revolution DO NOT cover tapeworm (tapeworm tablets are administered every 3 months in suburban areas and every 6 weeks in rural areas)

Toxoplasmosis:

Toxoplasmosis is a protozoal parasite which lives in the gastrointestinal tract of cats but can infect a wide range of intermediate hosts. Human infection is most significant for

- Seronegative pregnant woman (pregnant women not previously exposed to toxoplasmosis) infected for the first time. If seropositive pregnant women are re-exposed during pregnancy, the foetus is not at risk.
- Immunodeficient people

Sources of infection for cats:

Cats are infected by eating tissue cysts (found in internal organs and muscle) of intermediate hosts (rodents, birds, sheep, kangaroos and pigs). Cats are commonly infected as kittens when they start hunting. Infected cats shed eggs in their faeces. Intermediate hosts are infected through grazing soil contaminated with infected cat faeces. Cats are also infected by eating eggs in faeces of other cats.

Sources of infection in people:

- Soil (may be contaminated with infected cat faeces)
- Cats (cats excrete eggs in faeces). It is RARE for people to be infected through direct contact with shedding cats.
- Undercooked meat (tissue cysts may be present in pork, mutton, lamb, roo). This is the MOST COMMON source of infection for humans.
- Congenital transplacental infection (if a mother is exposed to toxoplasmosis for the first time during pregnancy her foetus may become infected transplacentally)

Consequence of infection in cats:

Mostly subclinical – no signs of disease

Consequence of infection in people:

Immunocompetant people

- mostly subclinical
- sometimes up to 6 weeks of fever, headaches, night sweats, lymph node enlargement

Seropositive pregnant women

- no threat to foetus

Seronegative pregnant women

- transplacental infection of foetus occurs. The age at which the foetus becomes infected determines the severity of disease (highest risk is at week 10-14).
- results of foetal infection include death of foetus, brain and eye lesions, visual damage, normal child at birth but develops active infection and sickness later

Acquired toxoplasmosis (immunodeficient people)

- neurological signs mostly

Prevention (most important for high risk groups):

- Cook meat adequately (serve well done)
- Thoroughly wash chopping boards and knives
- Wash fruit and vegies thoroughly before consumption
- Wear gloves and wash hands thoroughly after handling raw meat
- Do not feed pet cats uncooked meat scraps (esp. pork)
- Discourage cats from hunting
- Dispose of cat faeces daily
- At risk people should not clean litter trays
- Wear gloves when handling faecal material, dispose of faeces carefully, thoroughly disinfect litter trays
- Cover outside sandpits when not in use
- Wear gloves when gardening
- It is not advised that a seronegative pregnant women purchase a new kitten (higher risk of shedding).

Myths associated with toxoplasmosis, cats and pregnancy:

- MYTH - The risk of acquiring infection by touching or caring for cats is high (Due to fastidious grooming by cats, it is rare to find faecal material on cats)
- MYTH - There is a significant increase in risk of acquiring toxoplasmosis associated with cat ownership (It is more common for people to be infected by consuming undercooked meat).
- MYTH - Becoming pregnant is a reason to re-home or euthanase a cat (certainly not but don't purchase a new kitten).

Roundworm (*Toxocara spp*):

Both dogs and cats can be infected with roundworm (80% of domestic pets have worms). Affected cats and dogs may show no signs or have a dull coat, vomiting or diarrhoea. Eggs are passed in faeces. People are infected by ingestion of infective larvae (develop after eggs incubate in soil). Infected people may develop granulomas (referred to as visceral larval migrans) in the heart, lung, eye, brain or liver. Typical signs are pain and fever.

Prevention:

- as for hookworm infection.

Dog and cat bite wounds:

Dog and cat bite wounds can transmit bacterial infections to people.

Prevention of infection

- Careful handling of dogs and cats
- Seek medical advice for all serious bite wounds.
- A tetanus booster is also recommended when bitten (although transmission of tetanus through animal bites is uncommon).
- Seek medical attention for all bite wounds to people.

Cat scratch disease:

The bacteria *Bartonella henselae* is the bacteria commonly associated with cat scratch disease. Cats are infected by fleas and kittens are a prime source of infection to people. Affected cats have no clinical abnormalities and most cats ultimately rid themselves of infection. Infections to people result from cat scratches but can also be acquired from cats licking abraded or damaged skin and insect bites.

Prevention of infection:

- Careful handling of cats to reduce risk of being scratched/bitten
- Do not touch cats with areas of skin that have cuts or wounds (or let cats lick these areas)
- Flea control for cats
- Seek medical advice where cat scratch disease is suspected.

Heartworm disease (*dirofilariasis*):

Dirofilariasis is transmitted to dogs, cats and people through bites from infected mosquitoes. Microfilaria (heartworm larvae) migrate through tissues until reaching the heart. In dogs and cats microfilaria develop into adult heartworm and cause heart and respiratory disease. In people microfilaria DO NOT SURVIVE but lung emboli can develop and cause mild respiratory infections.

Prevention of infection

- Reduce the risk of being bitten by a mosquito using repellents and fly screens
- Ensure your cat or dog is up to date with heartworm prevention.