

216 Task 3 Endoparasites and Ectoparasites in Animals



In the UK dogs and cats most commonly suffer from two types of worm, **round worms and tape worms.**

Currently the most clinically relevant round worms are:

Intestinal (gut) round worm (Ascarids), are transmitted from mother to offspring through the milk.

When the larval/immature worms are ingested by the puppies/kittens some develop into adults in the intestines and some go into the tissues where they remain dormant.

The dormant larvae will mature into adult worms throughout the dog or cats life.

Adult worms produce eggs themselves that will become larvae to infect future generations.

Adult dogs and cats with intestinal round worms often do not have any symptoms.

Puppies and kittens can become very unwell with round worm infestation, they can suffer diarrhoea, poor weight gain and, in some cases, there can be severe damage to the intestine which can be life-threatening.

Young children and immunocompromised individuals can be infected by roundworm larvae.

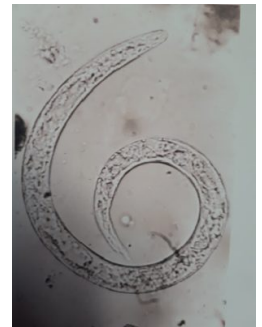
Lungworm in dogs (*Angiostrongylus vasorum*) is another form of roundworm which is becoming increasingly common in the UK.

Dogs become infected with lungworm when they eat a slug, snail or their slime, or frogs that are carrying lungworm larvae.

The immature worm travels through the dog's body to get to the heart where it can mature into an adult.

The adult worms produce larvae which the dog coughs up and then swallows, larvae are then pass out in the faeces to infect more slugs and snails and so on.

Infected dogs may appear normal, they can develop a cough and exercise intolerance, problems with bleeding and/or larval migration can cause an array of symptoms depending on the area of the body affected, including neurological signs. Lungworm infection can be fatal.



Other less common roundworm species in the UK include whipworms and hookworms.

Heartworm is a potentially fatal roundworm that is transmitted by mosquitos in endemic parts of the world including southern Europe, although it is not currently present in the UK prevention is important in pets travelling to affected areas. In rare incidences heartworm can affect humans.

Tapeworms

Tapeworms are acquired when a dog or cat ingests infected raw meat, prey or fleas. The head of the worm attaches to the intestines where it feeds whilst producing body segments containing eggs.

The worm will intermittently shed segments which are passed out of the animal's rectum to go on to infect an intermediate host (e.g. Sheep, cow, mouse) for the cycle to continue.

In the dog and cat tapeworm infection can cause vomiting, diarrhoea and weight loss.

Echinococcus tapeworm species are potentially zoonotic which means they can infect people, of these the most clinical concern comes from Echinococcus multilocularis which, although not currently found in the UK, could be brought in by pets travelling from abroad.

Taenia species of tapeworm do not affect human but can have a large impact on sheep.



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Ectoparasites

Fleas

The most common ectoparasite complaint in UK cats and dogs is flea infestation, the majority of fleas seen being cat fleas.

Fleas spend their adult life on the cat or dog, jumping from one host to another to feed on blood.

Within 2 days of feeding females start to lay eggs, 20-30 a day, eggs develop into larvae at a variable rate depending on environmental conditions.

Larvae feed on debris in carpets and bedding, then mature into pupae which seek warm dark areas to complete development into adult fleas.

Flea development can be as rapid as 14 days during prime conditions, typically in the warmth of the summer or the indoor warmth of a centrally heated house in autumn/winter.

For many pets a low number of fleas may go unnoticed by an owner but typically the adult fleas on the pet represent only 5% of the population, 95% being the eggs and larvae being in the environment.

With the high reproductive rate and short lifecycle heavy infestations can be quick to develop.

Simple flea infestations may present as an increase in a pet scratching, but for flea sensitive pets, those allergic to flea saliva, significant self-trauma can lead to major hair loss, body sores and the potential for secondary skin infections.

Heavy flea infestations, particularly in puppies and kittens can lead to anaemia. Fleas can also transmit a number of different diseases between pets.

In cats fleas can transmit a parasite *Mycoplasma haemofelis* which can lead to immune destruction of red cells and subsequent anaemia; and *Bartonella*, a parasite which often causes no symptoms in cats but can cause serious illness in humans (cat scratch disease).

Ingestion of fleas can result in infection of *Dipilydium* species of tapeworm in both dogs and cats. In rabbits myxomatosis and viral haemorrhagic disease (VHD) can both be transmitted by fleas.



Ticks

The most common tick found in the UK is the hard tick *Ixodes ricinus* which is mainly found in woodlands, with immature ticks found on small rodents and birds, adults on larger animals including deer, sheep and dogs, and less commonly cats.

The hedgehog tick can also affect dogs and cats.

Hungry ticks position themselves in the vegetation to attach to passing animals.

Ticks bite the host feeding for several days sucking blood and passing saliva into the host which aids their continued attachment, as well as having anticoagulant and anti-inflammatory properties to facilitate continued feeding. Peak activity for ticks tends to be in Spring and Autumn.

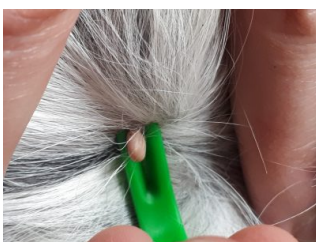
Apart from local inflammation with potential local infection the main concern about ticks is the diseases they can transmit.

In the UK ticks can transmit Lyme disease, a condition which can also affect humans, that can cause flu like symptoms, muscle, joint, heart and nervous system disorders.

Ticks can transmit myxomatosis and VHD in rabbits.

Foreign ticks which have been detected in the UK, brought in by travelled pets, can transmit potentially life-threatening diseases including: *Babesia*, a parasite which affects red cells and can cause anaemia, and *Ehrlichia* which affects white cells and can cause fever, swollen glands, anaemia, respiratory and occasionally neurological issues.

Mites



The two most common mites seen in dogs in practice are *Sarcoptes Scabiei* (the fox mange mite) and *demodex*.

Sarcoptes is an infectious mite with zoonotic potential, which means it can also affect humans.

Sarcoptes mites are contracted by direct and indirect contact with an infected dog or fox.

The mites burrow under the skin causing severe irritation, dogs will often

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develop scaling lesions especially on the tips of the ears, nose and front legs, as the condition progresses the whole body can become affected with significant hair loss. Sarcoptes rarely affects cats.

Demodex is a mite that naturally lives, in low numbers in the hair follicles of dogs and cat, passed on from their mothers in the first few days of life. In the majority of cases the demodex do not cause a problem, but if an animal, for some reason, has a reduced immunity the mites can multiply and lead to clinical signs.

Demodicosis can present as a juvenile form seen in young dogs typically aged between 3-4months, either localised or generalised. Puppies with localised demodicosis tend to have small patches of inflamed skin around the face, head and feet, the degree of pruritis (itch) is variable. Generalised juvenile demodicosis may initially look like the localised form but progresses so that the skin is more generally affected, lumps can develop within the skin and the condition is typically itchy and painful.

Adult demodicosis is usually seen as a generalised form in dogs over 4 years of age, these animals who have previously had no issue with the mite tend to have developed an underlying systemic illness which lowers their immune system, making them susceptible to the demodex over populating.

Adult onset demodicosis is generally more severe than the juvenile form.

Cheyletiella, also known as walking dandruff, is a common surface mite seen in rabbits and occasionally seen in dogs and cats. Affected animals have a mild level of pruritis and dandruff in their coat.

The mite is acquired by direct contact with an infected animal and is highly contagious, including to humans (zoonosis).

Otodectes cyanosis is more commonly known as the ear mite. Otodectes is a surface mite which is transmitted by direct contact with another infected animal.

Otodectes is more commonly found in young animals, it causes local irritation seen as head shaking or ear scratching, and in response to the ear mites the pet often produces a large amount of dark wax.

Sometimes the ear mites will cause irritation near the base of the tail, which is more likely to be seen in cats who curl up to sleep.

Lice

Lice are relatively uncommon in dogs and cats, perhaps more commonly seen on small furies and birds, treatment is the same as for Cheyletiella.

Sandflies and Mosquitos

It is not the biting flies themselves that are a particular concern to dogs and cats but rather the infectious diseases they can transmit. At this time the biting flies present in the UK do not carry these diseases, as the UK climate does not currently support the development of the infectious parasites which are commonly seen overseas. It is, however, important for owners who travel with their pets outside the UK to protect them against these biting flies and so as to help prevent transmission of Leishmaniasis and Heartworm, which can both be life threatening.



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Knowledge Questions

1. How are round worm transmitted?
2. True or False: Do adult dogs and cats with intestinal round worms have any symptoms?
3. How does round worm effect puppies and kittens?
4. How do dogs become infected with Lungworm?
5. True or false: lungworm can be fatal?
6. How is Heartworm transmitted?
7. How are tapeworms acquired?
8. What is the most common ectoparasite?
9. What is the name of the parasite that is transmitted by cat fleas?
10. What is the name of the most common tick found in the UK?
11. What can ticks transmit to rabbits?
12. How are Sarcoptes mites contracted?
13. Whereabouts on the animal do Demodex mites live?