CURRENT AND FUTURE ZOONOTIC THREATS FROM CATS AND DOGS

CURRENT and future zoonotic threats from cats and dogs was the title of an informative webinar presented by Ian Wright at the end of April.

Dr. Wright is a practising vet who has developed considerable parasitological expertise by virtue of a master's degree in the subject and also by his role as a member of the European Scientific Counsel Companion Animal Parasites (ESCCAP). He was accompanied by Anthony Chadwick, founder and MD of The Webinar Vet, and the webinar was sponsored by Elanco.

I am relatively new to live webinars but found it to be very easy to participate. Having had a couple of reminders from The Webinar Vet, it just took one click of the mouse and I was in. The experience was virtually the same as being in the lecture hall at a congress except that I was in the comfort of my own home.

The sound was perfect and the PowerPoint presentation was clear. Ian is a very relaxed speaker with a good sense of humour and the hour’s lecture flew by. The subject is potentially vast and Ian decided to concentrate on parasite zoonoses for much of the talk.

First parasite up for discussion, not surprisingly, was Toxocara canis. He went through the life cycle, familiar to most if not all of us, but then went on to elaborate on the public health aspects. Some 3% of people in the UK are sero-positive for Toxocara. The risk is higher in households with a dog and higher still where there is a litter of puppies.

The consequences of human contagion can be devastating. Of these, ocular infections are perhaps the most well known but visceral and neurological forms are equally important. Thus, the potential danger ranges from loss of sight to CNS problems such as epilepsy. Other covert forms exist but it is not easy to correlate zero positivity with clinical signs.

The true incidence of toxocariasis is unknown as it is not notifiable.

Although adults can be infected, it is two to four-year-olds most at risk – a sobering thought for parents of young children. Embryonated eggs are infectious and it caught my attention that embryonation can take place in the coat of the animal, in addition to the places that we tend to traditionally think of: soil, sand pits and parks, for example.

So how can this disease be prevented? The answers are very simple. These are regular worming of pets, picking up faeces and very good hand hygiene. As a dermatologist I was particularly interested in the role of hand hygiene, as this is so important in the control of multi-resistant bacteria.

It is equally important in parasitological diseases. The eggs cannot be destroyed by disinfectants so removal of them with good old soap and water is what is required.

Regular worming was discussed at length and also in the question and answer session at the end. Worming twice a year is ineffective in controlling this parasite. The bare minimum is four times a year and monthly is to be preferred in higher risk situations – families with children, for example.

Puppies should be wormed every two weeks until weaning.

Monthly worming means zero shedding. In the discussion afterwards, Ian made the point that zero shedding of eggs will be achieved by monthly worming. Surely the way forward was my thought. In terms of products available we are spoilt for choice and consideration should be given to achieving good compliance and therefore an individual owner’s ability to use the products properly. Here, education is the most important factor.

The next parasite discussed was Echinococcus granulosus, a tapeworm that is non-pathogenic in canids but a serious zoonotic risk to humans, which can lead to hydatid cysts. Dogs acquire this parasite from eating infected carcasses, mainly sheep.

The parasite has a well-defined geographical incidence and in these areas vets are well aware of the problem. Advice given is to worm with praziquantel every 4-6 weeks and there is a need to persuade owners of this as hydatid disease in humans is very unpleasant and cases occur every year.

Good compliance is essential. I had forgotten that it is possible to acquire the dog tapeworm Diphyllobothrium caninum. This can occur as a result of the accidental ingestion of fleas, including parts of fleas under the fingernails for example. Once again, regular worming and in this case flea control allied with hand hygiene should prevent human infection.

Hand hygiene was a recurrent theme in this webinar. With a combination of potential problems from multi-resistant bacteria and equally nasty parasites, I would hope that there would be many practice meetings in the weeks after this webinar to hammer home the importance of this.

Giardia and toxoplasma

Ian moved on to zoonotic protozoan diseases. Those discussed were Giardia and Toxoplasma. With both these diseases there is no chemical prophylaxis. Most important are, as before, good hand hygiene and food and water monitoring.

Giardia in people is often acquired abroad from facely contaminated food or water. Giardia duodenalis is the pathogen implicated in a wide variety of species including dogs, cats and man. This parasite can be transferred from owner to dog and vice versa. Resistance to fenbendazole is a potential problem, making an accurate diagnosis advisable. There is an ELISA test that is very sensitive.

Along with Toxocara, Toxoplasma gondii is a parasite with a high profile among veterinary practice clients, mainly because of the risk to pregnant women. Cats are the definitive host but shed oocysts only intermittently. The diagnosis rests on identifying oocysts in the faeces, which is difficult, and by a serological test. The problem with this latter test is that it does not necessarily identify active infection.

Apart from acquiring the disease by contact with cat faeces, the disease can occur after eating undercooked meat and fruit and vegetables that have not been washed. The consequences in pregnant women are well known but there are behavioural implications too, with a possible link to a whole range of mental illnesses.

This appears to be a “clever” parasite as it can affect mouse behaviour, for example, to the extent of making cat urine appealing and thus increasing the possibility of a mouse being eaten. The zoonotic risk can be minimised by good hand hygiene, disposal of faces where possible and ensuring that meat is properly cooked and fruit and vegetables washed before eating.

The risk from cats is very much smaller than from contaminated food.

The final part of this webinar looked at future threats. The diseases discussed were rabies, Echinococcus multilocularis and leishmaniasis. As far as rabies is concerned, 95% of cases worldwide occur in Africa and Asia. It is still endemic in the USA and Canada. Although it continues to be a risk in the EU, numbers of cases have declined considerably.

The same cannot be said for E. multilocularis. This is a serious and significant zoonosis that is spreading west and knocking at the UK shores. The definitive host is the fox and paradoxically success in diminishing rabies cases has favoured fox multiplication, and the red fox is the main risk for spread of this parasite.

It is important to keep tapeworm control in place to minimise the risk of this parasite entering the country, and with relaxation of entry rules veterinary advice prior to leaving the UK is essential. If it were to arrive, praziquantel treatment monthly would be required, but in Ian’s words “we would be stuck with it”.

Finally, Leishmania was discussed. Currently, the sand fly vector is not

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David Grant, MBE, BVetMed, CertSAD, FRCVS, graduated from the RVC in 1968 and received his FRCVS by examination in 1978. He was hospital director at RSPCA Harmsworth for 25 years until his retirement from the RSPCA and is currently engaged in writing and lecturing internationally, mainly in veterinary dermatology.
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Pest control: the keys to keeping fleas and ticks at bay

What are the major types of flea and tick prevalent in the UK? Ctenocephalides felis, the cat flea, is the dominant species of flea in the UK and is most often the flea you see on pets coming into your practice. *C. felis* accounts for up to 99% of fleas found on cats and around 93% of those found on dogs.1 Pockets of *C. anisi* do persist (Scotland and Northern Ireland) although it is rare.1 The cat flea has been also documented infesting horses, sheep and goats.1

The most common species of tick in the UK is *Ixodes ricinus*, known to carry and transmit Lyme disease. Not present in the UK, but of great importance abroad is *Rhipicephalus sanguineus*, capable of transmitting a variety of diseases including Babesia canis.1

It can result in heavy infestations on inadequately treated dogs travelling in Europe. Dogs not treated with a tick-control product in a suitable time-frame before returning to the UK may bring this tick home with them.

What are the lesser known ones? Lesser known species of flea include *Archaphyllia elinae* (the hedgehog flea), *Pulex irritans* (the human flea), *Spilophyllus caninus* (the rabbit flea) and *Ctenocephalides (Neoptyllus) fasciatus* (the rat flea). These species have been recovered from dogs and cats around the UK (the human flea has been found infesting dogs and cats in London).2

The relatively rare tick species *Dermacentor reticulatus* survives in small pockets in the south-west. In Europe, this tick species is also capable of transmitting canine Babesia.3

What is the most effective way of controlling them? Pets should be treated with flea control products throughout the year, not just summer. Most homes are centrally heated and the off-pet portion of the flea lifecycle is easily maintained in the home during winter. A few months of central heating without flea control can result in an indoor infestation explosion the following spring, with no apparent warning. This is common and often affects pet owners who don’t normally see fleas (hence not treating over winter) leaving them disillusioned with their flea control and the advice given by the prescriber.

In the face of a heavy indoor infestation, treatment of all the pets in the home for 3-6 months and vacuuming more than usual may be required before the pre-existing pupae in the home are eradicated.

Tick control should be based on pet lifestyle and owner expectations. No product can completely repel ticks or prevent feeding and owners should be advised of this.

Repellent spot-ons can go some way to reducing the engorged tick burden but are often easily washed off when bathing or swimming. With any product, it is important to remember that efficacy decreases toward the end of the treatment period which can result in attachment of ticks for longer than expected.

This is especially important for dogs travelling abroad where the risk of tick-borne disease is high and growing puppies.

What advice should vets be giving clients? There are no products that stop fleas from jumping onto treated pets from the environment.4

By using flea control regularly you certainly can keep the home free of infestation by killing fleas before they lay eggs and you can reduce the exposure of the treated pet to flea bites but owners should expect to see fleas for short periods at times when the pet is exposed to a high flea burden, especially in summer.

When it comes to ticks, the level of control required should be tailored to the individual. Products that allow the effective concentration in or on the pet to be replenished at monthly intervals are great for the high-risk periods and maintain a steady speed of tick kill from month to month.

How can practitioners improve compliance rates amongst clients? Owner compliance is the result of two factors: (a) How easy it is to treat the pet and (b) if they understand the importance of your recommendations.

Cats that are difficult to catch and dogs that shiver and shake at the thought of their flea control are much more likely to miss treatments. Whether a pet owner purchases a pack of 3, 6 or a single treatment, the importance of them coming back to the clinic for a refill regularly cannot be overstated.

It is your opportunity to review the protocol, remind them of the importance of regular treatment and to get an accurate weight. Palatable flea and tick control is an innovative way for owners to bond with their dogs and aids establishment of a regular parasite control routine.

When it comes to cats, only the brave tend to venture for tablets and so spot-on flea, tick and worm control remains the mainstay for cats.


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**Horse owners not conducting FWECS**

A SURVEY showing that more than a third of horse owners never conduct faecal worm egg counts has prompted Zoetics to highlight the value of this method for worm control. A regular faecal worm egg count (FEC) for every mature horse (> 3 years) during the summer months is the most efficient and cost-effective way to manage worm burdens during the grazing season, says the firm.

The British Riding Clubs Horse Health survey, commissioned by Zoetics and conducted earlier this year, revealed that 36% of the 559 horse owners asked never conduct FWECS.

The test can also help horse owners check that their wormer is working, if an FEC is taken before and after administering a wormer. Over time, the frequency of FWECS may be able to be reduced for horses that are showing consistent egg shedding levels, says Zoetics.

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**Continued from page 36**

present in the UK, although with climate change this could quite quiddily alter. At the moment the emphasis is on advice to be given to clients wishing to take their dogs abroad.

There is a Leishmania vaccine which gives approximately 93% protection. Use of insect repellants as collars or pyrethroid products should be added and will reduce the risk further.

Complicated treatment Although treatment regimes exist, these are complicated and most cases will not be cured, thus posing a continued risk to the owners. The prognosis in the long term is therefore guarded. Clearly, considerable risk is associated with re-homing dogs from endemic areas in southern Europe. The disease in humans is most likely in immune-compromised individuals, in whom it can be fatal.

Current diagnostic methods were outlined, including blood smears, fine needle aspirate of bone marrow and lymph nodes, skin and lymph node biopsy and serological tests. These and treatments were briefly described and perhaps would be best performed by those experienced in the disease.