

The importance of the parasites we can't see

Lesley Hobson MVB, companion animal veterinary manager, Zoetis, discusses the importance of treating the parasites that we can't see, such as lungworm and roundworm and highlights the role that the European Scientific Counsel Companion Animal Parasites plays in this

Recommendations about treatment of parasites for all domestic species have evolved as we learn more about target species and new products become available. Although veterinary teams discuss parasite treatments with owners every day it is very easy to overlook the importance of this group of medicines. Furthermore, it may seem challenging to change practice protocols previously recommended, for fear it may cause confusion for both staff and pet owners.

The European Scientific Counsel Companion Animal Parasites (ESCCAP) is an independent group of parasitologists who aim to advise and promote up to date advice for veterinary practices. Their website, www.esccap.org contains a range of excellent resources including several veterinary guidelines, owner leaflets, posters and links to sites with regular updates relevant to individual countries.

GUIDANCE

ESCCAP believe it is incumbent on vets to give guidance to pet owners regarding risk of parasite infestations and what can be done to minimise these risks; not only for the health of their own pets, but also for their families, other pet animals and the community in general. As the number of pets which travel increases, additional measures are required to prevent the import of non-endemic parasite infections. Appropriate veterinary advice is key to protecting against these diseases. There are seven comprehensive guidelines available to download on the ESCCAP site, and in addition shorter versions for both worm and ectoparasite control (modular guidelines).

LIST OF ESCCAP GUIDELINES

- GL1: Worm Control in Dogs and Cats
- GL2: Superficial Mycoses in Dogs and Cats
- GL3: Control of Ectoparasites in Dogs and Cats
- GL5: Control of Vector-Borne Diseases in Dogs and Cats
- GL6: Control of Intestinal Protozoa in Dogs and Cats
- GL7: Control of Parasites and Fungal Infections in Small Pet Mammals
- GL8: Treatment and Control of Equine Gastrointestinal Parasite Infections

It has always been easier to persuade owners to treat their pets for the parasites that they can see, for example, roundworms in puppies and kittens, tapeworm in hunting cats or fleas when they are easily visible. However, the ESCCAP guidelines act as a reminder that the parasites of importance are often the ones which are not seen, such as vascular

nematodes (eg. lungworms) or the vector borne infections carried by parasites (eg. ticks).

There are three groups of worms identified by ESCCAP as species of key importance due to their potential to cause severe disease in the pet, cause zoonoses in humans and those which are prevalent in some or all parts of Europe.¹

SPECIES OF KEY IMPORTANCE

1. **Ascarids or roundworms (*Toxocara species, Toxascaris leonina*) – prevalent in all areas of Europe.**
2. ***Echinococcus* species, a type of tapeworm – see guidelines for distribution.**
3. **Vascular Nematodes: *Dirofilaria immitis* (heartworm) – see guidelines for distribution and *Angiostrongylus vasorum* (lungworm) – Europe-wide in endemic spots.**

Although treatment for *Echinococcus* and prevention against *Dirofilaria immitis* are considered essential for dogs travelling abroad we are fortunate that neither of these species are presently found in Ireland. However, roundworms and lungworm are certainly of significance to Irish pets and their families.

ASCARIDS/ROUNDWORMS (*TOXOCARA SPECIES, TOXASCARIS LEONINA*)

Puppies and kittens tend to be treated regularly for roundworm, but as adult pets rarely show clinical signs of infection, treatment tends to be more intermittent. In fact, treatment of roundworm in pets is far more to do with protecting against zoonoses than preventing clinical disease in pets. It is difficult to determine exactly how many cases of toxocariasis in humans occur every year, as it is a condition which is often misdiagnosed or undiagnosed.² A 2016 paper recorded 127 laboratory-positive toxocariasis cases in England and Wales between 2000-2009. Interestingly, the median age for diagnosis was about 40 years.³ A survey of schoolchildren in Ireland reported that 9.7 children per 100,000 between the ages of three to 19 years had ocular toxocariasis.⁴ Perhaps more unexpected is the range of symptoms which may accompany toxocariasis, including most commonly abdominal pain, but also skin rashes, sleep and behavioural disturbances, headaches and respiratory signs. One study even suggests toxocariasis may affect cognitive function in children although further research is required.⁵

Because of their knowledge of potential risks, and through contact with pet owners, vets are on the frontline of preventing transmission of pet-associated zoonotic parasitic

infections. Encouraging owners to pick up their pets' faeces and a high compliance of four times per year worming reduces the prevalence of pathogenic eggs in the overall environment. However, to protect the more immediate home environment, consideration needs to be given to the fact that the prepatent period for *Toxocara* species is a little over four weeks. Therefore, worming pets every month prevents patent infections and decreases the risk of the immediate family being exposed to infective eggs at home. This is particularly important (even for adult pets), which live in high-risk scenarios such as sharing homes with children or immunocompromised individuals, or for pets which have access to gardens or parks.¹

LUNGWORM (*ANGIOSTRONGYLUS VASORUM*)

Angiostrongylus vasorum is also considered by ESCCAP to be a worm of key importance, but more due to the severity of disease it can cause in dogs and the high prevalence in many areas in Europe. Unfortunately, endemic foci are recognised to be spreading in number and size worldwide. Possible reasons for this expansion include climate change, increased density of final and intermediate hosts (domestic and wild animals), greater movement of dogs, movement of intermediate hosts between garden nurseries and increased awareness amongst both owners and vets.⁶

Dogs may be infected by ingesting intermediate hosts (snails and slugs), grass contaminated by their slime trail or by ingesting paratenic hosts such as frogs. The red fox is recognised as the main reservoir host for *A. vasorum*. A recent study showed Ireland's fox population has the second highest prevalence of *A. vasorum* infection in Europe (39.9%), with positive samples occurring in all 26 counties and county prevalence ranging from 11.1% to 72.7%. This study highlights the high risk of potential cross infection to the Irish dog population. In the UK it is recognised that the increased prevalence of *A. vasorum* in foxes mirrors that of number of canine angiostrongylosis cases seen in practice.⁷

Research indicates that 74% of Irish and UK vets have experienced a case of lungworm in their practice or have heard of a case occurring locally in the previous 12 months.⁸ Clinical signs of the disease vary greatly. Dogs may be asymptomatic carriers, but severe infection can result in right sided heart failure and sudden death.

Other clinical symptoms include coagulopathies and thrombocytopenia which can result in the difficult scenario whereby a previously asymptomatic dog bleeds excessively and even uncontrollably on the surgery table. Coughing, dyspnoea and exercise intolerance are familiar signs of lungworm infection, but it should also be considered as a differential diagnosis where weight loss, abdominal pain, syncope, neurological disease, lumbar pain and ocular pain are detected.⁹

ESCCAP guidelines recommend routine preventative treatment with a macrocyclic lactone every month in situations where there is high endemicity and/or if the dog

might be exposed by ingesting intermediate or paratenic hosts, ingesting grass or is used for hunting.¹ Although practices may not be diagnosing cases of lungworm regularly the prevalence of the parasite in foxes suggests it is endemic throughout Ireland and due to the seriousness of potential disease, treatment should be discussed with all dog owners, many of whom may already be aware of the disease through social media and other promotion.

Our relationship with pets has changed vastly over the last couple of decades. Pets spend more time in our homes (and very often in our beds) and have become a very important part of our family unit. Owners are unaware of the dangers of the 'invisible' parasites to themselves, their pets and their community, thus it is veterinary profession's responsibility, as part of a one health approach, to recommend gold standard treatment to all clients, and not just a selected few. Fortunately, as more convenient and broad-spectrum monthly treatments become available it becomes much easier for owners to be compliant with best practice. The ESCCAP resources are available at www.esccap.org and are highly recommended for updated advice on parasite control for all veterinary staff and their clients.

REFERENCES

1. ESCCAP Guidelines Worm Control in Dogs and Cats 6th Edition February 2020 Available at: https://www.esccap.org/uploads/docs/2fe4poh6_0778_ESCCAP_Guideline_GL1_v10_1p.pdf
2. <https://www.nhs.uk/conditions/toxocariasis/>
3. Halsby K, Senyonjo L, Gupta S, Ladbury G, et al. 2016. Epidemiology of Toxocariasis in England and Wales. *Zoonoses Public Health*, 63: 529-533. doi:10.1111/zph.12259
4. Good B, Holland CV, Taylor MRH, Larragy J, et al. Ocular Toxocariasis in Schoolchildren, *Clinical Infectious Diseases*, Volume 39, Issue 2, 15 July 2004, Pages 173-178, <https://doi.org/10.1086/421492>
5. Holland C. 2017. Knowledge gaps in the epidemiology of *Toxocara*: The enigma remains. *Parasitology*, 144(1), 81-94. doi:10.1017/S0031182015001407
6. Kirk et al (2014) *Angiostrongylus vasorum* in Great Britain: a nationwide postal questionnaire survey of veterinary practices *Vet Record* doi: 10.1136/vr.102196
7. McCarthy G, Ferrand M, De Waal T, Zintl A, et al. 2016. Geographical distribution of *Angiostrongylus vasorum* in foxes (*Vulpes vulpes*) in the Republic of Ireland. *Parasitology*, 143(5), 588-593. doi:10.1017/S0031182016000032
8. Vets urged to look out for lungworm. (August 2017) *Veterinary Ireland Journal* Volume 7 Number 8 Pages 419-420. Available at: http://www.veterinaryirelandjournal.com/images/pdf/focus/focus2_aug_2017.pdf
9. Brennan SF, et al. Clinical signs, diagnosis and treatment of three dogs with angiostrongylosis in Ireland. *Ir Vet J*. 2004;57(2) 103-109