

Small animal *Review*

Summary: Notable papers from other journals this month focus on heart disease in dogs, prognostic markers for certain tumour types in dogs, and cases of *Corynebacterium ulcerans* in companion animals. <http://doi.org/10.12968/coan.2020.0097>

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Dilated cardiomyopathy in Dobermanns

Dilated cardiomyopathy in Dobermanns may be associated with a genetic variant in both the PDK4 gene (mitochondrial energy production) and the TTN gene (cardiac contraction), although some cases do not have either of these, suggesting other genetic causes. Although these genes are recognised, their importance in the general population is unknown. Meurset et al (2020) report on 48 Dobermanns, of which 28 had the TTN variant only, 10 had both variants, 6 had neither variant, and 4 had the PDK4 variant only. Dogs with the PDK4 variant presented at a mean age of 38 months, dogs with the TTN variant at 77 months, those with both variants at 93 months and those with neither variant at 97 months. However, there was overlap across all groups and due to small case numbers could not attribute any significance to this data. There were no specific clinical, radiographic, echocardiographic or electrocardiographic findings identified in the genotype groups. The authors were unable to assess the impact of the genetic variations on disease severity or progression. In humans, multiple genetic variations are associated with cardiac disease and there are undefined variations in dogs. The role they play in contributing to the clinical course will be elucidated by larger prospective studies.

E-cadherin and melanomas

E-cadherin is a glycoprotein involved in cell-cell adhesion and its reduced expression is associated with shorter survival times in humans with melanocytic tumours. In dogs, histopathological features can be used to identify melanomas with poorer prognoses, but they are unreliable. The expression of different markers can be used to better understand the tumours' likely behaviour, such as the assessment of C-KIT and Ki67 expression. Silvestri et al (2020) have

published work on the value of E-cadherin expression as a prognostic marker for canine melanomas. They demonstrate that E-cadherin expression was lower in cutaneous melanomas compared to benign dermal melanocytomas, and was also lower in amelanotic compared to pigmented tumours. Specifically, with amelanotic melanomas where E-cadherin expression was absent, the outcome was generally poor. The authors suggest it could be a useful prognostic marker for this tumour type. Oral melanomas are generally considered to carry a poor prognosis, and as the extent of the expression of E-cadherin was associated with pigmentation and clinical outcome, assessment of its expression might be useful in identifying less aggressive oral tumours that might be more amenable to treatment. In contrast, cutaneous melanomas without E-cadherin expression showed a favourable clinical outcome, therefore its prognostic value appears to be dependent on the tumour site. Further data are required from larger case studies before its use can be recommended.

Corynebacterium ulcerans

Corynebacterium ulcerans is a mucosal commensal bacterium that in companion animals can be associated with upper respiratory tract signs, bronchopneumonia, or ulcerative mucosal or skin lesions. In humans, it has the potential to cause a severe diphtheria-like disease. A report by Abbot et al (2020) describes three cases involving *C. ulcerans*. The first case involved three cats presenting with a nasal discharge. Toxigenic *C. ulcerans* was isolated from the cats; and one cat was treated initially with cefovecin. As the organism was isolated from a nasal swab taken at 14-day follow up, spiramycin and metronidazole were prescribed. The combination was effective in clearing the infection and resolving the clinical signs in the three cats. The second case was also a cat that presented with a history of chronic

nasal discharge. Chronic sinusitis associated with a fracture of the upper right canine tooth was diagnosed but, as part of the work-up, a nasal swab was cultured yielding toxigenic *C. ulcerans*, together with *Staphylococcus pseudintermedius*. Initial treatment with clindamycin showed a poor response, but a good clinical response was achieved with marbofloxacin. The final case was a dog with a unilateral serous to occasionally purulent nasal discharge of over 2 years' duration, which had recently resulted in crusting of the affected nasal orifice. Culture of nasal swabs yielded heavy growths of *C. ulcerans* and methicillin-resistant *S. aureus* (MRSA). Using the in-vitro sensitivity data, marbofloxacin was prescribed with only minor improvement. A clinical and bacteriological cure was reported on changing to trimethoprim/sulphadiazine. The prospective study to determine the prevalence of *C. ulcerans* identified carriage of non-toxigenic *C. ulcerans* in 2/479 clinically healthy dogs and in no clinically healthy cats. There was no evidence of human infection in anyone in contact with these positive cases, but *C. ulcerans* is a zoonotic agent and the number of human cases of diphtheria due to *C. ulcerans* are increasing. Infection from contact with animals is one potential route. Previous studies have identified carriage rates in healthy dogs of 1.5–7.5%. The authors emphasise the need for veterinary practitioners to inform appropriate health authorities when *C. ulcerans* infection is diagnosed, and particularly if vulnerable people are at risk. Some UK diagnostic laboratories will report the isolate as a matter of routine. *C. ulcerans* infection should be considered in any case with unexplained upper respiratory signs, particularly nasal discharges with or without mucosal ulceration or crusting, and bacteriology is encouraged where suspicion exists.

Reference

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