Small animal *Review*

Introduction: In this month's Small Animal Review we consider three recently published papers from other veterinary journals. The papers summarised focus on antimicrobials in reptiles, a novel polyneuropathy in huskies and clinical signs in dogs presenting with hyperaesthesia.

https://doi.org/10.12968/coan/2020.0087

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Antimicrobial susceptibility of bacteria isolated from reptiles

The sensitivity profiles of many organisms isolated from reptiles are not well understood, thereby making empirical antibacterial use ahead of culture and sensitivity testing problematic. An article by Tang et al (2020) (*Journal of the American Veterinary Medical Association* doi.org/10.2460/javma.257.3.305) reports on the commonest bacteria isolated from reptilian samples and their antimicrobial susceptibility patterns. Cultures from 61 samples submitted from a variety of reptile groups and several different sites yielded 129 isolates.

Gram-negative bacteria comprised 96/129 isolates with a wide variety of genera evident. Gram-negative bacteria were generally susceptible to aminoglycosides (not neomycin), second-generation fluoroquinolones (not orbifloxacin) and third-generation cephalosporins. They were usually resistant to penicillin, first- and second-generation cephalosporins, clindamycin and azithromycin (16/22). *Enterococcus* species were often susceptible to chloramphenicol, gentamicin, and penicillin and were resistant to amikacin, fluoroquinolones, ceftazidime, clindamycin, and trimethoprim-potentiated sulphonamide (TMS). All *Staphylococcus* species were widely susceptible.

The authors recommend the use of amikacin or tobramycin rather than gentamicin for Gram-negative infections because of lower toxicity, but say TMS is a useful empirical antimicrobial as it is less toxic and many Gram-negative bacterias are sensitive to it (not *Pseudomonas*). For the empirical treatment of Gram-positive bacteria the authors recommend doxycycline and a penicillin, pending culture and sensitivity results.

Polyneuropathy in the Siberian husky

A polyneuropathy is the simultaneous dysfunction of several peripheral nerves that may result from immune-mediated damage and/or metabolic disorders leading to neuronal degeneration. Some conditions are heritable. A novel polyneuropathy reported by Jahns et al (2020) (*Veterinary Pathology* doi.org/10.1177/0300985820934112), describes degenerative and inflammatory polyneuropathies in seven Siberian huskies that presented in one of four ways.

Two dogs presented at 3 and 11 months of age with regurgitation and inspiratory stridor associated with slowly progressive laryngeal paralysis and megoesophagus. Two dogs presented at 9 months and 4.5 years of age with pelvic limb ataxia and weakness, and reduced motor and sensory nerve conduction velocities in an electromyograph. In one dog, generalised muscle atrophy was noted. The signs in these dogs were associated with primary axonal degeneration and large fibre loss in peripheral nerves.

A fifth dog presented at 2.5 years of age with regurgitation, vomiting and anorexia having developed facial paralysis 6 months earlier, while a sixth dog presented at 16 months of age with masticatory muscle atrophy, failure of jaw closure and proprioceptive deficits in the forelimbs. In the fifth and sixth dogs, the signs were attributed to an acute inflammatory demyelinating polyneuropathy, with inflammation in the myenteric plexi, and autonomic and spinal ganglia resulting in sensory, motor and autonomic nerve deficits with wide evidence of a denervation myopathy.

The seventh case presented with ataxia and megoesophagus at 18 months of age, and these signs were associated with inflammation in the dorsal root ganglia (ganglioradiculitis) affecting sensory nerves. As the dogs were young at onset, the conditions progressed slowly and affected dogs were related, a hereditary basis was suspected. The genetic mutation underlying the pathology remains unknown.

Cervical hyperaesthesia in dogs

Cervical hyperaesthesia may manifest as changes in head carriage, response to palpation of the cervical musculature or resistance to manipulation of the head. The origin of neck pain may be difficult to locate and may relate to the cervical spinal cord/column, intracranial disease and non-neurological cervical conditions. Some disorders that can be associated with pain include degenerative intervertebral disc disease (IVDE), inflammatory processes such as steroid responsive meningitis arteritis (SRMA) and meningoencephalomyelitis of unknown aetiology (MUA), and anomalies such as syringomyelia (SM) and cervical spondylomyelopathy (CSM), atlantoaxial subluxation, neoplasia, and spinal fracture and luxation. Grapse et al (2020) (*Veterinary Record* doi.org.10.1136/vr.105818) report on the use of clinical reasoning to obtain a prioritised list of the likely diagnoses, and therefore guide investigation and treatment.

From a population of 298 dogs, various features were suggested as indicators of potential diagnoses. In relation to breeds, 84% of French bulldogs were diagnosed with IVDE, while 88% of Cavalier King Charles Spaniels were diagnosed with SM. Older age was associated with diagnoses of IVDP and neoplasia while those with SRMA were more likely to be younger. A diagnosis of IVDE was more likely in neutered animals. Dogs with IVDE were more likely to present with acute onset, while those with IVDE, CSM and SM showed a more chronic course. Deterioration of clinical signs was significantly associated with MUA. Pyrexia was significantly associated with SRMA, and in many cases there was systemic leucocytosis, neutrophilia or monocytosis. For both pyrexia and an inflammatory leucogram the sensitivity of these findings in defining SRMA was only 55% but the specificity was 99%.

The authors have described clinical features that can assist in prioritising differential diagnoses, treatment options and the need for referral.

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