Hypothyroidism, Atherosclerosis, & Neuromuscular Disease

Generalized neuromuscular disease and unilateral forelimb lameness have been associated with hypothyroidism. Neurologic manifestations in dogs with hypothyroidism have included cranial neuropathies (facial paralysis, peripheral vestibular disease, trigeminal dysfunction, laryngeal paralysis, and megaesophagus), CNS signs (seizures, coma, and brainstem signs), and generalized peripheral neuropathies. Hypothyroidism has also been associated with hyperlipidemia, a consequence of which could be the development of neurologic signs due to atherosclerosis and thromboembolic events. In an effort to characterize neurologic signs potentially associated with canine hypothyroidism, a retrospective study was conducted in which medical records of dogs with neurologic signs and a diagnosis of hypothyroidism and hyperlipidemia were reviewed. Neurologic signs of 4 dogs that fit the inclusion criteria (3 Labrador retrievers and 1 Labrador retriever cross) included tetraparesis, central and peripheral vestibular signs, facial paralysis, and paraparesis. Two dogs had a short-term history consistent with infarction, and 2 dogs had long-term histories of cranial neuropathies and paraparesis. Clinical signs of all dogs improved with supplementation of thyroid hormone. Measurement of fasting serum triglyceride and cholesterol concentrations, as well as evaluation of blood vessels for evidence of atherosclerosis in both hyperlipidemic and hypothyroid dogs with neurologic signs, would be of interest to help determine the role of vascular occlusive disease as a cause for clinical signs. Lipid profiles are not performed routinely, and the establishment of normal values in dogs could be an important diagnostic and prognostic tool. The lipoprotein profiles of dogs of different breeds, both with and without hypothyroidism, should be investigated further.

COMMENTARY: Hypothyroidism has long been associated with cranial neuropathies. Thyroid testing has been advocated as part of the workup for patients presenting with facial paralysis; however, thyroid supplementation does not correct many facial neuropathies. Recently, in part because of the benefit of MRI, hypothyroidism has been linked to central vestibular disease. The author of that study and those of the current study convincingly argue for both an increase in blood viscosity and reduction of blood flow secondary to atherosclerosis as the cause for alteration of normal CNS function. Despite the low number of subjects in this study, in a small way it contributes to the dearth of knowledge we have concerning cerebrovascular disease in dogs. Evaluation of thyroid function should be considered an essential part of the workup in every patient presenting with signs referable to the CNS.—Thomas Schubert, DVM, Diplomate ACVIM & ABVP