



COMPANION ANIMAL

Clinical Cases Award



Reversible right-sided congestive heart failure associated with Schmidt's syndrome in a dog

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Introduction

A combination of primary hypoadrenocorticism and hypothyroidism, also known as Schmidt's syndrome, represents a concurrent endocrine gland failure in dogs (1). This syndrome is accompanied with well-documented systemic effects, however, the effect of hypothyroidism on cardiac function is not well understood. The aim of this case report is to describe the clinical findings and disease course in a dog with Schmidt's syndrome and concurrent right-sided congestive heart failure (RS-CHF).

Case description

A 7-year-old, male neutered, Staffordshire Terrier was presented with progressive exercise intolerance, anorexia, and intermittent gastrointestinal signs. Physical examination showed lethargy, dehydration, pale mucous membranes and a grade 2/6 systolic murmur. CBC revealed a non-regenerative anaemia, lymphocytosis, and eosinophilia. Biochemistry profile demonstrated azotaemia, elevated plasma potassium concentration, with normal sodium levels. The ACTH stimulation test was diagnostic for primary hypocortisolism and the aldosterone:renin ratio demonstrated shortage of mineralocorticoids. Addison's disease was diagnosed and treatment with cortison acetate and fludrocortisone acetate was started. The dog improved initially, but presented six weeks later with lethargy, intermittent cough, poor coat, and ascites. Echocardiography revealed poor systolic function and eccentric hypertrophy, right atrial dilation, and regurgitation of both AV-valves. Differential diagnosis included DCM, myocarditis, and taurine deficiency. Also, hypothyroidism was considered as a potential contributing factor. Endocrine testing revealed low plasma thyroxine concentration with elevated TSH concentration, compatible with hypothyroidism. Therapy with levothyroxine and pimobendan was initiated.

Results

The dog showed excellent clinical improvement and the ascites resolved completely without diuretic therapy. The dog stayed asymptomatic for 1,5 years after initial diagnosis.

Discussion

The complete and long-term resolution of the RS-CHF is atypical in primary DCM. In dogs with hypothyroidism, several mechanisms leading to decreased cardiac contractility have been described (2). Therefore, it is plausible that the endocrinopathies in this dog played a causative or exacerbating role in the cardiac disease.

References

- (1) Blois, S. L., Dickie, E., Kruth, S. A., & Allen, D. G. (2011). Multiple endocrine diseases in dogs: 35 cases (1996–2009). *Journal of the American Veterinary Medical Association*, 238(12), 1616-1621.
- (2) David, L. P. (2001). Conditions associated with canine hypothyroidism. *Veterinary Clinics: Small Animal Practice*, 31(5), 935-950.