

Clinical importance: Pigmenturia and anemia in a dog with intracardiac heartworms indicates caval syndrome, which is an emergency. Whether to perform trans-jugular extraction of intracardiac worms in dogs without signs of caval syndrome is up to the clinician's discretion and owner's ability.

Evaluation of NT-proBNP as a biomarker for pulmonary hypertension in heartworm-infected dogs undergoing adulticide treatment

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Cardiac biomarkers such as N-terminal pro B-type natriuretic peptide (NT-proBNP) have gained prominence in veterinary medicine for their role in assessing cardiac stress and dysfunction. Elevated NT-proBNP levels have been linked to both post-capillary and precapillary pulmonary hypertension (PH), with heartworm disease (*Dirofilaria immitis*) being a significant cause of the latter. This study aimed to evaluate NT-proBNP concentrations in 89 heartworm-infected dogs undergoing adulticide treatment, focusing on its correlation with PH. For this purpose, echocardiographic and NT-proBNP measurements were taken throughout treatment on days 0 (diagnosis), day 30 (end of doxycycline and first dose of melarsomine), day 60 (second dose of melarsomine), day 90 (discharge) and 6 months later. NT-proBNP concentrations were measured (VCHECK V200, Bionote, USA). At baseline (day 0), 34.8% of dogs (n=31) had PH, 50.6% (n=45) had a high parasite burden (estimated echocardiographically), and 43.8% (n=39) were microfilaremic (Knott test). NT-proBNP concentrations were significantly higher in dogs with PH at all time-points compared to normotensive dogs (p<0.01). On day 0, NT-proBNP levels were 2038.00±1671.36 pmol/L in dogs with PH versus 583.27±185.18 pmol/L in normotensive dogs (p<0.0001). A progressive decline was observed in

dogs with PH during treatment: 1296.10±1049.12 pmol/L (day 30) (p=0.0015), 1239.53±1061.61 pmol/L (day 60) (p=0.0053), 1213.48±907.11 pmol/L (day 90) (p=0.0020), and 1042.29±724.97 pmol/L (6 months) (p=0.0024). In contrast, normotensive dogs maintained stable NT-proBNP values throughout the study. Correlation analysis revealed a moderate positive association between NT-proBNP and PH (Pearson $r=0.573$, Spearman $p=0.499$), supporting its diagnostic and monitoring value. No significant associations were found between NT-proBNP levels and parasite burden or microfilaremia. These findings indicate that NT-proBNP may be a reliable biomarker for assessing PH severity and monitoring treatment response, particularly for evaluating hemodynamic changes induced by adulticide therapy. NT-proBNP measurement provides a non-invasive, quantitative tool to help identify and monitor PH in dogs with heartworm disease undergoing adulticide treatment. The progressive reduction in NT-proBNP levels might suggest a decrease in cardiac strain after adulticide treatment, although PH may persist in some cases, as described in other studies. Future research should investigate long-term cardiovascular implications and explore the prognostic value of NT-proBNP in treatment outcomes.

Clinical evaluation of the efficacy of prolonged macrocyclic lactone treatment in dogs with heartworm disease treated in Germany

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Objective: When rehoming dogs from endemic areas to Germany, testing for *Dirofilaria immitis* antigen and microfilaria at entry and again after six months is recommended. In antigen-positive cases, macrocyclic lactones (ML) and doxycycline should precede adulticide treatment with melarsomine. However, many dogs receive ML alone, with anecdotal reports suggesting four to six monthly doses may eliminate adult heartworms. This study evaluates whether prolonged ML use reliably clears adult infection and its association with clinical signs.