

Clinical and Echocardiographic Findings in Dogs With Heartworm Caval Syndrome

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Caval syndrome is a serious disorder caused by massive parasitism of adult *Dirofilaria immitis*, characterized by cardiogenic shock and complicated by anemia, metabolic acidosis, and disseminated intravascular coagulation. The objective of this study was to evaluate some clinical findings and echocardiographic measurements in a group of dogs with caval syndrome in order to determine their relevance in the identification of this condition.

A prospective descriptive study was carried out in 16 dogs with caval syndrome (group A), 16 animals with heartworm without caval syndrome (group B), and 16 healthy animals (group C). Data on presence of respiratory symptoms, signs of right congestive heart failure, and presence of hemoglobinuria were collected. The serum values of NT-proBNP were determined. Furthermore, the number of adult filariae in the right chambers and vena cava was determined after surgical extraction or necropsy in group A.

The echocardiographic measurements determined were: right pulmonary artery distensibility index (RPADi), right ventricular shortening fraction (RVOT-FS), right ventricular end-diastolic area (RVEDAi), right atrial area (RAAi), tricuspid regurgitation pressure gradient (TRPG), tricuspid annular systolic displacement (TAPSE), right ventricular acceleration time to ejection time (AT:ET) ratio, pulmonary trunk to Aorta ratio (PT:Ao), the ratio between the pulmonary vein and the pulmonary artery (PV:PA) and the maximum right myocardial velocities measured in early diastole (E), late diastole (A) and systole (S), calculated the ratio E/A' and the global TDI index of myocardial function (Global-TDI).

The results show a greater number of affected dogs with respiratory symptoms (group A 87.52%; group B 43.75%; group C 0%), right congestive heart failure (group A 62.51%; group B 18.75%; and group C 0%) and hemoglobinuria (group A 68.75%; group B 0%; and group C 0%) in dogs from group A. NT-pBNP concentrations were considerably higher in group A (group A 3769.45±620.67 pmol/l; group B 878.15±288.25 pmol/l; and group C 524.91±260.13 pmol/l). The average number of extracted filariae in group A was 15.29±8.23. Regarding the echocardiographic measurements, extremely increased (RVEDAi, RAAi, TRPG, PT:Ao, A) or decreased (RPADi, RVOT-FS, TAPSE, AT:ET, PV:PA, E', S, E'A', Global-TDI) values were reported in the animals of group A compared to the animals of groups B and C.

Heartworm caval syndrome is considered a clinical emergency with fatal consequences that must be resolved quickly. The echocardiographic measurements and the clinical findings determined in the present study have proven to be relevant for its effective determination.

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SPEAKER INFORMATION

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