Evaluation of a novel echocardiographic view for the assessment of the pulmonary artery in dogs

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INTRODUCTION

Echocardiographic imaging of the pulmonary artery can be challenging. Two dimensional (2D) and Doppler evaluation is important especially in assessment of pulmonic stenosis and pulmonary hypertension.

AIM

Evaluation of a novel echocardiographic view to assess the 2D structure and flow across the pulmonary artery (PA).

METHODS

Cases were recruited from routine clinical cardiology cases at a referral hospital. All studies were supervised by a cardiology diploma holder. In each case a full echocardiographic study was undertaken by the same operator. Standard Right Parasternal Short Axis (RPSA) and Left Cranial (LC) views of the PA were obtained and in addition a novel Left Cranial Oblique (LCO) view. 2D video loops of the PA and pulse wave (PW) and continuous wave (CW) Doppler traces of pulmonic flow were

recorded. An independent observer (cardiology Diploma holder) assessed quality using a three point scale. The same observer measured the pulmonic annulus (PAn) diameter and spectral Doppler velocities for each view. The observer was blinded to the identity of the animal and the view. The effect of view, heart rate (HR) and weight on quality, PAn diameter, PW and CW velocities were analysed by regression models. PW and CW velocities were compared using the sign test for medians.

RESULTS

Fifty-one studies were undertaken of which forty-two were included in the final analysis. Nine studies were excluded (arrhythmias, incomplete study). The quality of 2D video loops was better for the RPSA view compared to the other views. Weight and HR were associated with the quality on 2D view. No significant difference was found in quality of spectral Doppler traces between views. Weight was associated with quality of CW traces. Type of view, HR and weight showed significant association with PAn diameter. No association was found between view, HR or weight for PW or CW velocities. CW velocities were significantly higher than PW velocities in every view.

CONCLUSIONS

The novel LCO view can be used as an additional tool for the echocardiographic evaluation of the PA. It produced a comparable quality to other standard views for spectral Doppler traces but lower quality compared with RPSA for 2D. The PAn diameter was different between views. No difference was found in PW or CW velocities between the three views. Velocities were higher in CW mode compared to PW independently of the view.

Epidemiology of canine upper respiratory disorders in brachycephalic and non-brachycephalic breeds attending veterinary practices in England

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Brachycephalic breeds of dog are increasingly popular as companions. Canine brachycephaly has been associated with upper respiratory tract (URT) disorders affecting the nares, tonsils, palate, larynx and trachea, but reliable prevalence statistics remain lacking. This study aimed to use primary-care veterinary clinical data to report prevalence of and evaluate breed associations with URT disorders.

Two hundred dogs were randomly selected from each of three brachycephalic (Bulldog, French Bulldog and Pug) and three common non-brachycephalic terrier breeds (Yorkshire Terrier, Border Terrier and West Highland White Terrier). Individual patient records were reviewed manually to extract information on all URT disorders recorded. Groups were compared using the chi-squared test or Fisher's test as appropriate. Risk factor analysis used multivariable logistic regression modelling with a statistical significance threshold of $P < 0.05$.

The sampling frame included 170,812 dogs attending 96 clinics participating within the VetCompass primary-care veterinary project. During the study, 83 (6.9%) study dogs died. Brachycephalic dogs (median: 8.6 years, IQR: 2.4–10.8) were significantly younger at death than non-brachycephalic dogs (median 12.7 years, IQR 11.1–15.0) ($P < 0.001$). A higher proportion of deaths in brachycephalic breeds (4/24 deaths, 16.7%) compared with non-brachycephalic breeds (0/59 deaths, 0.0%) were associated with URT disorders ($P = 0.001$).

The prevalence of URT disorders in brachycephalic dogs (22.0%, 95% confidence interval (CI): 18.0–26.0) was higher than in non-brachycephalic dogs (9.7%, 95% CI: 7.1–12.3, $P < 0.001$). The prevalence varied significantly between breeds: Bulldogs 19.5%, French Bulldogs 20.0%, Pugs 26.5%, Border

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