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Author(s)	TAKAHASHI, Yuka
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EVALUATION OF LEFT HEART ENLARGEMENT BY TWO-DIMENSIONAL ECHOCARDIOGRAPHY IN DOGS

Yuka TAKAHASHI

*Department of Veterinary Surgery,
Faculty of Veterinary Medicine,
Hokkaido University, Sapporo 060, Japan*

To evaluate left heart enlargement by two-dimensional echocardiography (2DE) in dogs, an attempt was made to establish a method for measurement. Initially, the best 2DE views and measuring points were determined. The accuracy and usefulness of this method in comparison to thoracic radiography were then assessed by examining dogs with experimentally induced mitral regurgitation (MR). Following is a summary of the results obtained ;

1. Satisfactory quantitative imaging planes were obtained in all of the examined dogs.

2. Most of the linear and area measurements were significantly correlated with body weight and body surface area.

3. Although thoracic radiographs of dogs with experimentally induced MR showed slight or no signs of left heart enlargement, almost all 2DE measurements of the left atrium (LA) and left ventricle (LV) were significantly increased in 8 of 9 dogs examined.

4. The rates of increase in LA areas from two long-axis views were strongly correlated with each other. These ratios also correlated strongly with those of LV area measurements in 2 short-axis views at the left ventricular chordae tendineae level (plane 4) and papillary muscle level (plane 5).

5. The area and diameter ratio of the LA/AO in plane 7 increased significantly in 8 out of 9 dogs with MR.

These results show that two-dimensional echocardiography can detect mild left heart enlargement which is likely to be regarded as normal on thoracic radiography. It is suggested that the LA areas in planes 1 and 7, the LV areas in planes 4 and 5, and the area and diameter ratio LA/AO (aorta) can be useful indices for the assessment of left heart enlargement in dogs.