

The Thai Journal of Veterinary Medicine

Volume 37
Issue 2 June, 2007

Article 5

6-1-2007

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Recommended Citation

Buranakarl, Chollada and Angkanaporn, Kris (2007) "ECG Quiz," *The Thai Journal of Veterinary Medicine*: Vol. 37: Iss. 2, Article 5.

DOI: <https://doi.org/10.56808/2985-1130.2082>

Available at: <https://digital.car.chula.ac.th/tjvm/vol37/iss2/5>

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ECG Quiz

Chollada Buranakarl¹ Kris Angkanaporn



This lead II ECG strips was recorded from a 13 year old, spayed female, mixed breed dog, weighing 30 kg. The dog was obese and had anorexia and dehydration. The exercise intolerance had been noticed for 3 months. The dog had tremor of the hindlimbs and seizure once or twice a day starting a month ago. Cinical examination revealed pink mucous membranes, enlarged abdomen and limited movement of the hindlimbs. A thoracic radiograph showed

heart enlargement (VHS = 12.5) with patchy infiltration of lung. Serum chemistry showed markedly increase of serum SGPT and AP. Complete blood cound revealed slight anemia and thrombocytopenia. The dog was given enalapril, digoxin, furosemide and cavedilol for treatment.

Please make your interpretation before turning to the next page.

Atrial fibrillation with supraventricular and ventricular premature complexes

The heart rate was approximately 190 beats per minute. Atrial fibrillation was diagnosed since no P-waves were present preceding QRS complexes. The supraventricular premature complexes occurred (A) followed by compensatory pause (arrow). Rather than supraventricular complexes, the ventricular premature complex emerged periodically (B). The bizarre R wave with long duration identified as ventricular in origin. The heart enlargement from thoracic radiograph suggested the heart failure may be encountered. The antiarrhythmic agents were unnecessary if the premature complexes appeared periodically and did not cause hemodynamic instability.

In this case, tachycardia is the cause of exercise intolerance. Digoxin was prescribed in order to control heart rate and increased force of contraction. The diuretics and angiotensin converting enzyme inhibitor were given to reduce preload and afterload. Carvedilol, the non-selective beta blocker was used to enhance coronary perfusion and reduce rate. However, the contractility may be declined and blood pressure should be monitored frequently during medication. Moreover, carvedilol has antioxidant property that may prevent further myocardial damage during ischemia-reperfusion. After combination of cardiac drug therapy, the dog clinical signs improved although liver problem still persisted.