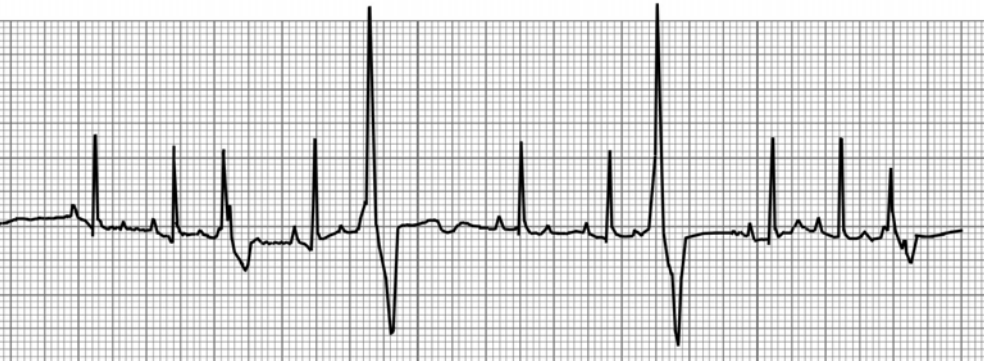
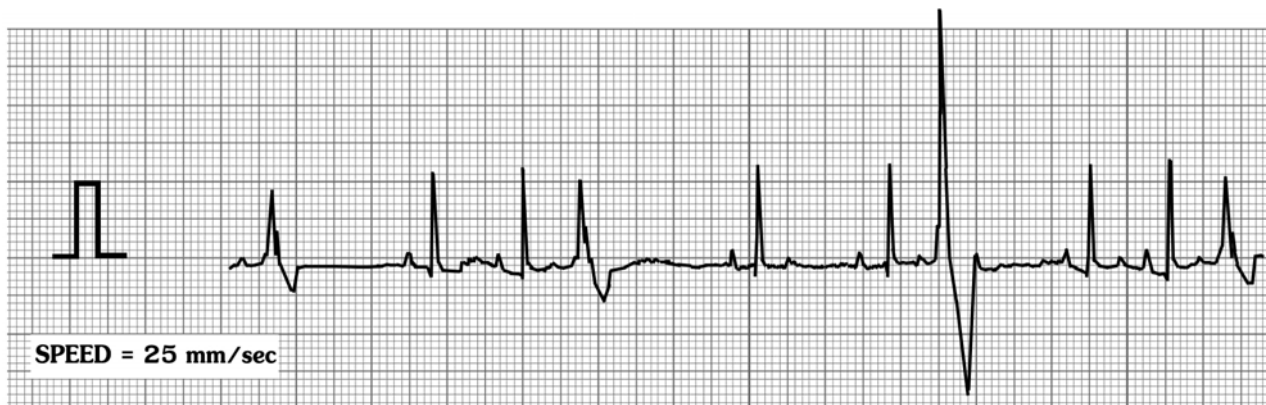


## ECG Quiz

Chollada Buranakarl Kris Angkanaporn



These lead II ECG strips were recorded from 11 years old, female, Boxer, weighing 25 kg that was referred to the Chulalongkorn University Small Animal Teaching Hospital with panting and loss of body weight. Clinical examination revealed mild icterus mucous membrane with a capillary refilling time of 1-2 sec, arrhythmic heart sound with pulse deficit. A thoracic radiograph showed that the heart was within the normal limit with a normal pulmonary

vasculature and age-related mild interstitial lung pattern. Echocardiography revealed a slight dilatation of the left ventricle and the left atrium with 44 % of fractional shortening. Blood gas analysis showed pH = 7.289, pCO<sub>2</sub> = 37.0 mmHg. A complete blood count and serum chemistries showed slight anemia and increased levels of ALT and alkaline phosphatase.

Please answer before turning to the next page.

## **Respiratory Sinus Arrhythmia with eight ventricular premature complexes of two different origins**

Heart rate is approximately 120 beats/min. There are two different shapes of ectopic foci as marked A and B. Both premature complexes are ventricular in origin although the small complexes seem to have a similar shape to sinus complexes. The QRS waves of the ventricular premature complexes are wide and bizarre and not associated with P waves. The T waves deflect in an opposite direction to the R wave. The non-conducted P waves were seen after QRS complexes of both foci (arrows) followed by a long compensatory pause since the ventricle cannot depolarize due to AV refractoriness. Many non-conducted P waves were superimposed in QRS or T waves of ectopic

complexes. The notch seen on the ascending and descending part of the QRS wave of both ectopic foci may be confused with a non-conducted P wave. The presence of frequent ectopic beats with different pacemaker locations may not be associated with organic disease of the heart since the fractional shortening of the heart was still within normal limits. Moreover, prior ECGs did not show any abnormalities. The changes in the electrical activity of the heart may be related to an alteration in cardiac action potential duration due to electrolyte imbalances especially Na and K. The dog was diagnosed with renal tubular acidosis and received K-citrate orally. Frequent monitoring of plasma electrolytes concentration is recommended.