ECG Quiz

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Paper speed = 25 mm/sec

A 9 years old female, Miniature dog, weighing 5.4 kg, had a history of periodic coughing and exercise intolerance. A physical examination showed crackling lung sounds and an irregular heart beat. A thoracic radiograph revealed marked whole heart enlargement with tracheal elevation. A mild increase in the density of all lung lobes and a mild diffuse bronchial lung infiltration were reported.

Please make your interpretation before turning to the next page.

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Sinus bradyarrhythmia



The heart rate was approximately 54 beats / min and bradycardia should be considered when the heart rate is less than 60 beats / min. The origins of the impulses were considered to be the sinus node since the preceding P waves were followed by QRS waves with a constant PR interval. The P wave became more positive as the heart rate (HR) increased and vice versa, when the HR slowed, suggesting that arrhythmia might be respiratory in origin. The height of some P waves may be small and close to zero potential. They may even turn to a negative deflection, as seen in this case (arrows). Changes in the P wave amplitude and vector are perfectly normal and predictable as the lung volume and perhaps the position of the heart changes during respiration. The negative deflection of the P-waves may be confused with junctional escape beats since they occurred after a long pause. Normally, when the heart rate slows down, the QT interval will be prolonged. In this case the QT interval was 0.24 sec. The cause of bradycardia may be due to overactivity of the vagal tone during respiration or may be due to hypothyroidism.