

ECG Quiz

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10mm/mV 25mm/s HF·DF·MF 2 HR



This lead II ECG strips was recorded from a 7 years old, female spayed, mixed breed dog weighing 18.7 kg that was referred to the Chulalongkorn University small animal hospital with a tumor mass diameter 5 cm at the median surface of left mandible. A thoracic radiograph showed slightly right heart enlargement,

mild interstitial lung pattern and no evidence of lung metastasis was found. Complete blood count showed slightly anemia and leukopenia and serum chemistry profiles were within normal limits.

Please answer before turning to the next page.

Mobitz type II second degree AV block with prolonged PR interval

The ventricular rate was approximately 42 beats/minute while the atrial rate was 125 beats/minutes. Second degree AV block is characterized by a frequent intermittent failure of AV conduction. Some P waves are not followed by QRS complexes. Since the shape of QRS was in positive deflection and the PR interval was constant, suggesting that the impulse was originated from supraventricular locus and QRS complexes received the impulse from preceding P wave. Some P waves were located between QRS and T wave (arrow), thus non-conducting P wave developed. The next P wave after preceding T wave was not followed by normal QRS which indicated that the transmission through AV node did not occur. The ratio between atrial and ventricular rate was 3:1 in this case. It is noticed that the PR interval of the

conducted sinus wave prolonged with a duration of 0.36 seconds. The high grade AV block is used when the AV conduction ratio equals or exceeds 3:1. The second degree AV block with slow heart rate may become a serious problem if cardiac output is not adequate during high activity or exercise. Animals could become exercise intolerance or even syncope if ventricular rate was seriously low. Dogs should be advised to rest and avoid moderate or strenuous exercise and ECG should be monitored frequently. The high grade Mobitz type II AV block frequently progresses to completed AV dissociation. The ventricular tachy-arrhythmia may develop if the heart rate was slow down but usually occurred when the QT interval was also prolonged. The medication may not be effective in case of AV node disease due to pathologic lesion such as fibrosis of AV tissue. In advanced high grade second degree AV block, cardiac pacemaker implantation was required.

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