

ECG Quiz

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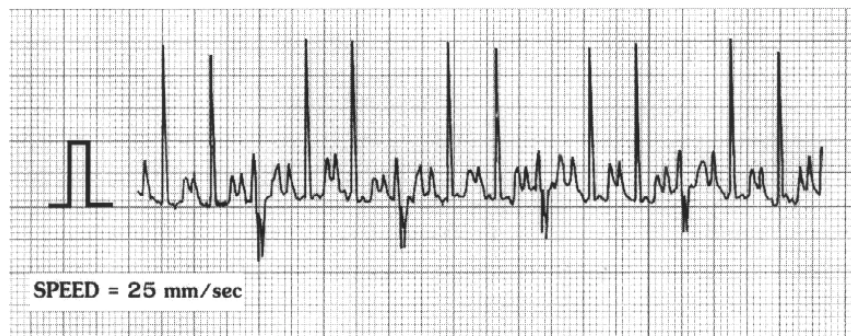


Fig 1a Before treatment

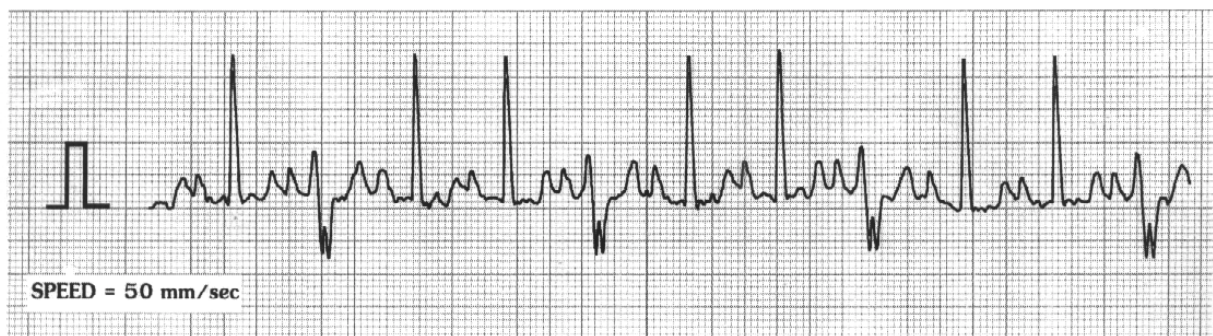


Fig 1b Before treatment (followed 1a with different paper speed)



Fig 2 After treatment

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A nine-year old, male, Basset Hound was hospitalized with signs of anorexia, syncope, dyspnea, vomiting, showing blood stained coughing and depression. A thoracic radiograph revealed whole heart enlargement with interstitial and bronchial patterns prominent in the lung. A complete blood count showed an increased red blood cell count (9.2×10^6 cell/ μ l) and slight leukocytosis (WBC = 18,500 cell/ μ l). Blood chemistry profiles for liver and kidney function were within normal limits.

P wave duration	=	0.08 sec
P wave amplitude	=	0.4 mV
PR interval	=	0.12 sec
R wave amplitude	=	2.3 mV
QRS interval	=	0.04 sec
QT interval	=	0.18 sec
Mean Electrical Axis	=	+75°

Please make your interpretation before turning to the next page.

Sinus tachycardia with periodic aberrant conduction causing fusion beat

In fig 1b, two sinus complexes were found with a wide P wave known as "P mitrale" (P duration > 0.16 sec.) (dark arrow). This characteristic may indicate left atrial enlargement which corresponded to the image seen in the thoracic radiograph. The heart rate was 200 bpm, indicating Sinus tachycardia (Fig 1a). After the duplicated sinus complexes, another complex followed with a bizarre negative deflection and a notch (open arrow). This feature was similar to a deep S wave with a long duration and a right bundle branch block (RBBB) was suspected. However, by measuring the PR duration of normal sinus waveforms, the peak of R wave fell on the location at the

peak of the notch of the bizarre wave. It is likely that this wave was a fusion beat of the normal sinus and the aberrant conduction was caused by ventricular ectopic beats or by reentry mechanism. Tachycardia and a dilated myocardium will accutate myocardial function, leading to cardiac failure. The poor cardiac output, that accompanies a rapid heart rate, inadequate cardiac filling time and poor contractability may cause the syncope because of inadequate cerebral blood flow. After digoxin therapy, the aberrant conduction was eliminated and the heart rate slowed down (HR = 144 bpm) (Fig 2). The dogs condition improved and no syncope was found.

