

Vasovagal Response (also known as Neurocardiogenic Syncope)

This form of syncope is thought to be more common in young dogs especially the brachycephalic breeds such as Boxers. Vasovagal syncope is caused by an inappropriate heart rate and / or blood pressure response to a stimulus and may be an exaggerated form of the dizziness we sometimes experience when standing up quickly. The stimulus for these events in dogs is variable but a common example would be an auditory stimulus, such as the doorbell, waking the dog from sleep resulting in a sudden change in level of activity as the dog sprints towards the door. This change in activity should result in peripheral vasoconstriction and an increase in heart rate, but if this response is inadequate then cerebral hypoperfusion may occur resulting in syncope.

Figure 5 shows a section from a 24h Holter recording from a 3 year old female Boxer with all 3 leads shown and 8 seconds of trace on each line. The dog collapsed at 14:46 and the trace shows:

1. sinus rhythm prior to the event,
2. sudden drop in heart rate and change to an escape rhythm – note change in QRS morphology and absence of P waves before the QRS complexes,
3. 6 seconds of asystole,
4. an escape rhythm with the P wave after the QRS complex,
5. resumption of sinus rhythm.

The numbers correspond to the arrow labels on the trace.

Figure 5

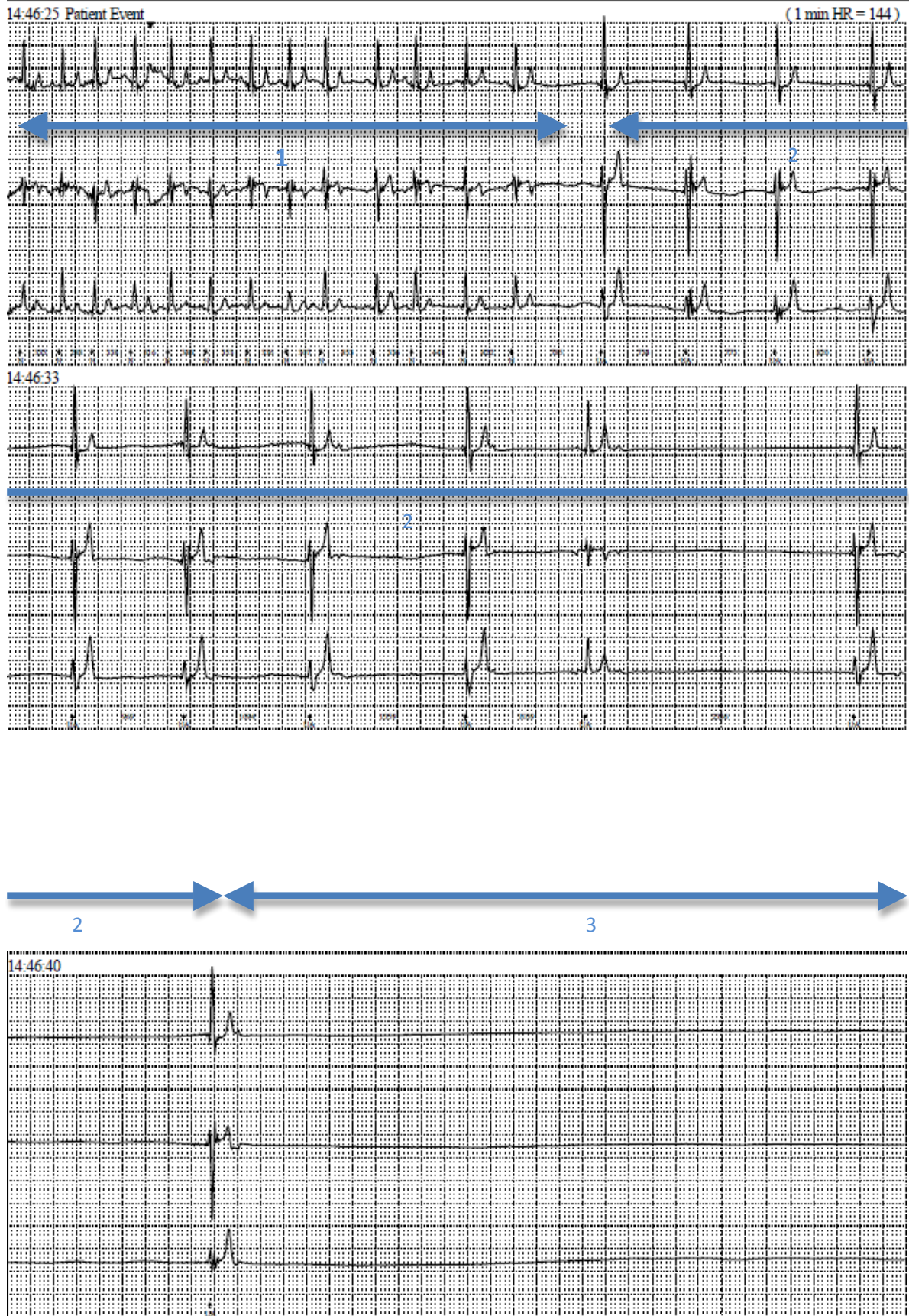


Figure 5 cont



Sinus Node Arrest or Sinus Node Exit Block

The traces shown in figure 5 and 6 were obtained from a 3yo crossbred dog who collapsed at 17:25. Figure 5 shows a single lead of the ECG and 30 seconds of trace on each line and figure 6 shows the expanded trace during this period with all 3 leads and 8 seconds of trace on each line.

In the minutes prior to the event the trace showed sinus rhythm, sinus tachycardia and then a sudden change to sinus arrest with ventricular asystole for 23 seconds followed by a single escape beat and then another 6.7 seconds of sinus arrest with ventricular asystole followed by gradual resumption of sinus rhythm. Assuming that the dog was otherwise well with no evidence of structural heart disease or serious systemic disease, pacemaker implantation might merit consideration.

Figure 6

Overview trace showing heart rate and rhythm in a single lead of ECG around the time of an episode of collapse which occurred at 17:25. 30 seconds of ECG trace is shown on each line.



Trace courtesy of Pedro Oliveira, Davies Vet Specialists

Figure 7

1. sinus tachycardia
2. sinus arrest with ventricular asystole for 23 seconds
3. single escape beat
4. 6.7 seconds of sinus arrest with ventricular asystole
5. gradual resumption of sinus rhythm.

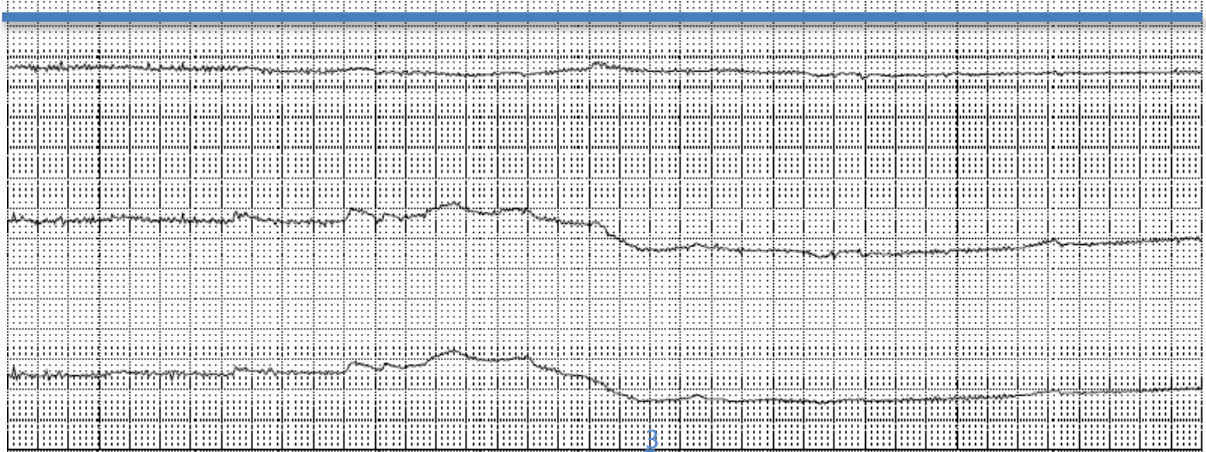
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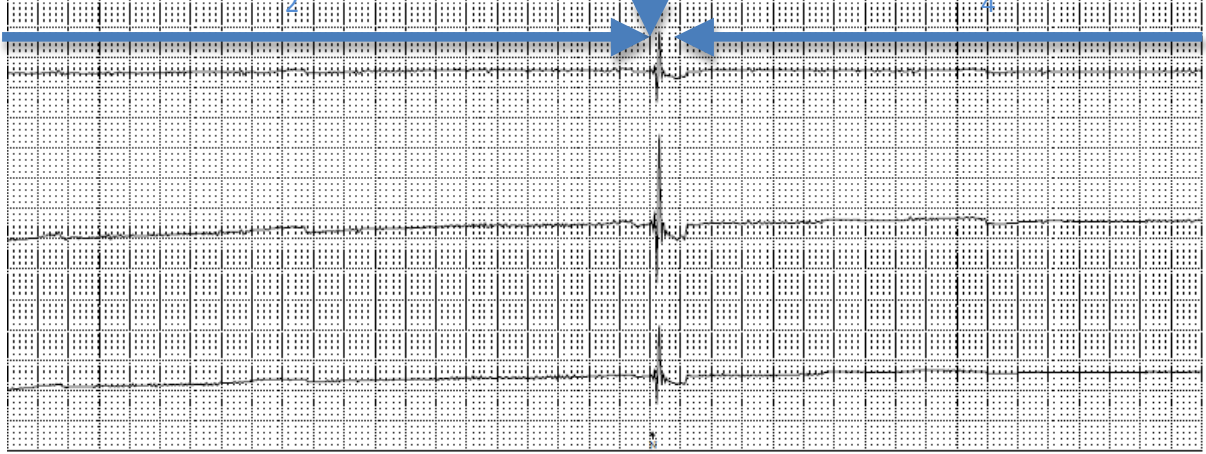
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17:25:54

2



17:26:02



17:26:09

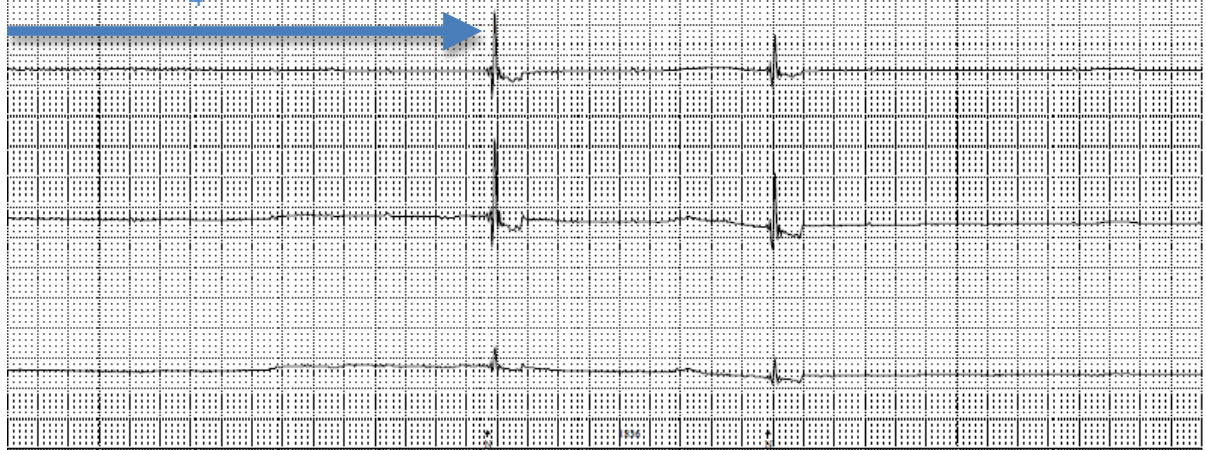
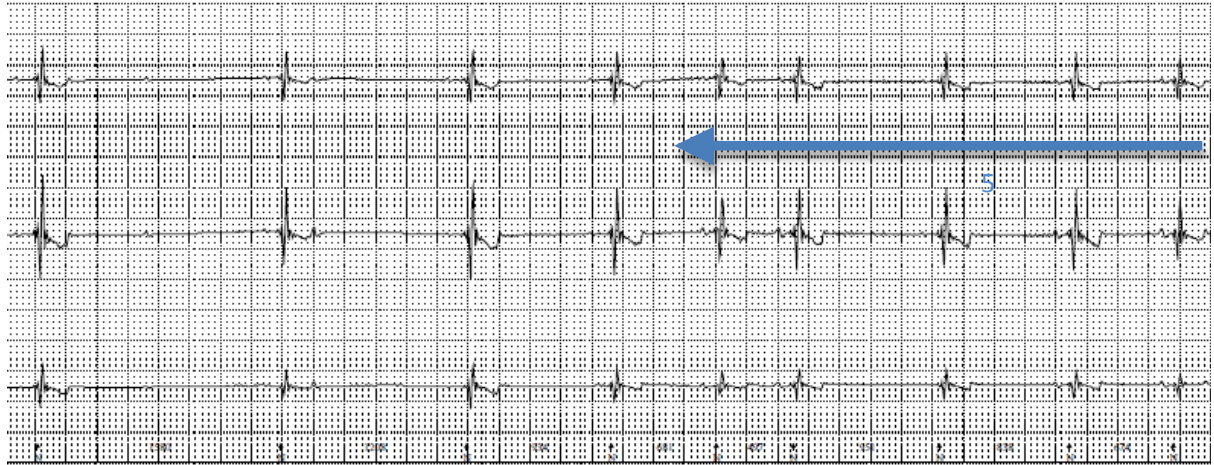
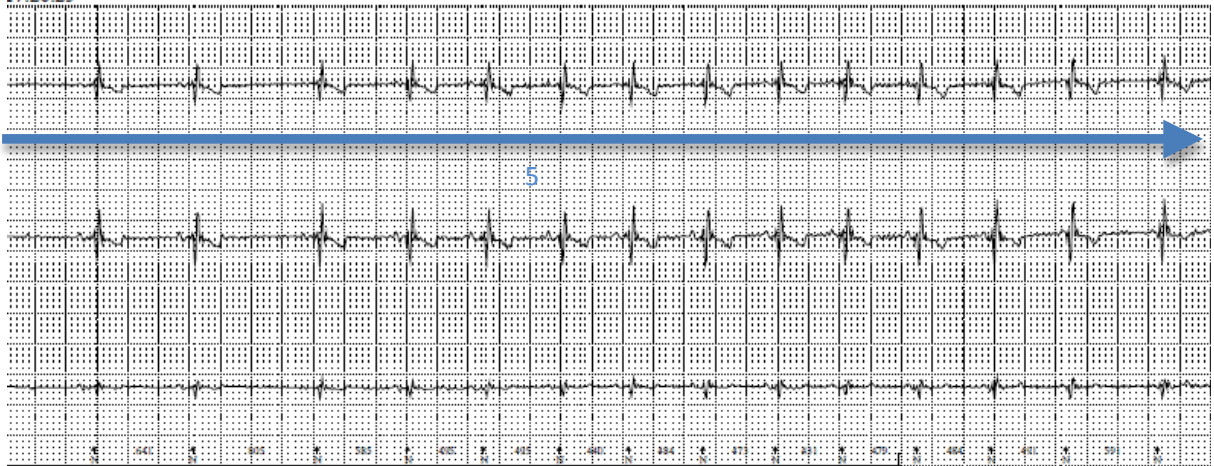


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17:26:17



17:26:25



Trace courtesy of Pedro Oliveira, Davies Vet Specialists