Heart Disease in Boxer Dogs

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There are a large number of cardiac related diseases in Boxers, thus they are a breed that is commonly seen by cardiologists. Below is a list of the disease seen at Martin Referrals in the last 10 years, these conditions will be briefly reviewed with more emphasis on the important (more common) conditions.

Heart muscle diseases
Boxer Cardiomyopathy  
- Classic Dilated Cardiomyopathy (DCM)  
- Arrhythmogenic right ventricular cardiomyopathy (ARVC)

Congenital heart disease
Subaortic stenosis (SAS)  
Pulmonic stenosis  
Tricuspid dysplasia  
Ventricular septal defect (VSD)

Primary arrhythmias
Macro-reentrant supraventricular tachycardia (SVT)  
Atrial flutter  
Complete heart block  
Sinus arrest (sick sinus syndrome)  
- Vasovagal collapse

Pericardial disease and cardiac tumour
Heart base tumour with pericardial effusion  
- Chemodectoma

Thus Boxers may present with a range of symptoms such as:
- A murmur detect at routine examination  
- An incidental arrhythmia  
- Collapse or ataxic episodes  
- Respiratory symptoms such as breathlessness and/or coughing

Diagnostics test typically involve:
- ECG and/or Holter monitoring  
- Echocardiography  
- Chest radiography  
- Comprehensive blood profile
The collapsing Boxer dog

Boxer dogs seem to present with collapse more than other breeds of dogs. Many appear to collapse occasionally in their life, although more commonly when younger - often referred to as ‘Boxer faint’. This might be a consequence of a vasovagal reflex following excitement or on rising from a sleep. However since dilated cardiomyopathy is not uncommon in Boxer’s and it often present initially with frequent arrhythmias and collapse, this is an important differential to screen for.

Differential diagnosis:
1. Sinus arrest (possible vasovagal mechanism). Usually a very brief ‘faint’ lasting seconds with full and quick recovery. Gums go pale and there is a bradycardia prior to or during the collapse; a tachycardia may occur on recovery. Occurs more common in the younger dogs.
2. Ventricular tachycardia (eg. idiopathic dilated cardiomyopathy, arrhythmogenic right ventricular cardiomyopathy, cardiac neoplasia, L-carnitine deficient cardiomyopathy). The collapse is usually ‘faint-like’ as well.
3. Output failure due to a stenotic lesions (eg. subaortic or pulmonic stenosis, cardiomyopathy, pericardial disease). This more typical presents with weakness or exhaustion on exercise, with a gradual recovery after a period of rest. Gums usually go pale.
5. Metabolic/systemic causes (eg. hypoglycaemia, hepatic encephalopathy, Addison’s).
6. Collapse following sedation is not uncommon in Boxers, which seem particularly sensitive to sedatives with vagomimetic effects. For suggestions on sedation see Information Sheet 1.

Whilst many Boxers do have a quiet murmur due to subaortic stenosis, it might not be significant - Doppler echocardiography could determine this. Finally and frustratingly a diagnosis cannot always be reached due to the intermittent nature of the collapse.

Further investigations required to reach a diagnosis:
1. Ideally an ECG at the time of collapse is required to check if a dysrhythmia is the cause of the collapse. Since this is almost impossible with infrequent collapse it might be more practical to teach the owner how to examine the colour of the gums (they usually go pale with cardiac syncope) and feel the heart rate during future collapses (for an extreme bradycardia or tachycardia). It is, of course, important to have the owners’ practice daily to be familiar with what is normal.
2. If the dog is collapsing very frequently, ie. at least once a day, then a Holter monitor could be used to record the heart rhythm during a collapse, which we have available for use on referred cases.
3. A comprehensive blood profile is indicated: haematology and biochemistry (eg. TP, Alb & globulin, urea & creatinine, liver enzymes & bile acids, cholesterol, glucose, Na, K & Cl, P04 & Ca). Note: the blood should be taken from a fasted animal (12 to 18 hours), and the serum separated for accurate assessment of electrolytes prior to posting. Post-prandial bile acids (2 hours) is useful to check liver function.
4. Survey thoracic radiographs and echocardiography may be of help to rule in/out an organic heart disease (eg. occult dilated cardiomyopathy, esp. in adult dogs) or a thoracic abnormality.
5. Screening for hypothyroidism and/or Addison’s disease may be important in some cases.
6. In some cases, if the owner can video-record the event with a camcorder or digital camera, this can provide valuable information.
7. If a muscular disorder is possible, then muscle enzymes (AST & CK) pre- and 24 hours post-exercise might be of value.
8. Measurement of serum titres for Neospora and Toxoplasma may be of value in some cases.
9. If a muscular disorder is suspected then referral to a Diplomate/Specialist in Veterinary Neurology for EMG and muscle biopsy would be advisable.