



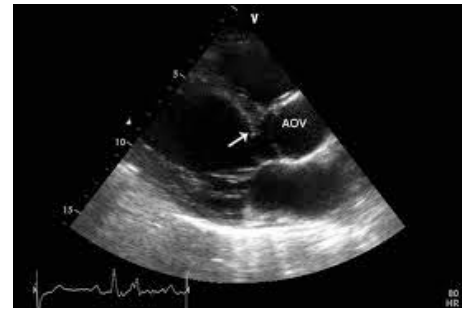
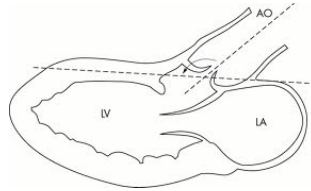
Subaortic Stenosis (SAS)



Background

1) **Breed predispositions:** Rottweiler, Boxer, Golden Retriever, Newfoundlands, German Shepherd Dog, English Bulldogs, Great Dane, German Shorthaired Pointer, Bouvier des Flandres, Samoyed

2) **Definition:** A heritable, congenital heart disease resulting in a narrowing below the level of aortic valve created by a fibrous or fibromuscular ridge which may be subtle or a complete ring. It is believed to be an autosomal dominant trait with modifying genes.



3) **Pathophysiology:** The aorta brings oxygenated blood from the left ventricle out to the body. If SAS is present, the blood flowing out the aorta meets increased resistance. To compensate, the left ventricle becomes a bigger, stronger, thicker muscle. The more severe the SAS, the bigger the heart muscle. The 2 concerning outcomes are: 1) left sided congestive heart failure and 2) fatal arrhythmias.

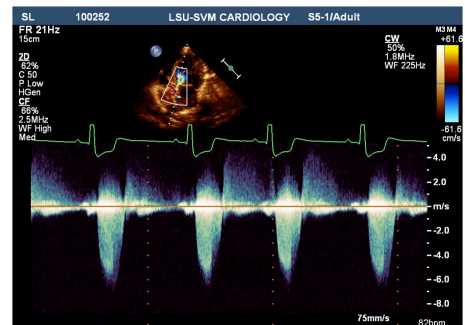
4) **Grading:** SAS is graded based on the severity of the obstruction, which is assessed with spectral Doppler analysis on an echocardiogram.

Mild: >2 , but < 4 m/sec

Moderate: > 4 , but < 5 m/sec

Severe: > 5 m/sec

5) **Prognosis:** It has been reported that $> 50\%$ of severely affected dogs die suddenly before the age of 3 years and dogs with mild SAS may never have clinical signs.



Diagnosis

- 1) With moderate to severe SAS, a heart murmur can be heard on the left, and often radiating to the right side of the chest. **BUT, keep in mind that dogs with mild SAS may not have a heart murmur. No murmur does not rule out SAS.**
- 2) Radiographs of the chest with moderate to severe SAS may have signs of left heart enlargement
- 3) 6 Lead ECG may show tall R waves consistent with a thick left ventricle
- 4) **Echocardiography is the gold standard and will diagnose mild, moderate and severe SAS based on 2D, color flow and spectral Doppler analysis with standard left and right sided views.**