

Asymptomatic Canine Degenerative Valve Disease: Current and Future Therapies



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KEYWORDS

• Chronic • Mitral valve • Myxomatous • Preclinical • Stage B2 • Treatment

KEY POINTS

- Asymptomatic mature dogs with systolic heart murmurs characteristic of mitral regurgitation should undergo diagnostics to determine the presence or absence of heart enlargement and to document that the dog is normotensive.
- Treatment is not recommended in dogs with stage B1 degenerative valve disease (asymptomatic with normal heart size); this recommendation remains unchanged by new evidence.
- Treatment with pimobendan has been shown to extend symptom-free and overall survival of dogs with stage B2 degenerative valve disease (asymptomatic with heart enlargement).
- Scheduled follow-up and client communication regarding monitoring for the development of clinical signs associated with disease progression remains a cornerstone of management in all stages of degenerative valve disease.
- Left mainstem bronchial compression and pulmonary hypertension represent common sequelae of degenerative valve disease that can lead to the development of clinical signs requiring therapy before the onset of congestive heart failure.

INTRODUCTION

Degenerative valve disease (DVD) is the leading cause of heart disease and heart failure in the dog and has many recognized aliases, including myxomatous mitral valve disease, chronic degenerative valvular disease, endocardiosis of the atrioventricular

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valves, and mitral valve disease.^{1,2} Older small-breed dogs are predisposed, but large breeds also are at risk as they age.¹ Although dogs of any breed can develop DVD, some breeds, such as the Cavalier King Charles spaniel (CKCS) are known to suffer from a higher incidence overall and may be affected at younger ages, although their typical course of progression is not different from other small-breed dogs.^{3,4} Affected large-breed dogs may experience more rapid progression.⁵ The etiology of DVD remains unknown, but there is likely a genetic component in some breeds, such as the CKCS.^{2,3}

The underlying pathophysiology of DVD is characterized primarily by myxomatous degeneration of the mitral valve and associated chordae tendinae with concurrent involvement of the tricuspid valve in approximately 30% of cases.¹ The degenerating mitral \pm tricuspid valves become incompetent, leading to increasing volumes of regurgitation, commensurate volume overload, and associated atrial and ventricular chamber enlargement. Degeneration of the mitral valve is typically most severe, leading to progressive left atrial and left ventricular enlargement.

Degenerative valve disease is typically identified during the long asymptomatic or preclinical stage and progresses slowly over years; however, individual dogs may experience more rapid progression. Initial detection of DVD is typically related to the identification of a left apical systolic murmur characteristic of mitral regurgitation (MR) in a dog with no past or present clinical signs attributable to congestive heart failure (CHF). A staging scheme for DVD was introduced in the 2009 American College of Veterinary Internal Medicine (ACVIM) Consensus Statement⁶ and has been widely adopted (**Table 1**). An updated revision of the 2009 ACVIM Consensus statement

Table 1	
Degenerative valve disease staging scheme	
A	<ul style="list-style-type: none"> • Dogs, who, based on signalment (age, breed/weight), have an increased risk of developing DVD.
B	<ul style="list-style-type: none"> • Dogs with stage B have never suffered from any signs or symptoms attributable to CHF due to DVD. • This is the asymptomatic or preclinical stage of DVD. • All dogs with stage B DVD have a characteristic MR murmur without (B1) or with (B2) cardiac chamber enlargement.
C	<ul style="list-style-type: none"> • Stage C stands for CHF. • Dogs with past or current signs or symptoms of CHF in the presence of a characteristic MR murmur and obvious cardiac chamber enlargement. • Dogs with stage C can be “stable” on CHF therapies or suffer from “active” signs or symptoms of CHF.
D	<ul style="list-style-type: none"> • This is the end or refractory stage of CHF due to DVD. • Dogs in this stage typically progress from stage C (ie, do not jump from stage B to D). • Stage D dogs continue to suffer from persistent or intermittent clinical signs or symptoms that limit their quality of life despite appropriate therapies.

Abbreviations: CHF, congestive heart failure; DVD, degenerative valve disease; MR, mitral regurgitation.

Adapted from the ACVIM Consensus Statement: Atkins C, Bonagura J, Ettinger S, et al. Guidelines for the diagnosis and treatment of canine chronic valvular heart disease. *J Vet Intern Med* 2009;23(6):1142–50.

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