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CASE REPORT

# Pulmonary edema secondary to a cardiac schwannoma in a dog<sup>☆</sup>



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## KEYWORDS

Congestive heart failure;  
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**Abstract** A 4-year-old castrated labrador retriever presented for cardiac evaluation to determine the etiology of cardiogenic pulmonary edema diagnosed 1 month prior. A large pedunculated mass involving the ventral aspect of the mural mitral valve leaflet and the endocardial surface of the left ventricular free wall, resulting in severe mitral regurgitation, was identified on echocardiogram. Histopathology and immunohistochemistry of this mass and other endocardial masses identified at necropsy for S-100 protein were consistent with a diagnosis of schwannoma. To the authors' knowledge, this is the first case of a benign intracardiac schwannoma described in the left heart of a dog.

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<sup>☆</sup> A unique aspect of the Journal of Veterinary Cardiology is the emphasis of additional web-based images permitting the detailing of procedures and diagnostics. These images can be viewed (by those readers with subscription access) by going to <http://www.sciencedirect.com/science/journal/17602734>. The issue to be viewed is clicked and the available PDF and image downloading is available via the Summary Plus link. The supplementary material for a given article appears at the end of the page. Downloading the videos may take several minutes. Readers will require at least Quicktime 7 (available free at <http://www.apple.com/quicktime/download/>) to enjoy the content. Another means to view the material is to go to <http://www.doi.org> and enter the doi number unique to this paper which is indicated at the end of the manuscript.

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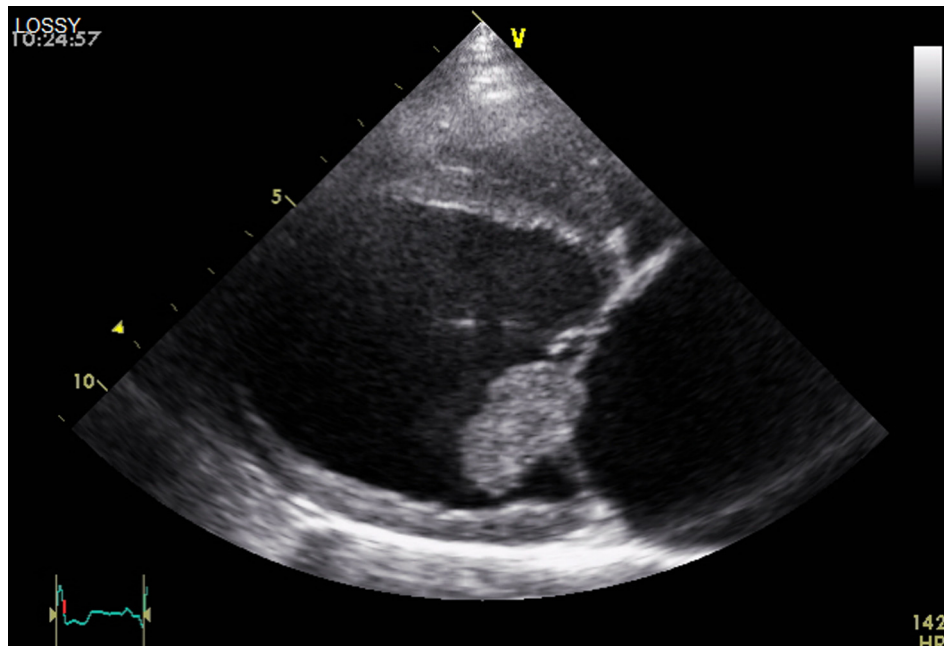
A 4-year-old, castrated, 35-kg Labrador retriever was referred to the University of Georgia's College of Veterinary Medicine for cardiac evaluation to determine the etiology of cardiogenic pulmonary edema diagnosed 1 month prior. The referring veterinarian had treated the patient with maintenance furosemide (1 mg/kg PO q12 h), and he was asymptomatic at the time of presentation. The dog had been adopted 1 year earlier, was current on vaccinations, and was receiving monthly heartworm preventative. He had a history of hypoadrenocorticism and was being managed with monthly desoxycorticosterone pivalate (2.2 mg/kg IM) and prednisone (0.25 mg/kg PO q12 h). There was no other significant medical history.

Salient features on physical examination were a heart rate of 120 bpm with a regular rhythm, a grade II/VI left apical systolic heart murmur, a respiratory rate of 48 rpm with eupnea, and normal synchronous pulses.

Two-dimensional echocardiographic evaluation revealed a pedunculated nodular mass involving the ventral aspect of the mural mitral valve leaflet and the endocardial surface of the left ventricular free wall (Fig. 1). No effusions or spontaneous echocardiographic contrast were noted. The left atrium appeared severely dilated (absolute left atrial diameter on right parasternal long axis = 54 mm;

left atrial to aortic diameter = 2.0). There was incomplete coaptation of the mitral valve apparatus secondary to the intracardiac mass. Subjectively, the left ventricular chamber size was increased and the interventricular septum and left ventricular free wall were mildly decreased in thickness. Left ventricular wall motion appeared normal. All other cardiac structures appeared subjectively normal. Color-flow Doppler evaluation revealed severe mitral regurgitation, trivial tricuspid regurgitation, trivial pulmonic regurgitation, trivial aortic regurgitation, laminar flow within the left ventricular outflow tract, and laminar flow within the right ventricular outflow tract. Other findings included a normal sinus rhythm throughout the echocardiogram, mildly increased preload (as assessed by peak velocity of early diastolic transmitral flow to peak velocity of late transmitral flow, peak velocity of early diastolic transmitral flow to peak velocity of early diastolic mitral annular motion, peak velocity of early transmitral flow to isovolumic relaxation time, and deceleration time of the early diastolic transmitral flow velocity) and a systolic blood pressure of 100 mmHg.

Differential diagnosis for the intracardiac mass included neoplasia, thrombus and infective endocarditis. Given the appearance of the mass, history of normal complete blood counts, and absence of



**Figure 1** Transthoracic echocardiogram recorded from the right parasternal long axis view. A pedunculated nodular mass involving the ventral aspect of the mural mitral valve leaflet and the endocardial surface of the left ventricular free wall is present. Due to severe mitral regurgitation (not evident on image), severe left atrial and ventricular dilation is present.

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