Journal of Veterinary Cardiology (2018) ■, ■–■

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Journal of Veterinary Cardiology
ESVC

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Case Report

Transient myocardial thickening in a *Bartonella henselae*—positive cat☆

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Received 6 September 2017; received in revised form 30 March 2018; accepted 3 April 2018

KEYWORDS
Hypertrophic cardiomyopathy;
Inflammatory cardiomyopathy;
Cardiac troponin;
Myocarditis;
Transient myocardial thickening

Abstract A 3-year-old castrated male domestic shorthair presented to the Cornell University Hospital for Animals for acute onset respiratory distress. Thoracic radiographs, echocardiogram, and electrocardiogram (ECG) revealed left-sided congestive heart failure, myocardial thickening with left atrial dilation, and sinus rhythm conducted with a left bundle branch block, respectively. Cardiac troponin I was elevated and continued to increase over 36 h (1.9 ng/mL, 3.1 ng/mL, and 3.5 ng/mL, sequentially every 12 h). The cat tested positive for *Bartonella henselae* and was treated with azithromycin (30 mg/kg by mouth (PO) every 24 h for 30 days), along with furosemide (1 mg/kg PO every 24 h), benazepril (0.4 mg/kg PO every 24 h), pimobendan (0.23 mg/kg PO every 12 h), and clopidogrel (18.75 mg PO every 24 h). Reevaluation at 6 weeks revealed normal respiratory rate on physical examination, normal cardiac structures and function on echocardiogram, resolution of

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https://doi.org/10.1016/j.jvc.2018.04.003

Please cite this article in press as: Joseph JL, et al., Transient myocardial thickening in a *Bartonella henselae*—positive cat, Journal of Veterinary Cardiology (2018), https://doi.org/10.1016/j.jvc.2018.04.003

left bundle branch block on ECG, and normal cardiac troponin I levels (0.06 ng/mL). All medications were discontinued at this time, and the cat continued to do well 5 months after reevaluation. Here, we report a case of transient myocardial thickening in a cat that was also positive for *B. henselae*.

Abbreviations

cTnI	Cardiac troponin I ng/mL
FS	Fractional shortening %
NT-proBNP	N-terminal pro b-type natriuretic peptide
PCR	Polymerase chain reaction

A 3-year-old castrated male domestic shorthair cat presented to the Cornell University Hospital for Animals Emergency Service for acute onset respiratory distress. The cat had no previous history of illness and lived in a house with a transient population of fostered stray cats. The referring veterinarian performed thoracic radiographs that revealed a normal cardiac silhouette; a diffuse, severe interstitial pattern; dilated pulmonary vessels; and pleural fissure lines (Fig. 1). Complete blood count (within normal limits), SNAP® N-terminal pro b-type natriuretic peptide[d] (positive), and feline immunodeficiency virus /feline leukemia virus (FeLV) SNAP® test[d] (negative) were also performed. The cat was administered an unknown dose of furosemide before referral to the Cornell University Hospital for Animals. On presentation, a grade 4/6 systolic murmur was auscultated, loudest at the left cranial sternum. Lung sounds were harsh, with no crackles or wheezes. The patient exhibited mild inspiratory effort with a respiratory rate of 36 bpm. An intravenous (IV) catheter was placed, and the patient was administered 1 mg/kg furosemide IV. The patient was placed in an oxygen chamber and administered a total of 3 mg/kg furosemide IV over the first 12 h. Additionally, 0.25 mg/kg pimobendan and 18.75 mg clopidogrel were administered PO by the emergency service. The following morning, an echocardiogram and ECG were performed. Echocardiogram revealed moderate-to-severe asymmetric myocardial thickening at the basilar septum and free wall (interventricular septum thickness at end-diastole 5.3 mm [5 mm ± 0.7] [1], interventricular septum thickness at end-systole 10.1 mm [7.6 mm ± 1.2] [1], left ventricular posterior wall thickness at end-diastole 6.6 mm [4.6 mm ± 0.5] [1], left ventricular posterior wall at end-systole 18.2 mm [7.8 mm ± 1] [1], basilar septum [diastole] 9.1 mm), with a diffusely mottled hypoechoic echotexture and moderate left atrial dilation (ratio of the left atrial dimension to the aortic annulus dimension 1.8 [1.29 mm ± 0.23] [1]). Furthermore, the left ventricle was dilated (left ventricular internal diameter at end-diastole 18.2 mm [15.1 mm ± 2.1] [1], left ventricular internal diameter at end-systole 11.9 mm [6.9 mm ± 2.2] [1]), and although systolic function did measure within normal limits (fractional shortening [FS] 46.2% [55% ± 10] [1]), the mismatch between left ventricle (LV) size and FS was suggestive of 'relative' systolic dysfunction (Fig. 2A–C, Supplemental Video I) (videos available in Supplemental Material online). This finding is not typical of idiopathic hypertrophic cardiomyopathy (HCM). Mild pleural effusion and mild mitral regurgitation were also present. Thoracocentesis was not performed as the patient's respiratory rate normalized with furosemide therapy. Electrocardiogram revealed sinus rhythm conducted with a left bundle branch block (QRS 50 ms, normal mean electrical axis; Fig. 3A). Blood was drawn for a complete blood count, serum chemistry, toxoplasmosis titers,[e] Bartonella polymerase chain reaction (PCR),[f] and cardiac troponin I (cTnI).[g] Pertinent complete blood count abnormalities were hematocrit 51% (31–48%), WBC 20 thou/uL (5.2–16.2 thou/uL), segmented neutrophils 15.6 thou/uL (2.3–11.6 thou/uL), and total protein 10.1 g/dL (5.9–7.5 g/dL). Pertinent serum chemistry abnormalities were blood urea nitrogen (BUN) 47 mg/dL (16–36 mg/dL), phosphorous 7.2 mg/dL (2.7–6.2 mg/dL), total protein 9.1 g/dL (6.3–8.3 g/dL), and globulin 5.0 g/dL (2.7–4.9 g/dL). Toxoplasmosis titers were

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