

**BIOMEDICAL & VETERINARY SCIENCES
GRADUATE PROGRAM**



ANNOUNCES

The Master of Science Seminar and Examination of

Giulio Menciotti

“Accuracy of noninvasively determined pulmonary artery pressure in dogs with myxomatous mitral valve disease”

Friday, July 17th, 2020

7:30AM

Zoom: <https://virginiatech.zoom.us/j/99437047535>

Classroom 100

Bio



Giulio Menciotti graduated with his DVM degree from Padua University (Italy) in 2012, defending a thesis on echocardiography (cardiac ultrasound) in dogs affected by mitral valve disease, which is the most common cardiac disease in dogs. Shortly after completion of his DVM degree, he started a PhD in Biomedical and Veterinary Sciences at the VA-MD College of Veterinary Medicine (VMCVM) and graduated in 2017. Immediately after, he started a residency program (American College of Veterinary Internal Medicine - Cardiology) and a Master's Degree at the Veterinary Teaching Hospital of the VMCVM. His main research fields involve canine mitral valve disease with a special focus on valvular morphologic analysis using cutting-edge non-invasive diagnostic imaging through three-dimensional echocardiography and the role of molecular signaling pathways in the disease. He is author of several original manuscripts published on international peer-reviewed journals as well as many research abstracts presented at international conferences. Among his accomplishments, in 2016 he won the European Society of Veterinary Cardiology's second prize for the Young Investigator Research Communication at the European College of Veterinary Internal Medicine Congress. In 2017, his publication won the European Society of Veterinary Cardiology "Young Investigator Award–Original Study". In August 2020, Dr. Menciotti will join the VMCVM faculty starting a position as an Assistant Professor.

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VMCVM Office of Research and Graduate Studies

Lay Language Abstract

The most common heart disease of dogs is myxomatous mitral valve disease (MMVD). In many affected dogs, this disease can be complicated by the development of high pressure in the lung vessels, a condition called pulmonary hypertension (PH). On average, dogs with MMVD and PH have shorter survival compared to dogs affected solely by MMVD. The pulmonary pressure in dogs is usually estimated using cardiac ultrasound (echocardiography). This technique has the advantage of being “non-invasive” but it is not a direct measurement of pressure, therefore it may not be accurate. In order to evaluate the accuracy of echocardiography in measuring pulmonary pressure, in this study we compared direct measurements of pulmonary pressure obtained through cardiac catheterization to the measurements estimated using echocardiography, in dogs affected by MMVD. We performed this on 18 dogs affected by MMVD, with one person performing the direct measurements and another performing the echocardiographic ones; the two people were not aware of the measurements obtained with the other technique. We found that the echocardiographic estimated pressures can be very different from the real pressures measured with cardiac catheterization. Particularly, echocardiography resulted both in relevant over- and under-estimation of the real pressure, in an unpredictable way. This study therefore suggests that pulmonary pressures estimated by echocardiography should be interpreted cautiously in dogs affected by MMVD.

Publications

Menciotti G, Borgarelli M, Aherne M, et al. Comparison of the mitral valve morphologies of Cavalier King Charles Spaniels and dogs of other breeds using 3D transthoracic echocardiography. *J Vet Intern Med.* 2018;32:1564–9.

Menciotti, G.; Borgarelli, M. Review of Diagnostic and Therapeutic Approach to Canine Myxomatous Mitral Valve Disease. *Vet Sci* 2017;4:47.

Müller, S.; **Menciotti, G.**; Borgarelli, M. Anatomic regurgitant orifice area obtained using 3D-echocardiography as an indicator of severity of mitral regurgitation in dogs with myxomatous mitral valve disease. *J Vet Cardiol* 2017;19:433–40.

Menciotti G, Borgarelli M, Aherne M, Wesselowski S, Häggström J, Ljungvall I, Lahmers SM, Abbott JA. Mitral valve morphology assessed by three-dimensional transthoracic echocardiography in healthy dogs and dogs with myxomatous mitral valve disease. *J Vet Cardiol* 2017;19:113–23.

Borgarelli M, Lanz O, Pavlisko N, Abbott JA, **Menciotti G**, Aherne M, Lahmers SM, Lahmers KK, Gammie JS. Mitral valve repair in dogs using an ePTFE chordal implantation device: a pilot study. *J Vet Cardiol* 2017;19:256–67.

Menciotti G, Borgarelli M, Aherne M, Häggström J, Ljungvall I, Lahmers SM, Abbott JA. Assessment of mitral valve morphology using three-dimensional echocardiography. Feasibility and reference values. *J Vet Cardiol* 2016;18:156–67.

Baron Toaldo M, Poser H, **Menciotti G**, Battaia S, Contiero B, Cipone M, Diana A, Mazzotta E, Guglielmini C. Utility of Tissue Doppler Imaging in the Echocardiographic Evaluation of Left and Right Ventricular Function in Dogs with Myxomatous Mitral Valve Disease with or without Pulmonary Hypertension. *J Vet Intern Med* 2016;30:697–705.

Apple S, **Menciotti G**, Braz-Ruivo L, Crosara S, Häggström J, Borgarelli M. Effects of pimobendan on myocardial perfusion and pulmonary transit time

in dogs with myxomatous mitral valve disease: a pilot study. *Aust Vet J* 2016;94:324–8.

Mazzotta E, Guglielmini C, **Menciotti G**, Contiero B, Baron Toaldo M, Berlanda M, Poser H. Red Blood Cell Distribution Width, Hematology, and Serum Biochemistry in Dogs with Echocardiographically Estimated Precapillary and Postcapillary Pulmonary Arterial Hypertension. *J Vet Intern Med* 2016:1–10.

Wesselowski S, Borgarelli M, **Menciotti G**, Abbott J. Echocardiographic anatomy of the mitral valve in healthy dogs and dogs with myxomatous mitral valve disease. *J Vet Cardiol* 2015;17:97–106.

Guglielmini C, Baron Toaldo M, Poser H, **Menciotti G**, Cipone M, Cordella A, Contiero B, Diana A. Diagnostic accuracy of the vertebral heart score and other radiographic indices in the detection of cardiac enlargement in cats with different cardiac disorders. *J Feline Med Surg* 2014;16:812–25.

Presentations

G. Menciotti, M. Borgarelli, M. Aherne, J.A. Abbott. Accuracy of noninvasively determined pulmonary artery pressure in dogs with myxomatous mitral valve disease (MMVD) – 29th ECVIM-CA Congress, Milan, Italy

Signaling pathway in the pathogenesis of mitral valve disease: Mechanism and possible clinical implications – International symposium “Canine mitral valve disease: an update and future perspectives” – Verona (IT) November 9th–10th 2018 (invited speaker)

Three-dimensional echocardiography assessment of mitral valve disease in dogs – International symposium “Canine mitral valve disease: an update and future perspectives” – Verona (IT) November 9th–10th 2018 (invited speaker)

Possible role of mitral valve morphology for screening program – International symposium “Canine mitral valve disease: an update and future perspectives” – Verona (IT) November 9th–10th 2018 (invited speaker)

G. Menciotti, J. Häggström, I. Ljungvall, M. Aherne, S. Wesselowski, J. A. Abbott, M. Borgarelli. Three-dimensional echocardiographic comparison of mitral valve morphology in Cavalier King Charles spaniels to mitral valve morphology in dogs of other breeds. 26th ECVIM-CA Congress, Göteborg, Sweden

G. Menciotti, M. Borgarelli, S. Müller, J. Abbott. Anatomic regurgitant orifice area using 3D-echocardiography in dogs with myxomatous mitral valve disease (MMVD). In: 2016 ACVIM Forum Research Abstract Program. J Vet Intern Med 2016;30:1407–519.

G. Menciotti, S.M. Apple, L. Braz-Ruivo, S. Crosara, J. Häggström. Effects of pimobendan on myocardial perfusion and pulmonary transit time in dogs with myxomatous mitral valve disease: a pilot study. In: Research Communications of the 25th ECVIM-CA Congress. J Vet Intern Med 2016;30:348–439.

G. Menciotti, M. Borgarelli, S.M. Lahmers, M. Aherne, J. Häggström, J.A. Abbott. Three-dimensional echocardiographic assessment of normal canine mitral valve. In: 2015 ACVIM Forum Research Abstract Program. J Vet Intern Med 2015;29:1152.

G. Menciotti, M. Borgarelli, S. Wesselowski, J.A. Abbott. Quantitative Evaluation of Canine Mitral Valve in Dogs using Three-Dimensional Echocardiography. In: Research Communications of the 24th ECVIM-CA Congress. J Vet Intern Med 2015;29:436.

M. Baron Toaldo, H. Poser, S. Battaia, G. Menciotti, B. Contiero, M. Cipone, E. Mazzotta, C. Guglielmini. Echocardiographic Evaluation of Left and Right Ventricular Diastolic Dysfunction in Dogs with Mitral Valve Disease With or Without Pulmonary Hypertension. In: Oral Research Communications of the 22nd ECVIM-CA Congress. J Vet Intern Med 2012;26:1516.

Awards and Academic Achievements

2017 Young Investigator Award-Original Study – Journal of Veterinary Cardiology

28th Annual Research Symposium (2017) VA-MD College of Veterinary Medicine – Outstanding PhD Presentation

12th annual Via Research Recognition Day (2016) – 1st Place Clinical Research Poster, Students

26th ECVIM-CA Congress (2016) – European Society of Veterinary Cardiology – Second Prize in the Young Investigator Research Communication

11th annual Via Research Recognition Day (2016) – 2nd Place Clinical Research Poster, Students

10th annual Via Research Recognition Day (2015) – 1st Place Clinical Research Poster, Students

Examination Graduate Committee

Major Advisor/Chair:

Michele Borgarelli, DVM, PhD, Diplomate ECVIM-CA (Cardiology)
Professor
Department of Small Animal Clinical Sciences

Graduate Advising Committee Members:

Sunshine M Lahmers, DVM, PhD, Diplomate ACVIM (Cardiology)
Clinical Associate Professor
Department of Small Animal Clinical Sciences

Jonathan A Abbott, DVM, Diplomate ACVIM (Cardiology)
Associate Professor
Small Animal Clinical Sciences - University of Tennessee



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