RESEARCH PROGRESS REPORT SUMMARY

Grant 02690-A: Diagnostic Utility of Thoracoscopy for Localization of Pulmonary Bullae in Dogs with Spontaneous Pneumothorax

Principal Investigator: Valery Scharf, DVM, MS

Research Institution: North Carolina State University

Grant Amount: $13,829

Start Date: 1/1/2020 **End Date:** 12/31/2022

Progress Report: Mid-Year 2

Report Due: 6/30/2021 **Report Received:** 6/30/2021

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Original Project Description:

Primary spontaneous pneumothorax is defined as the presence of air in the space around the lungs without an obvious precipitating factor. This disease presents as a life-threatening emergency causing shortness of breath, exercise intolerance, and possible collapse or sudden death. The diagnosis of these lesions that cause spontaneous pneumothorax in dogs (known as pulmonary bullae) remains challenging. The accuracy of advanced imaging such as computed tomography (CT) for identifying bulla in dogs with spontaneous pneumothorax is limited. Currently, thorough exploration of the chest through an open surgical approach is the diagnostic standard for primary spontaneous pneumothorax. This strategy, however, requires an invasive surgical approach and weeks of post-operative recovery. In contrast, video-assisted scoping (thoracoscopy) of the chest, known as VATS, is preferred to open surgery for the treatment of spontaneous pneumothorax in human medicine. VATS is associated with fewer complications and reduced post-operative pain, making it a desirable alternative to the current standard in veterinary medicine, but its reliability in correctly identifying pulmonary bullae associated with spontaneous pneumothorax in dogs has not yet been proven. This study aims to prospectively evaluate the ability of thoracoscopy to identify and localize pulmonary bullae in dogs with primary spontaneous pneumothorax, thus facilitating minimally invasive treatment options for dogs with this disease.

Publications:

None at this time. Statistical analysis and manuscript composition have not yet been performed on this initial number of dogs enrolled.

Presentations:

None at this time. The current data is too preliminary to support presentation of materials related to this research at this time, although we are planning to submit an abstract comprised of the initial cases (and any additional cases enrolled in the next 6 months) for initial presentation at the 2022 ACVS Surgery Summit.

Report to Grant Sponsor from Investigator:

We have made reasonable progress during the past 6 months of our clinical study, enrolling 1 additional dog (approximately 50% of the intended number of dogs in total). Although the results continue to be promising and indicate that thoracoscopy using a variable endoscope is able to identify most if not all bullous lesions in dogs presenting with spontaneous pneumothorax, the economic and logistical constraints imposed by COVID-19 likely reduced the number of dogs able to be enrolled over the previous 12 months. Our hospital caseload is currently returning to normal, and we are optimistic that this will assist us in recruiting larger numbers of dogs in the coming year. Although the rate of progress over the previous year puts us behind schedule to complete data collection approximately 2 years after study initiation, we believe that we will be able to perform the data analysis and manuscript composition in a compressed timeframe, thus keeping us on schedule. Although we intend to enroll 15 dogs, we will begin preliminary analysis once 10 dogs are enrolled to determine whether significant findings may be obtained with fewer than 15 dogs (we have currently enrolled 7 dogs). If so, we will plan to begin presenting our preliminary findings in abstract form at that time.