

Cutting Balloon and High Pressure Balloon Valvuloplasty for Dogs with Subaortic Stenosis

This study is designed to evaluate use of cutting balloon catheters and high pressure balloon catheters in dogs with severe subaortic stenosis in hopes of providing a new treatment option for dogs affected with this congenital heart disease.

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Treatment for subaortic stenosis in canine clinical patients is frustrating and there exists a great need from both the veterinary community and the dog owner/breeder population for better treatment options. Balloon dilation is a type of interventional procedure used very commonly, and effectively, in veterinary medicine for dogs with stenosis of the pulmonary valve. Balloon dilation in dogs with subaortic stenosis however, has not proven effective or beneficial. New balloon dilation catheters have been developed for use in the management of resistant coronary artery, peripheral pulmonary artery, and aortic stenosis lesions in humans. The cutting balloon has been modified to have very small blades, approximately 2mm, which are used to score or cut the stenotic, or narrowed, tissue when the balloon is maximally inflated. This technique has proven successful in children and young adults with lesions previously resistant to balloon dilation. The high pressure balloons have been modified with strong materials, such as kevlar, to sustain an increased burst pressure for resistant lesions. This study will examine these new techniques and procedures in dogs with severe subaortic stenosis, in hopes of providing a new treatment option for this currently untreated disease in dogs.

Study Design:

Prospective case series

Inclusion Criteria:

- Echocardiographic evidence of severe subaortic stenosis, (peak trans-stenotic pressure gradient across the subaortic stenotic region >80mmHg in conjunction with a subjectively narrowed left ventricular outflow tract)

- Less than 2 years of age. Young patients are preferred as the nature or occurrence of irreversible pathologic changes causing sudden death with severe subaortic stenosis is unknown.
- No evidence of any other underlying systemic or metabolic disease.
- No evidence of other congenital heart defects (not including mild aortic insufficiency or mild mitral valvular regurgitation), myocardial failure, or severe arrhythmias.
- Patients need to be presented to the University of Florida for the procedure and follow-up.

Study Controls:

None

Costs/Reimbursements

Patients included in the trial receive at no charge: physical exam, echocardiogram, electrocardiogram, hospitalization, standard pre-anesthetic workup prior to high-pressure balloon valvuloplasty, and all expenses associated with recheck exams and echocardiograms at 1 month, 3 months, 6 months, and 1 year post-balloon valvuloplasty. Should patients be examined and inclusion criteria are not met, owners are responsible for physical exam, echocardiogram, and +/- electrocardiogram (\$400-500).

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