Animal Specialty Hospital of Florida

Exceptionally skilled. Uniquely compassionate.

Congenital Cardiac Disease:

Nick Schroeder, DVM DACVIM (cardiology)

Dogs and cats may occasionally be affected by heart disease that is the result of a congenital heart defect. This means there was an abnormality of the heart that arose during early development within the womb.

Diagnosis of congenital heart disease is made on the basis of the history, physical examination, as well as the results of diagnostic tests. These tests may include chest x-rays (thoracic radiographs), electrocardiography (EKG), and **echocardiography** (ultrasound of the heart). Rarely, cardiac catheterization or necropsy (animal autopsy) is required for a diagnosis.

The most commonly encountered congenital heart defects in dogs include patent ductus arteriosus, subaortic stenosis, pulmonic stenosis and ventricular septal defects, and valvular dysplasias. The most commonly encountered heart defects in cats include ventricular septal defects, atrioventricular canal defects and valvular dysplasia.

Patent ductus arteriosus (PDA) is one of the most common congenital defects in dogs. The defect arises in a failure of a vessel (ductus arteriosus) to close after birth. This results in a persistent communication between the aorta and the pulmonary artery and can lead to heart enlargement, congestive heart failure and premature death. Fortunately, surgical correction is an option. This is called a surgical ligation of the ductus arteriosus. This is an open-chest procedure (thoracotomy) that involves the placement of a suture around the abnormal vessel to close off the flow of blood. Patients that have a successful surgery may often lead normal or near-normal lives. Alternatives to surgical ligation include catheter-based procedures to occlude the PDA. These include placement of an Amplatzer canine ductal occluding device or coil embolization. Medical management for congestive heart failure may be necessary prior to surgery or in cases where surgery may not be an option.

Subaortic stenosis (SAS) is also one of the most common congenital defects in dogs. This defect results in a narrowing in the outflow tract from the left side of the heart. Severely affected patients can develop severe heart muscle thickening and have increased risk for sudden cardiac death. Mildly affected patients may have no problems and lead normal or near-normal lives. Balloon valvuloplasty or open-heart surgery for resection may be attempted, however neither procedure has been shown to reduce the risk of sudden cardiac death. Medical management for moderate to severely affected patients may help.

Pulmonic stenosis (PS) is a common congenital defect in dogs. This defect results from a narrowing of one of the valves on the right side of the heart. This can lead to severe heart muscle thickening, exercise intolerance and collapse. Some patients may benefit from a catheter-based procedure called balloon valvuloplasty. Some patients may have coexisting coronary vessel abnormalities that preclude balloon valvuloplasty. Patch-graft surgery may be attempted in such cases. Moderate to severely affected patients may benefit from medication.

Ventricular septal defect (VSD) is a congenital defect occasionally seen in dogs and cats. This condition is also termed a “hole-in-the-heart,” and severely affected patients may develop heart enlargement and even

heart failure. Open-heart surgery may be attempted in select cases. Medication may help certain individuals.

Valvular dysplasia (mitral valvular dysplasia or MVD, tricuspid valvular dysplasia or TVD) may occur in dogs or cats. Valvular dysplasia may lead to severe leakage of the affected valve and occasionally narrowing (stenosis) of the valve orifice. This can lead to secondary heart chamber enlargement and even heart failure. Open-heart surgery for valvular replacement may be attempted in select cases. Medication may be helpful depending on the severity of the condition.

Atrioventricular canal defects (atrioventricular septal defects or AVSD, endocardial “cushion” defect) may occasionally affect cats, and occur rarely in dogs. This is a complicated defect that allows all of the heart chambers to communicate. Affected patients may develop severe heart enlargement and heart failure requiring medications. Surgery for this defect has not been attempted in small animals.