Interventional Cardiology  

Introduction  
Interventional cardiology is an advanced field of cardiology that uses sophisticated procedures and imaging techniques to provide minimally invasive therapy for a variety of cardiovascular problems. The heart is connected to the blood vessels/vasculature of the body, pumping blood through these vessels. When needed, these vessels allow for direct access to the heart and vasculature. Larger vessels in the legs or neck are chosen as entry points for interventional cardiology procedures, with access aided by a puncture or small incision of the overlying skin. Long catheters are directed from the entry point in a vessel into the heart or vascular defect, allowing for therapeutic devices or energy to be delivered through the catheters directly to the defect or abnormal rhythm. Fluoroscopy, which uses standard X-rays to create video images, provides real-time visualization of catheter movements within the body. This enables therapy of the cardiovascular problem, while avoiding open chest and open-heart surgery. With a less invasive approach, patients recover more quickly with few, if any, notable adverse effects from the procedure. In some instances, interventional cardiology is the only viable option for a cardiovascular problem.

Which cardiac problems are addressed with interventional cardiology?  
Interventional cardiology can be used for a variety of cardiovascular problems, the same as those encountered in people. These procedures are used to close abnormal openings or open obstructions of the cardiovascular system. Abnormalities in heart rhythm (arrhythmias), whether the heart rate is too fast or too slow, can also be corrected. The more common procedures in veterinary medicine include patent ductus arteriosus (PDA) closure, balloon valvuloplasty, and pacemaker therapy. For PDA, an abnormal communication is closed from within via a metallic device that is delivered through a catheter. Balloon valvuloplasty is used to open obstructions, particularly of heart valves that may not have formed appropriately before birth. Pacemaker therapy involves placement of a pacemaker under the skin to help manage very slow heart rates or excessive pauses in heart rhythm. Some abnormally fast heart rhythms can be cured with radiofrequency catheter ablation, whereby a focal burst of energy is applied to abnormal heart tissue that was creating arrhythmias.

How will I know if my pet needs an interventional cardiac procedure?  
At MedVet, we work closely with your family veterinarian as part of your pet’s care team. Your veterinarian may detect an abnormality that is consistent with a structural heart defect or heart rhythm abnormality that may require an interventional procedure. Depending on the problem, these abnormal findings may be identified by your veterinarian’s physical examination, electrocardiogram (ECG or EKG), or chest X-rays (radiographs). Evaluation by a veterinary cardiologist would then be recommended for definitive diagnosis of structural defects via an ultrasound of the heart (echocardiogram). Additional heart rhythm testing may be needed for patients that require interventional therapy for arrhythmias. The test results would determine if an interventional procedure is appropriate, as well as providing prognostic information for your pet. Before deciding upon an interventional procedure, the cardiologist will discuss all options for therapy in detail.
A veterinary cardiologist specializes in the diagnosis and treatment of heart disease in animals. The cardiologists at MedVet are dedicated to providing the best possible care for animals with heart conditions. We work together as a team with primary care veterinarians to achieve this goal. A board certified cardiologist is a Diplomate of the American College of Veterinary Internal Medicine (Cardiology). To become a board certified cardiologist, our specialists have completed at least one year of a general internship after graduation from veterinary school followed by a three-year residency in cardiology under close supervision by board certified cardiologists. Final board certification requires successful completion of a rigorous board examination. The cardiologists at MedVet are committed to continually improving their knowledge and practice by pursuing continuing education even after passing their board examinations. They also provide continuing education to the veterinary community both locally and nationally.

Frequently Asked Questions

How should I prepare for my pet's interventional cardiology procedure?
Similar to standard surgeries and anesthesia, food should be withheld by midnight the night before a planned procedure. Medications that your pet is being given would typically be given as usual the morning of the procedure, but this should be verified with the cardiologist. In many cases, a morning drop-off time will be arranged, early enough for your pet to be evaluated by the cardiology and anesthesia departments prior to the procedure. Some cases require admission to the hospital the day before the procedure.

Will my pet feel any pain?
Interventional cardiac procedures are considered minimally invasive, with little or no incisions needed. Many procedures are performed through small punctures in the skin, whereas others may require only one or two small skin incisions. This approach is quite different from traditional surgery, minimizing the amount of pain after the procedure. The procedures themselves are performed with the aid of anesthesia administered by our anesthesia department, with no pain perceived during anesthesia. Post-operatively, we will monitor closely for any evidence of pain, and appropriate pain management will be provided in the hospital. In some instances, pain medication will be continued for a short time after the procedure.

How long will my pet need to stay in the hospital?
Following the procedure, your pet will be hospitalized overnight for monitoring. During hospitalization, another cardiac evaluation will be performed to assess the effects of the procedure. Your pet will likely be ready to return home by the next morning.

What should I expect in the short term after the procedure?
Your pet should feel normal within a day or two following the procedure. Similar to any surgery, exercise will typically be restricted for 2 weeks, though pacemaker therapy will require additional restriction time. No running, jumping, or playing is allowed during this time frame. Most dogs do best in a large kennel at home, though confinement to a small room may be sufficient so long as there is no temptation to run or jump. Trips outside should be brief and supervised on a leash. A short course of an antibiotic may be prescribed to prevent infection, though no diet changes are necessary. Skin sutures may be present and require removal at a clinic within 2 weeks.

Is long-term follow-up needed?
Yes. We carefully monitor our patients, even on a long-term basis. However, much of this is achieved by phone calls. As for actual hospital visits, the medium-term recheck should occur within a few months, and then a long-term recheck should be performed 1 year after the procedure. Further long-term follow-up will be determined at that point. All throughout, we will continue to keep your family veterinarian informed of any findings or developments.