

Patent Ductus Arteriosus

What is a patent ductus arteriosus?

A patent ductus arteriosus (PDA) is a common congenital heart defect in which a fetal vessel remains open causing significant blood flow abnormalities. Prior to birth, a vessel called the ductus arteriosus allows blood to bypass the lungs. This vessel normally closes shortly after birth; however, when the vessel fails to close, it is referred to as a patent ductus arteriosus.

If left untreated, dogs commonly develop clinical signs of lethargy, exercise intolerance, congestive heart failure, abnormal heart rhythms, and rarely sudden death. Approximately 60% of dogs will develop congestive heart failure within one year of life if the PDA is untreated.

What is an interventional PDA occlusion procedure?

A PDA occlusion procedure is a minimally invasive procedure performed to eliminate flow through the PDA. To perform the procedure, a small incision will be made on your dog's inner thigh and a specialized catheter will be passed from the femoral artery into the PDA. Once placed, the catheter will be used to place an occluding device into the PDA to prevent blood flow through the vessel. This procedure is a curative procedure for most dogs.

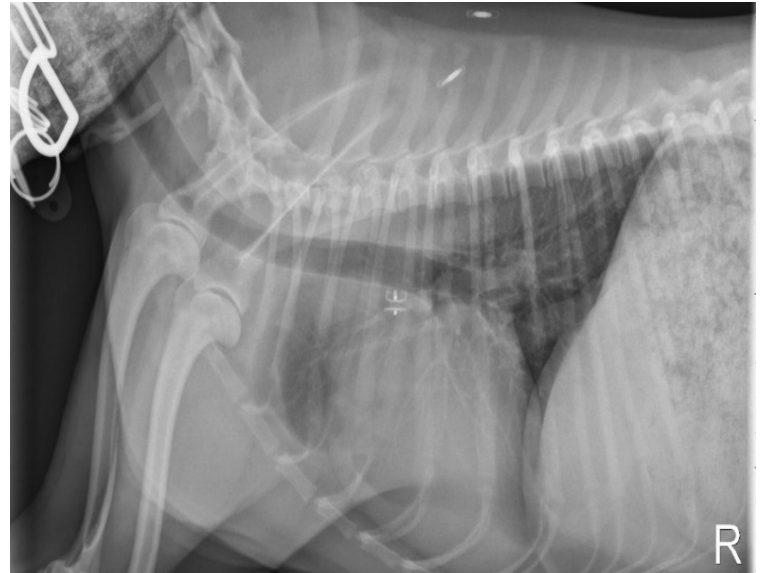
What are the benefits of the procedure?

The goal of a PDA occlusion is to provide your dog with an improved quality and quantity of life. While most dogs do not require long-term medications following a PDA occlusion, some dogs require daily medications for a short period of time after the procedure and some require medications for the rest of their lives.

What are the risks of the procedure?

While every precaution is taken to avoid complications and to address them readily if they do occur, it is important that you understand the potential for complications.

PDA occlusions are performed under general anesthesia, which carries risks including airway irritation, drug reactions, and rarely death. Another intraoperative complication which may be associated with the procedure is bleeding



An occluding implant is placed into the patent ductus arteriosus to prevent blood flow through the vessel.

(hemorrhage). The bleeding may be mild requiring no treatment, moderate requiring a blood transfusion, or severe which may result in death. Rarely arrhythmias may occur intraoperatively. Typically, arrhythmias can be corrected with medications. However, severe arrhythmias, or those that do not respond to medications, may result in death. Occasionally migration of the implant device occurs and consequences can range from no signs to mild, moderate, or severe respiratory distress. Finally, if the vessels are too small to accommodate the catheter equipment or if the conformation of the PDA vessel cannot accommodate the occluding device, the interventional procedure may need to be aborted.



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Complications which may be associated with the postoperative recovery period include incisional complications such as infection, dehiscence (opening of the incision), and seroma (fluid pocket) formation. More minor incisional complications including mild discomfort or bruising may also be observed.

Infection is one of the most serious postoperative complications encountered. Infections throughout the body have the potential to travel to the occluding implant and into the heart. Implant infections are serious, potentially fatal complications that require immediate attention. Rare complications include thromboembolic complications in which blood clots form abnormally and travel to the lungs resulting in mild to severe breathing difficulties.

What are the alternatives to this procedure?

Alternative treatment options include surgical ligation of the PDA or medical management. Surgical ligation entails a surgery to open the chest cavity and ligate, or tie a suture around the PDA vessel, to prevent blood flow through the vessel. Interventional or surgical closures of PDAs are curative procedures and generally have excellent prognoses. A less desirable alternative is medical management with daily oral medications. While this can slow the onset of clinical signs, most dogs will eventually develop clinical signs over time. As these signs develop, additional medications may be required. However, even with medical treatment many dogs' quality and quantity of life are often significantly affected.

Will I be updated during my dog's hospital stay?

You will receive twice daily calls from the student working with your dog. Additionally, you will receive a call from the doctor following the procedure when your dog is recovering. It is important that your dog rest following the procedure; therefore, we prefer that you do not visit on the day of the procedure. Most dogs will go home from the hospital the day after their procedure.

How do I care for my dog after the procedure?

Your dog will have a small incision on the inner thigh which will require twice daily evaluation for signs of infection. Your dog should be rested for 1-2 weeks following the procedure to reduce the risk of incisional complications.

Long term management of the occluding implant requires careful monitoring for infection. Infection anywhere in the body (such as bladder, mouth, or skin infections) must be treated promptly and aggressively. Additionally, antibiotics should also be given prior to any elective surgical and dental procedures to decrease the risk of infection.

When will my dog need to be re-evaluated?

If external sutures are placed, they will be removed in two weeks. Suture removal may be performed with your pet's primary care veterinarian. Your pet's cardiac ultrasound should be reevaluated in 3 months with ISU Cardiology. Long term reevaluation may be every 12 months depending upon severity of heart changes. Individual recommendations for reevaluation will be provided when your dog is discharged from the hospital.

Further information

We would be more than happy to discuss any additional questions or concerns regarding this procedure or specific questions regarding your dog. If you have any questions or concerns about the procedure, the after care, or your dog's candidacy you may contact the ISU Cardiology Service at 515-294-4900.

