



Constrictor on shunt.



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the time of diagnosis, have more normal bloodwork, and have less severe clinical signs. Surgery provides the best chance for a long healthy life in most dogs.

How is a shunt corrected surgically?

Because shunts inside the liver are more difficult to find and close off, surgery of dogs with intrahepatic shunts is best performed by a board-certified surgeon (ACVS Diplomate). Surgery for congenital extrahepatic liver shunts is slightly easier, particularly if the veterinarian has a lot of experience, and is performed at most veterinary surgery referral centers. The surgeon must find the abnormal blood vessel and close it off to force blood to flow back through the liver. Unfortunately, the blood vessels inside the livers of some dogs are so poorly developed that they will not open quickly. Therefore, most surgeons will use a device that slowly closes the shunt, such as an ameroid constrictor. Other options include placement of a suture or cellophane band around the shunt or coils inside of the shunt. Placement of coils can be performed through a catheter in the neck ("jugular") vein; however, because they tend to cause rapid obstruction of the shunt in animals, their use is still being researched.

How does an ameroid constrictor work?

An ameroid constrictor is a metal band with an inner ring of casein, a protein found in milk. In the belly, the inner ring absorbs normal fluid and gradually swells, pressing on the shunt and encouraging it to scar shut. Shunts usually close within 3-4 weeks of ameroid constrictor placement. Because of the metal outer ring, the constrictor will always be visible on x-rays of the belly.

What are the complications of shunt surgery?

Surgery with ameroid constrictor placement is faster and complications are fewer compared to other techniques, but the puppies can still get very cold or develop low blood sugar during or after the procedure. Occasionally dogs will develop pain and bloating if the constrictor kinks the vessel or if a suture or a cellophane band is used. This can progress to shock and death, so animals must be watched carefully for several days after the procedure. A small percentage of dogs may also have seizures after surgery. Dogs with intrahepatic shunts are more likely to have complications and usually require several days of intensive care and possible blood transfusions.

What care is needed for dogs after shunt surgery?

Dogs are kept on a protein-restricted diet for at least 6-8 weeks after surgery. Lactulose can be continued as well, or can be gradually decreased over 2-4 weeks. Most dogs do not need antibiotics unless they have infections in the urine or other sites. The liver will begin to grow as the shunt closes, and will often be normal sized in 2-4 months. To check liver function, blood tests (BUN, albumin, liver enzymes, and bile acids) are usually evaluated at 8-12 weeks after surgery. If these are still abnormal, they are repeated in another 3 months. If they are normal, the diet is gradually switched to an adult maintenance dog food. A scintigraphy can be performed at 3-6 months to confirm that the shunt is closed.

What is the prognosis for dogs after ameroid constrictor placement around a shunt?

Survival rate from the surgery is over 95% for dogs with shunts treated by ameroid constrictor placement, and our long-term prognosis is better with this technique than with most other methods. Many dogs are clinically normal within 4-8 weeks after the surgery. Long term, about 85% of dogs with liver shunts closed with ameroid constrictors do well clinically. About 15% continue to have problems, probably because the tiny blood vessels inside the liver were also abnormal. Usually these dogs develop multiple acquired shunts and must be managed with a protein restricted diet and lactulose for life.

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Yorkie after surgery.



Liver Shunts: Common Questions and Answers

by

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