

Placement of a Central Venous Catheter in the Medial Saphenous Vein

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Introduction

The "Jugular Catheter" is about 20 cm in length and is placed in a central vein. However, the jugular vein is not the only suitable vein. The medial saphenous vein is also suitable and offers some advantages over placement in the jugular vein. The most notable advantage is that the cat is more comfortable so it often tolerates hospitalization and fluid therapy better.

The Procedure

This describes placement of a MILA Long Line Kit (#LL 2045). It is made for use in small animal use. It consists of an 18 gauge needle and a 20 gauge catheter that goes through the needle during placement. The company that makes the Mila Long Line Kit also makes similar catheters of larger diameter, but those are too large for the medial saphenous vein of most cats.

Cooperation is essential. If the cat is very depressed, sedation is probably not needed and is not desirable. However, most patients require some chemical restraint. Dr. Norsworthy's preference is isoflurane induced with a facemask and maintained with an endotracheal tube. The use of injectable products other than propofol is discouraged due to slow recovery in many of these patients.

The left medial saphenous vein is usually easier to use for a right-handed person. The cat is placed in left lateral recumbency, and the hair on the medial surface of the left rear leg is shaved from just below the hock to the inguinal region. The shaved area is surgically prepped. The surgeon should wear sterile surgical gloves to maintain sterility; however, the area is not draped.

The package is opened by peeling back the top paper. The needle with its temporary catheter is removed but **DO NOT REMOVE THE NEEDLE FROM THE TEMPORARY CATHETER AS IT CANNOT BE RE-INSERTED**. The long catheter should remain in the sterile package until you are ready to insert it through the temporary catheter.

The leg should be surgically prepped. For right-handed persons, the leg is held with one's left hand so the skin can be stretched over the vein. The needle is inserted through the skin but not into the vein. The needle is moved over the vein, and then the venipuncture is made. Do not try to thread the needle up the vein. As soon as ANY blood is seen in the hub, stop advancing the needle. The long catheter is removed from its package. The clear end is to be inserted into the cat. The long catheter is fed through the temporary catheter into the vein. It is passed so about 10 cm (4 inches) of catheter remains out of the cat; however, this is somewhat controlled by how well it will feed into the posterior vena cava. It is necessary to leave enough out of the cat to route it to the lateral side of the leg. The striped end is closed so about 1 cm must be cut off. Open the yellow hub and insert the catheter as far into it as it will go. **If the end is not cut off or the catheter is not inserted all the way to the hub, fluid will not flow.**

Remove the yellow cap from the yellow hub and attach a syringe containing saline. Inject about 1 ml to test patency of the catheter. Remove the syringe and replace the yellow cap. Remove your right glove so you can handle the tape. One inch adhesive tape is used to secure the catheter to the medial side of the leg. Do not get the tape too tight or the foot will swell quickly.

The cat is rolled over so the lateral aspect of the leg is up. The catheter is routed around the posterior aspect of the leg just below the hock. It should be routed carefully because it can kink or twist easily, stopping fluid flow. The yellow hub should lie over the middle of the tibia/fibula. If the catheter is too long, more should be cut off. To do so, remove the yellow hub, cut the catheter to length and replace the yellow hub. The yellow hub is taped to the lateral aspect of the leg with a second piece of adhesive tape so it lies parallel to the tibia/fibula. Vet Wrap is used to cover the catheter and the tape. Wrapping is started just above the foot then continued dorsal over the catheter. Passing the Vet Wrap medial to the proximal end of the yellow hub will prevent the Vet Wrap from sliding down the leg. A non-padded, minimally restrictive bandage is preferred so the cat can walk comfortably in its cage. Note that the catheter needs to be covered completely so the cat cannot chew on it.

The IV line is attached and locked in place. The fluid rate is set. Another piece of 1 inch adhesive tape is wrapped around the IV line where it enters the plastic hub. This is to prevent it from being occluded as the IV line bends over the plastic hub.

Note that this catheter will not permit rapid flow of fluid. This is not a desirable trait for treating shock, but it is very suitable for giving fluids at one or two times maintenance. One of the advantages of this catheter is the ability to make blood collections for several days after placement.

Some foot swelling is almost inevitable since one of the main veins of the leg is essentially occluded by the catheter. Getting the tape or Vet Wrap too tight aggravates this problem. Once the bandage and catheter are removed, the swelling will subside within 24 hours.

Note: Make the venipuncture near the hock. If catheter placement is not successful, it will be possible to move more proximal on the leg and try the same vein again. If blood has been collected from the vein, go proximal to the venipuncture site to avoid the hematoma that is likely to have formed.

Also note that there are two components in the package that Dr. Norsworthy does not use: the green winged device and the pink device that is around the catheter.

Catheter source: MILA International, Inc., 1-859-957-1722, <http://milainternational.com>.