

Vascular Catheterizations: Handling Instructions*

Subcutaneous Catheter

The exterior end of the catheter is plugged, and the excess length (about 2-3 inches depending on the species) is tucked into a subcutaneous pocket. The plug is then secured in place with a wound clip.

Exposed Catheter

The exterior end of the catheter is plugged, and the excess length (about 1.5 inches depending on the species) is exteriorized through the dorsal incision. The catheter is secured in place with a wound clip.

Catheter Manipulation

All procedures should be performed using aseptic technique.

Materials

1. Sterile tuberculin syringes (4)
2. Sterile blunted 23-gauge needles/adaptors (non-standard/custom catheters may require use of a different gauge needle/adaptor)
3. Sterile lumen lock solution
4. Sterile 0.9% saline solution for injection
5. Sterile 70% alcohol wipe/gauze

Sampling Procedure

1. This process is best performed with two people; one person gently restraining the animal while a second performs the procedure.
2. Clean the incision site using a surgical skin disinfectant.
3. Accessing the catheter:
 - A) Subcutaneous catheter: Gently pull the plug, together with the catheter, free of the wound clip and out of the skin pocket. It is easier to put the catheter back in the skin pocket if only 1-2 inches of the catheter is exteriorized.
 - B) Exposed catheter: Exposed catheters have a readily accessible portion of catheter exteriorized from the dorsal incision for easy access.
4. Clean the exteriorized portion of the catheter with a sterile 70% alcohol wipe/gauze. Be sure to clean around the catheter tip and plug thoroughly.
5. To remove the plug, use a hemostat to clamp the tip of the plug. With one hand, pull the hemostat and plug while the junction of the tubing at the plug is held firmly with forceps. Clean the plug thoroughly with a sterile alcohol wipe/gauze and place in a sterile container of surgical disinfectant.
6. Remove the lumen lock solution with a sterile syringe. If the first attempt fails, reposition the animal and try again, as body position can contribute to poor flow. If additional attempts fail, injecting a small amount of saline with a second sterile syringe should clear the line and allow for the removal of the lock solution.

*Standard Charles River catheters

technical sheet

7. Draw a blood sample or infuse substance with a sterile syringe. Skip this step if performing catheter maintenance.
8. Using a sterile syringe, gently flush the catheter with double the catheter's dead volume of saline. See surgery paperwork for catheter dead volume.
9. Using a sterile syringe, refill catheter with lumen lock solution following the dead volume listed on the surgery paperwork.
10. Using a cushioned instrument or finger tips, clamp the end of the catheter before removing the lock syringe to prevent blood pressure from pushing blood into the catheter tip. Then, remove the lock syringe from the catheter tip. Using sterile forceps, rinse the plug in sterile water and replace the plug in the catheter. Release the pressure with the cushioned forceps and push the plug into the catheter tip leaving only one-third exposed.
11. For a subcutaneous catheter, clean the catheter with a sterile 70% alcohol wipe/gauze. Next, carefully place the catheter back into the subcutaneous pocket using sterile forceps and then gently tighten the wound clip to secure the catheter tip/plug in place.

General Catheter Maintenance

1. Animals should be housed individually.
2. Catheters should initially be flushed 5-7 days after surgery and then every 5-7 days throughout the study. Surgery dates are listed on the surgery order paperwork supplied with each order.
3. Starting from the surgery date, the wound clips securing the catheter plug must be changed every 7-10 days to ensure catheter security. Surgery dates are listed on the surgery order paperwork supplied with each order.