

# Vascular Catheterizations: Handling Instructions

## Subcutaneous Catheter Manipulation

All procedures should be performed using aseptic technique.

### 1. Materials

- a. Four tuberculin syringes
- b. Four blunted 23-gauge needles or a 23-gauge adapter
- c. Lumen lock solution

### 2. Sampling Procedure

- a. Have one person gently restrain the animal, while a second performs the procedure.
- b. Pull the plug, together with the catheter, caudally 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 pulled out.
- c. To remove the plug, use a hemostat to clamp the tip of the plug. Pull the hemostat, together with the plug, with one hand, while the junction of the polyurethane tubing at the plug is firmly held with forceps.
- d. Remove the lumen lock solution with the first 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 should clear the line.
- e. Draw a blood sample or infuse substance with the second syringe.
- f. Flush the catheter with saline (about 0.2 mL).
- g. Refill catheter with lumen lock solution (dead volume).
- h. Using a cushioned instrument, clamp the tip of the catheter before replacing the plug to prevent blood pressure from pushing the lock solution out.
- i. Wipe the catheter with alcohol or other disinfectant.
- j. Place the catheter back into the pocket using forceps. Make sure to leave the junction of the tubing and plug outside of the wound clip.

## Miscellaneous

1. Polyurethane tubing (0.025 ID x 0.040 OD) is used.
2. The exterior end of the catheter is plugged, and the excess length (about 3 inches) is tucked into a combination of a subcutaneous and skin pocket. The plug is then secured with a wound clip.

## Exposed Catheter Manipulation

All procedures should be performed using aseptic technique.

### 1. Materials

- a. Four tuberculin syringes
- b. Four blunted 23-gauge needles or a 23-gauge adapter
- c. Lumen lock solution

### 2. Sampling or Dosing Procedures

- a. Have one person gently restrain the animal, while a second person performs the procedure.
- b. Clamp the catheter tubing with your fingers.
- c. Remove the plug and attach a blunt 23-gauge needle adapter with an empty 1 cc syringe. Unclamp the catheter and withdraw the lock solution into the syringe until the catheter is completely filled with blood.
- d. Change to a syringe filled with saline and inject 0.5 cc of saline. At this point, you can collect samples or infuse. If you are just doing maintenance flushing, change to a syringe filled with lock solution and infuse dead volume into the catheter.
- e. Clamp the catheter with your fingertips before removing the syringe and replacing the plug.

## General Catheter Maintenance

1. Animals should be housed individually.
2. The exterior portion of the subcutaneous catheters should be kept in the skin pocket when not being used.
3. The majority of the catheters can retain patency for at least one week after surgery without flushing when heparinized dextrose or glycerol solution is used as lumen lock solution.
4. For arterial catheters, initial aspiration of the lock solution is important.



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