

VENIPUNCTURE AND VENOUS ACCESS

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INTRODUCTION

While we typically think of venipuncture strictly regarding blood sampling, the act of venipuncture is also performed to administer intravenous medications and in conjunction with intravenous catheter placement. Although a reasonably routine skill, veterinary technicians must be cognizant to always actively engage in critical thinking even when attempting the most routine of tasks.

VENIPUNCTURE

Venipuncture without the goal of indwelling intravenous catheterization placement can be performed with a needle or butterfly catheter and syringe or Vacutainer® device with the appropriate blood tube(s). The factors influencing the veterinary technician's choice include vessel size, amount of sample required, sample handling and processing considerations, and the individual's preference and skill level. Typically, the venipuncture site is prepped with 70% isopropyl alcohol, which will aid in removing superficial skin contaminants and improve vessel visualization. It is important to acknowledge that if the vessel is not readily apparent, clipping away a small amount of hair may improve visualization, increasing the likelihood of a successful and atraumatic venipuncture experience. When obtaining a blood sample via venipuncture, it is essential to minimize excessive negative pressure which can cause vessel collapse and hemolysis. Adequate visualization and proper technique will enable the veterinary technician to obtain high-quality diagnostic samples and improve the patient experience by minimizing discomfort and stress.

INTRAVENOUS CATHETERIZATION

Each patient should be assessed as an individual before intravenous catheterization. Veterinary technicians may find the following questions helpful when evaluating their patients:

- Who is my patient?
 - What is the signalment? How large/small is my patient? What is the confirmation of the patient?
 - What are my best options for intravenous catheter insertion sites?
- What will I be using this IV catheter for?
 - Will I be infusing large volumes or repeated doses of medication? Will this pet need a constant rate infusion?
 - Will this patient be administered irritant drugs (i.e., chemotherapy)?
 - Will this patient require serial blood sampling that may necessitate the placement of a central line?
- How long do I expect this IV catheter to remain in place?

- Is this a short-term placement for light intravenous sedation in an otherwise healthy patient?
- Is this an unstable critical care case likely to be in the hospital for several days, and a central line should be considered?
- Are there any medical or behavioral considerations?
 - Is this a stable patient? Would a large-bore catheter be ideal?
 - Is the patient scheduled for a procedure that may influence where an IV catheter may or may not be placed?
 - Is there a high likelihood of catheter contamination depending on the site chosen? Is the patient vomiting or hypersalivating? Is there diarrhea present, or is the patient incontinent? Is there any evidence of skin infection or tissue damage?
 - Does the patient have any bleeding tendencies? Is there any concern about head trauma or increased intracranial pressure?
 - Are there painful areas that should be avoided?
 - Is the patient fearful, anxious, or stressed? Is the patient sensitive about having their feet touched? Are they head shy?

The area should be carefully clipped before placing a peripheral intravenous catheter to avoid skin abrasion and aseptically prepped. The veterinary technician should wash and dry their hands before donning exam gloves and placing the intravenous catheter. Intravenous catheter sites must stay clean and dry, and a full inspection should be performed at least once a day or sooner if the veterinary technician is suspicious there may be a problem. Heat, erythema, pain, fluid leakage, pyrexia, and swelling may indicate that the intravenous catheter requires removal.

The advantages of peripheral intravenous catheters include ease of placement and accessibility, minimal patient restraint, a low complication rate, and cost-effectiveness. A central line should be considered for those patients that require long-term hospitalization, large-bore or multi-lumen catheters, repeated blood sampling, monitoring of central venous pressure (CVP), or administration of hypertonic solutions or parental nutrition.

When placing a central intravenous catheter, the site must be aseptically prepped, and a sterile field must be established and maintained. Although peripherally inserted central catheters (PICC) are an option, the jugular vein is the most chosen site. The veterinary technician should wash and dry their hands before donning sterile gloves and placing the central line. Having a sterile assistant available can be helpful, but it is not necessary with practice and good technique. Similar to peripheral intravenous catheter sites, central line sites must stay clean and dry. A complete inspection should be performed at least every twelve hours, and a complete bandage change is recommended at least once daily.

RESOURCES

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