

PLACEMENT OF CEPHALIC INTRAVENOUS CATHETERS

Equipment

- Electric clippers with an appropriate size blade
- Sterile lint-free gauze swabs soaked in chlorhexidine gluconate or povidone-iodine solution
- Surgical spirit soaked swabs
- Intravenous catheter of appropriate size
- Intermittent injection cap or T-connector - pre-flushed with heparinised-saline
- 2ml heparinised saline 100IU/ml
- 2.5cm zinc oxide tape, cut to appropriate lengths to wrap around limb and catheter
- Sterile transparent sterile dressing
- Cellulose wadding
- Cohesive bandage

Catheter care

Main objectives are to avoid sepsis and avoid iatrogenic infection so that the catheter can remain in place as long as possible (up to 72 hours). The catheter needs to remain patent and should be flushed approximately 4 times daily. The catheter entry site must remain clean and dry at all times. The bandage should be changed daily, or whenever it becomes wet or soiled.

Catheters may remain in place for up to 72 hours, however the catheter must be removed if inflammation, thrombophlebitis, infection or patient discomfort due to catheter displacement occurs. If the catheter is cared for adequately, once removed the same catheter site may be re-used again 72 hours later.



PLACEMENT OF CEPHALIC INTRAVENOUS CATHETERS

Procedure

1. An appropriate leg is chosen, the limb should have no inflammation, wounds, fractures etc.
2. A large area should be clipped around the proposed venipuncture site in order to maintain asepsis. Loose hair should be removed from the site, including any long hair; e.g. 'feathers' should always be clipped from the caudal aspect of the limb, especially in longhaired breeds, which may interfere with taping the catheter in place and result in contamination.
3. The operator should wash their hands before the procedure and ideally wear clean examination gloves. For high-risk (e.g. immunocompromised patients) personnel should ideally wear sterile gloves or at least scrub their hands as for aseptic surgery.
4. The clipped site should be scrubbed using sterile lint-free gauze swabs soaked in a dilute chlorhexidine gluconate solution. Start at the centre of the clipped area and work outwards in a circular motion to prevent contamination from the hair. This scrub with chlorhexidine gluconate should be alternated with the application of surgical spirit to the site again using a sterile gauze swab soaked in surgical spirit. This process should be repeated at least three times. Enough pressure should be used to remove dirt, microorganisms and bacteria from the skin surface. 70% alcohol can be used to remove the excess wash. Allowing the alcohol to dry can help the tape stick to the limb.
5. An appropriate size catheter should be chosen, corresponding with the size of the vein. The insertion site should be chosen carefully so that the tip of the catheter is not too close to the elbow joint, otherwise the catheter may kink or occlude the catheter, preventing accurate intravenous infusions to taking place.
6. An assistant should restrain the patient and support and extend the limb, whilst occluding and gently rolling the vein laterally, i.e. 'raising the vein'. At the same time the assistant's hand is still behind the limb, preventing the patient from retracting the limb.
7. To raise the vein for saphenous catheter placement, the assistant's hand is placed behind the stifle and the leg is squeezed.
8. The operator stabilises the leg and the thumb and index finger stretches the skin thus preventing the movement of the vein while venipuncture is performed.
9. The catheter should be held firmly at the junction of the stylet and the hub, the catheter should not be allowed to separate from the stylet. The stylet should form a 30° angle with the vein. With the needle bevel up, the catheter and stylet are advanced steadily through the subcutaneous tissue and then the needle should 'pop' into the vein.
10. Entry of the catheter into the vein will be followed by the flow of blood into the hub of the stylet. The angle of the catheter should then be decreased and they should continue to advanced together for another 2-3mm until the catheter tip is well inside the vessel. The operator should then reposition the hand which is supporting the limb distally, so that it is holding the stylet stationary between the thumb and the index finger, allowing the opposite hand to advance the catheter off the stylet and into the vein. The stylet can then be removed completely. On no account should the stylet be replaced back into the catheter once it has been inserted, this may result in spearing of the catheter and may even result in the distal tip of the catheter being cut away and left within the circulatory system.
11. As the stylet is removed the assistant can place their thumb over the catheter and apply pressure, which stops the flow of blood back along the catheter. With the stylet removed an intermittent injection cap or T-connector should be attached to the catheter hub.
12. Care should be taken if the T-connector is attached to prevent its weight from pulling the catheter out.
13. Before the catheter is taped in place, the catheterisation site should be dried using a sterile gauze swab.
14. The 1st piece of tape should be placed under the hub of the catheter, encircling the limb and finishing over the top of the catheter hub and again across the limb.
15. A T-connection (pre-filled with hep-saline) should then be attached to the catheter.
16. The catheter can then be flushed, whilst this is done the limb should be observed for signs of extravasation or 'blowing' of the vein.
17. Another piece of tape can then be applied to the limb with a slight upward (proximal) force to prevent the displacement of the catheter.
18. The area of skin, which the assistant's thumb has touched, should now be swabbed using surgical spirit, taking care not to touch the catheter or the skin-catheter interface. The venipuncture site should then be covered with a sterile transparent dressing, this will allow observation of the catheter in the vein and allow early detection of any infection.
19. If a T-connector is attached this should be curved laterally along the limb and secured using zinc oxide tape. This should prevent accidental disconnection of the IV set from the catheter and displacement of the catheter.
20. Finally the whole catheter and IV set should then be bandaged to prevent patient interference and contamination by soiling. A layer of bandage should be present under all tubing. If the patient is comfortable they are less likely to chew it out.

