

- SOP No:** AHT 54
- SUBJECT:** Intravenous (Femoral) Artery Cannulation in Rats
- POLICY:** This procedure may only be performed by operators skilled in the technique.
Surgery must be performed under aseptic conditions
- PRECAUTIONS:** Surgical gloves, eye protection, long-sleeved gown, closed in shoes.
All instruments and materials (including catheter) must be sterilized before use.
Surgery must be performed under aseptic conditions
- EQUIPMENT:** Anaesthetic
70% Alcohol
Heparinized saline
Scalpel (No 22), scissors, forceps, haemostats
Silk ligatures
Suture material or staples
Sterile Cannula (o d. 0.9mm x i d. 0.5mm)
- PROCEDURE:**
1. Anaesthetize rat (specify dose, route and volume).
 2. Lay the rat on its back with the head away from the surgeon.
 3. Measure the distance required by the catheter (around 3-4cms).
 4. Shave hair on the ventral neck from the groin to the mid-thigh and swab the skin with alcohol.
 5. Make a 1.0-1.5 mm incision in the midline of the inner surface of the leg to expose the femoral artery, vein and sciatic nerve. Blunt dissect away the fat and connective tissue.
 6. Pass a pair of haemostats under the artery, vein and nerve and loosely position a 4-5cm silk tie around all three.
 7. Carefully separate out the artery, vein and nerve (the vein is on the right, the artery in the middle and the nerve on the left).
 8. Trace the artery back towards the groin until it becomes the iliac artery.
 9. Use ties to expose the bifurcation between the internal and external arteries. Place a clamp on the iliac artery ~1 cm from the bifurcation to prevent excessive bleeding when inserting catheter.
 10. Make a small incision (just enough to allow the insertion of the cannula. Do not make the incision too large as the bifurcation may tear causing profuse bleeding) into the bifurcation and advance the femoral cannula.

11. Remove a small amount of blood (200µl) to confirm that the cannula is patent. Flush with 200µl heparinized saline
12. Grasp the cannula and create a “stress loop”
13. Shave the dorsal neck and swab with alcohol.
14. Make a 0.5-1.0ml incision and create a s/c tunnel extending from the back of the leg, along the back and to the nape of the neck using a straight pair of haemostats.
15. Cut the cannula leaving 2.5-3.0cm exterior to the skin.
16. Suture the skin or pass the catheter through a stainless steel spring and suture the base of the spring into the s/c pocket at the back of the neck.

RECOMMENDATIONS:

Give benzylpenicillin 60mg i.m. to prevent infection.

Recommended for repetitive, chronic blood sampling studies.

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REVISED:

REFERENCES

1. Popp, MB. and Brennan, MF. Long-term vascular access in the rat: importance of asepsis. *Am J Physiol*, 241:H606-12, 1981
2. Walker, W.F. and Homberger D.G. *Anatomy & Dissection of the Rat*. 3rd Edition. W.H. Freeman & Co 1998.
3. Waynforth HB, Flecknell PA; *Experimental and Surgical Technique in the Rat*, 2nd Edition; Academic Press, 1992