Caudal Epidural Technique in Large Ruminants

* Hair at the site should be clipped and the skin swabbed with alcohol.
* Standing alongside the cow, the tail should be moved up and down to locate the fossa between the last sacral vertebra and the first coccygeal vertebra or between the first and second coccygeal vertebrae.
* A 20-gauge 1.5 inch needle (with no syringe attached) is directed perpendicular to the skin surface.
* Once the skin is penetrated, place a drop of local anesthetic solution in the hub of the needle (hanging drop technique).
* Give 1 ml of anaesthetic solution subcutaneously to desensitize the area.
* The needle should then be advanced slowly until the anesthetic solution is drawn into the epidural space by negative pressure.
* The syringe may then be attached to the needle and anesthetic solution slowly injected with no resistance.
* The dose of local anesthetic (2% lidocaine) to be used is 0.2 mg/ kg.
* A high caudal epidural at the sacrococcygeal space (S5–Co1) desensitizes sacral nerves S2, S3, S4, and S5. The low caudal epidural at first coccygeal space (Co1–Co2) desensitizes sacral nerves S3, S4, and S5. However, as the anesthetic dose increases, nerves cranial to S2 may also become affected.
* Correct needle placement can be determined when there is no resistance when giving the injection. The air bubble in the syringe should not become compressed as the plunger is pushed down. This is known as the “lack of resistance” technique. Another method of confirming correct needle positioning is the placement of a drom of anaesthetic solution into the hub of the needle and the disappearance of the liquid from the needle hub due to negative pressure in the extradural space sucking the liquid out of the hub. This is known as the “hanging drop” technique.
* Tail flaccidity as well as loss of sensation will indicate a successful block.

**Continuous Caudal Epidural**

Continuous caudal epidural anesthesia is used in cattle with chronic rectal and vaginal prolapse that experience continuous straining after the initial epidural. This procedure is performed by placing a catheter into the epidural space for intermittent administration of local anesthetic. A 17-gauge 5-cm spinal needle (Tuohy needle) with stylet in place is inserted into the epidural space at Co1 to Co2 with the bevel directed craniad. The stylet is removed, and 2 mL of local anesthetic is injected to determine if the needle is in the epidural space. A catheter is inserted into the needle and advanced cranially for 2 to 4 cm beyond the needle tip. The needle is then withdrawn while the catheter remains in place (see Fig. 9). An adapter is placed on the end of the catheter and the catheter secured to the skin on the dorsum. Local anesthetic solution may then be administered as needed.



**Needle placement for caudal epidural anesthesia (A) and for continuous caudal epidural**

**anesthesia (B) located between the first and second coccygeal vertebrae.**