**Paravertebral anesthesia**

• Paravertebral anesthesia refers to the perineural injection of local anesthesia about the spinal nerves as they emerge from the vertebral canal through the intervertebral foraminae.

• The technique may theoretically be carried out in any species, and at any level of the spinal cord but in practice, its main use is to provide anesthesia of the lumbar region in ruminants.

• Its advantage is that it provides analgesia and muscle relaxation of the whole area covered by the segmental nerves blocked.

• Several different methods of achieving paravertebral anesthesia have been described.

• All methods approaching from the dorsal surface are equally effective.

• The method described whereby the needle is inserted ventral to the transverse processes of the spine has the disadvantage that the dorsal branches of the segmental nerves are not blocked, thus some skin sensitivity remains.

• Paravertebral anesthesia is easy to carry out, and almost always effective, except in the very large beef breeds where it may be very difficult to locate the necessary landmarks.

• A description of one method generally found to be effective for the cow is as follows;

**Proximal paravertebral block (Farquharson, Hall, or Cambridge Technique)**

• Indicated for standing laparotomy surgery such as C-section, rumenotomy, cecotomy, correction of gastrointestinal displacement, intestinal obstruction and volvulus.

• The dorsal aspect of the transverse processes of the last thoracic (T-13) and first and second lumbar (L-1 and L-2) vertebrae is the site for needle placement.

• The dorsal and ventral never roots of the last thoracic (T-13) and 1st and 2nd lumbar spinal nerves emerge from the intervertebral foramina are desensitized. 10-20 ml of 2% lidocaine is injected to each site onset occurs usually within 10 minutes of injection

• Analgesia of the skin, scoliosis toward the desensitized side - due to paralysis of the paralysis of the paravertebral muscles, increased skin temperature due to vasodilation (paralysis of cutaneous vasomotor nerves) indicates effective block. Duration of analgesia lasts approximately 90 minutes.

**Distal paravertebral block (Magda, Cakala, or Cornell technique)**

• Indicated for same as proximal paravertebral block above.

• The dorsal and ventral rami of the spinal nerves T13, L1 and L2 are desensitized at the distal ends of L-1, L-2 and L-4. A 7.5-cm, 18-gauge needle is inserted ventral to the tips of the respective transverse processes in cows where approximately 10-20 ml of a 2% lidocaine solution are injected in a fan-shaped infiltration pattern.

• The needle is completely withdrawn and reinserted dorsal to the transverse process, where the cutaneous branch of the dorsal rami is injected with about 5 ml of the analgesic.

• The procedure is repeated for the second and fourth lumbar transverse processes.

• 10-20 ml 2% lidocaine is used per site and onset and duration similar to proximal technique.

