Postoperative intermittent ropivacaine administration via quadratus lumborum plane catheters in a dog after unilateral laparotomic adrenalectomy

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Introduction

The quadratus lumborum (QL) block is an ultrasound (US)-guided inter-fascial plane (IFP) block used to promote somatic and visceral analgesia to the abdomen, by desensitising the ventral rami of the spinal nerves and the sympathetic trunk[1,2].
Placement of catheters in the QL IFP for continuous or intermittent local anaesthetic administration is reported in humans to prolong the analgesic effect of a single-shot QL block in the postoperative period after different abdominal surgeries[3].

Case presentation

A 6-year-old, 32 kg, female Siberian Husky underwent laparotomic right-sided adrenalectomy for removal of cortisol-secreting adenocarcinoma.

Anaesthetic protocol:

- Premedication: methadone 0.2 mg/kg and dexmedetomidine 1 µg/kg intravenously (IV).
- Induction:propofol to effect IV.
- Mainteinance: isoflurane in an oxygen/air mixture.
- Analgesia: QL block with ropivacaine 0.5% (0.3 ml/kg per side) TID [Fig. 1].

Surgery duration: 5 hours (h), due to adhesions between the mass and caudal vena cava.

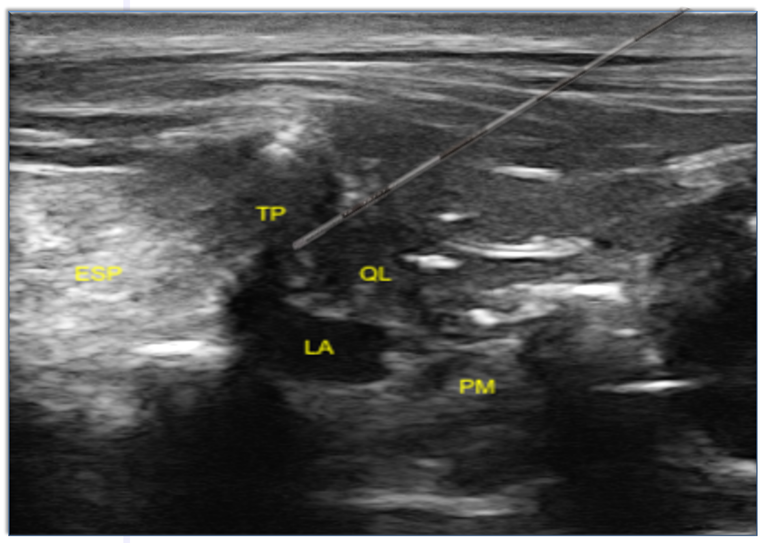


Figure 1. *Post-injection US image of the anatomical structures identified to perform the QL block[1].*

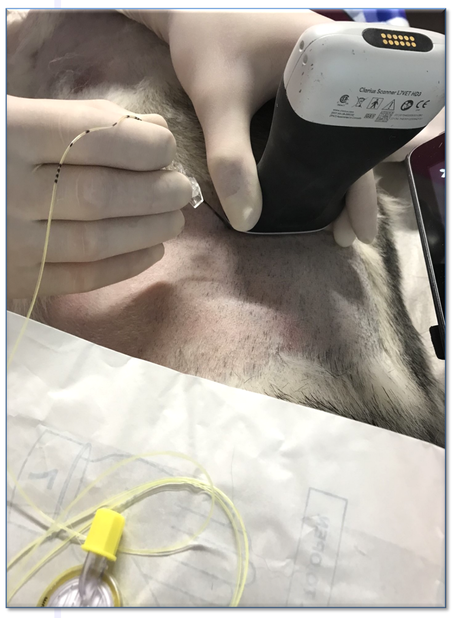


Figure 2. *US-guided catheter implantation in the QL IFP.*

Postoperative period

Therapy: prednisolone 0.5 mg/kg IV BID, trazodone 4 mg/kg per os TID, ropivacaine 0.5% (0.3 ml/kg per side) through catheters TID.

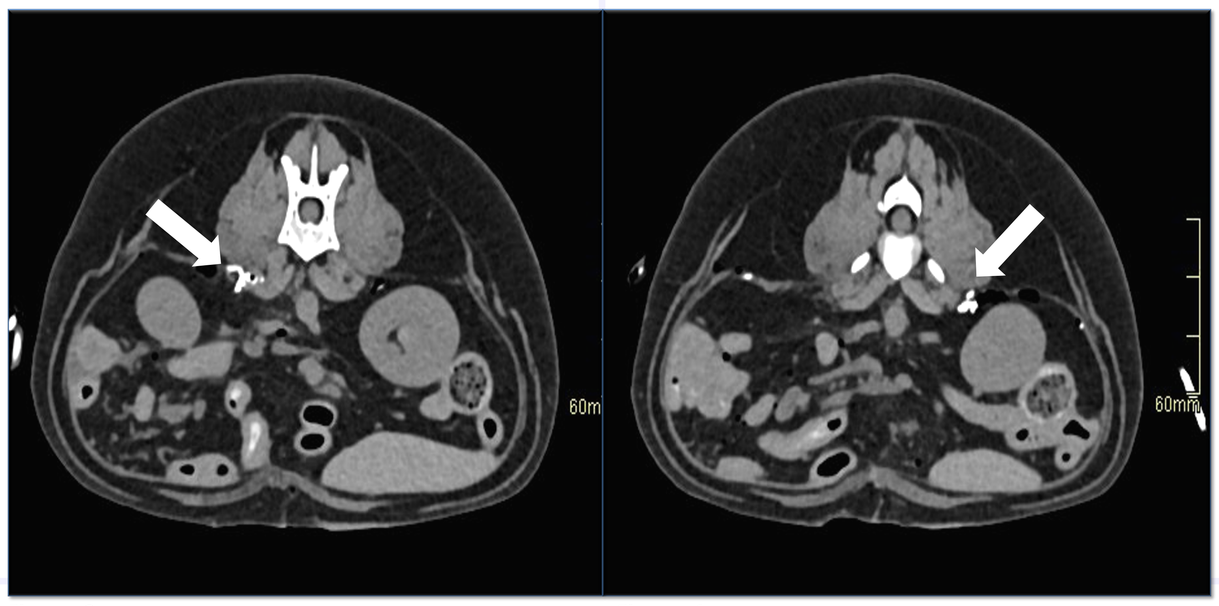
Pain assessment: Glasgow Composite Measure Pain Scale (GCMPS) every 4h as of 1-hour post-extubation (T1).
GCMPS >5/24 only at T1, when methadone 0.2 mg/kg IV was administered.
First spontaneous oral intake and autonomous walk within 2h post-extubation.
After 48h of an uneventful and pain-free postoperative period, the dog was discharged after catheter removal.

Catheter placement

After surgery, a catheter typically used for epidural administration was placed bilaterally in the QL IFP.

Technique:

1. US linear transducer placed caudal and parallel to the last rib [Fig. 2], to visualise:
   - transverse process (TP) of the first lumbar vertebra (L1);
   - QL and psoas (PM) muscles;
   - erector spinae (ESP) muscles.
2. Tuohy needle (18G), with bevel ventrally directed, introduced in plane in a ventrolateral-to-mediodorsal direction and advanced towards the ventral aspect of the transverse process of L1.
3. Once passed through the thoracolumbar fascia and near the transverse process, 2 mL saline was injected until plane hydrodissection.
4. Catheter (20G) advanced ~ 5 cm through the needle into the plane and fixed to the skin.
5. 1 ml of iopromide contrast medium injected to assess correct positioning by CT scan:
   - Right side [Fig. 3]: QL IFP.
   - Left side [Fig. 4]: retroperitoneal space.



Figures 3. **Figures 4.**

Figures 3, 4. *Transverse CT scan images showing presence of contrast medium on both sides(arrow).*

Conclusion

Based on this case report, ropivacaine administration through catheters in the QL plane may represent a valid analgesic strategy to provide low postoperative opioid consumption and guarantee a fast recovery after laparotomy in dogs.

References

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