



Keywords

Ultrasound, Epidural catheter, Dog, Cadaver

CORRESPONDING AUTHOR

Elisa Silvia D'Urso
elisasilvia.durso@unimi.it

JOURNAL HOME PAGE

riviste.unimi.it/index.php/haf

Ultrasound-guided epidural catheter placement with a new technique: preliminary cadaveric study.

Elisa S. D'Urso^{1*}, Stefano Faverzani¹, Gabriele Barella¹,
Federica Di Cesare², Daniela Gioeni¹, Vanessa Rabbogliatti¹,
Damiano Stefanello¹, Giuliano Ravasio¹

¹ University of Milan, Department of Veterinary Medicine, Italy

² University of Milan, Department of Health, Animal Science and Food Safety, Italy.

Abstract

Several methods are described in veterinary medicine to perform and assess correct epidural needle placement to provide effective epidural analgesia (Adami *et al.* 2017). The aim of this study is to evaluate the feasibility of an ultrasound longitudinal sagittal approach to epidural catheter placement using a biopsy needle guide. Seven dog cadavers were used in the study. With the cadaver in sternal recumbency, a 5-8 MHz microconvex transducer provided with a 16-gauge biopsy guide was positioned to obtain a longitudinal sagittal scan of the spinal process of L7 and the sacral crest; the epidural space was identified between two parallel hyperechoic lines and, as the trajectory of the biopsy guide crossed them, a 17G Tuohy needle was used to insert a 19G epidural catheter. Correct catheter placement was visualised through a resection of the column between L2 and L3. Firstly, an expert echographer (operator C1) visualised the ultrasonographic landmarks, while catheter placement was performed by an expert anaesthetist (operator A), a student (operator B) and another expert echographer (operator C2) (double-operator technique); secondly, operator A and C2 performed alone the whole procedure (single-operator technique); lastly all operators performed a blind procedure (Jones, 2001). Operator A failed 2/7 single-operator procedures; time to perform the blind technique was statistically lower than the double-operator technique (75 ± 132.4 vs 91.6 ± 79.3 seconds). Operator C2 failed 3/7 blind procedures, scoring the higher total time of performance (329.3 ± 271.2 seconds), but was able to perform both the double- and single-operator technique without significant difference with operator A, despite a faster time in positioning the probe. Operator B showed a higher repositioning attempts of the needle with the double-operator procedure compared to the blind one. Ultrasound guidance appears to be a promising technique to ease catheter placement also by operators inexperienced of locoregional techniques.

References

- Adami, C., Gendron, K., 2017. What is the evidence? The issue of verifying correct needle position during epidural anaesthesia in dogs. *Veterinary Anaesthesia and Analgesia*. <http://dx.doi.org/10.1016/j.vaa.2016.03.003>
- Jones, R.S., 2001. Epidural analgesia in dogs and cats. *The Veterinary Journal*. 161, 123-131