

A LONG-TERM VENOUS CATHETER FOR CATTLE

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A technique for the placement and maintenance of an indwelling jugular vein catheter in cattle is described, based on the concept reported by Takken and Williams (1981). The catheter which is exteriorised and held in a pouch on the midline between the shoulder blades causes minimal stress at time of implantation and during subsequent sampling or infusion. The superficial surgical technique coupled with regular maintenance procedures ensure a long lasting appliance.

The catheter was two metres long and made from 2.08 mm OD, medical grade, silicone rubber tubing (Dow Corning, U.S.A.) with a 3-way tap fitted externally; the indwelling end cut to a 30° bevel. A 1000 mm long trochar and cannula was made from 3.3 mm OD, medical stainless steel tube and 2.5 mm diameter stainless steel wire. A plastic knob on the trochar gave better control over direction of travel beneath the skin when this unit was inserted. A stainless steel draw wire (1.5 mm diameter) was used to draw the catheter through the cannula, whilst a 100 mm long hubless hypodermic needle (made from the same tubing as the cannula.) was used to direct the catheter into the jugular vein.

Each animal was weighed, sedated (ROMPUN, Bayer Aust. Ltd., 0.4 ml/45 kg i.m.) and restrained in a veterinary crush. Application of a halter allowed the head to be held up with the neck extended. Standard aseptic surgical methods were used throughout. Two stab incisions were made through the skin, the first in the interscapular space at the intended site of exteriorisation of the catheter and the second over the jugular vein approximately midway along the neck. The trochar and cannula was passed under the skin from the interscapular incision to the site of the jugular incision. The trochar was withdrawn and replaced by the draw-wire. The 100 mm long needle was inserted into the jugular vein in a caudal direction and the bevelled end of the catheter (filled with heparo-saline, 759 i.u. heparin/ml) passed through it for a distance of 150-200 mm. The needle was gently withdrawn from the vein and removed over the external catheter. The free end of the catheter was drawn through the cannula as an antibiotic cream was applied to the catheter. The cannula was removed leaving the catheter imbedded beneath the skin. A 3-way stopcock was attached to the catheter and the system tested before an exterior loop of catheter at the jugular incision site was drawn under the skin. At the point of exteriorisation a 20 mm long cuff of silastic tubing was glued around the catheter with silicone rubber sealant. Sutures were placed on either side of this cuff to prevent the catheter from being pulled out. A drill cloth pocket to hold the catheter was sutured to the skin. Catheters were maintained by flushing once daily with saline and refilling of the catheter with heparo-saline.

Experience with the technique led to the entire operation being achieved in approximately 30 minutes. No post operative sequelae were encountered and because trauma to the jugular vein was minimised catheters could be reinserted allowing re-use of the same experimental unit. The use of single or bilateral catheters allows frequent stress free sampling and or simultaneous infusion to be performed by lay staff following suitable instruction on aseptic technique. Catheter removal was simple. The sutures holding the pocket to the skin and the anchor sutures on the catheter cuff were cut and removed. Only gentle traction was then needed to withdraw the catheter.

TAKKEN, A. and WILLIAMS, K.C. (1981). *Aust. Vet. J.* 57: 17.

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