Cervical Vertebral Myelopathy (Wobbler Surgery): indications, techniques and outcomes

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Indications

The main indication for surgical treatment of ataxia in horses is a compressive lesion of the cervical spinal cord that is causing the clinical signs. A strict case selection protocol is essential. If the clinical and neurological examination establishes that the horse is suffering from a neurological gait deficit that is caused by a lesion in the cervical spinal cord, plain radiographs of the cervical vertebral column are taken. In most cases the site of compression is not obvious but some indication of the likelihood of compression may be obtained using the inter- and intra-vertebral minimum sagittal diameter ratio measurements (Mayhew and Green 2000). Although Hahn et al (2008) reported that these ratios are predictive of the site of compression, the author’s data comparing these ratios with myelographic results showed that the ratios are poor predictors of the site of compression but reasonably good predictors that the horse is likely to have a cervical compressive lesion somewhere (Luker 2005).

If the owners wish to proceed with the investigation a myelogram is performed. At the Liphook Equine Hospital the criterion used for diagnosing compression on myelography is a 50% reduction in the dorsal dye column (Papageorges et al. 1987) and more recently a 20% reduction in the total dural diameter (Van Biervleit 2004). These criteria are controversial but are used in the absence of any better criteria. The decision for surgery is therefore based on a positive myelogram, the absence of other clinically significant problems and the owner’s willingness to submit the horse for surgery.

Surgical procedure

Currently the received treatment is ventral stabilisation of the affected vertebrae with a Kerf Cut Cylinder (KCC). A locking compression plate has also been used but still requires more evaluation in clinical cases. Good surgical facilities and an experienced team are important and dedicated equipment for implanting the KCC is necessary. Horses are placed in dorsal recumbency with the neck in extension and rigidly supported. The affected site is identified radiographically and marked with staples on the skin. A midline incision is made in the ventral neck and dissection is extended dorsally between the trachea and the carotid/vagosympathetic trunk bundle to expose the longus colli muscle. Good retraction is essential. The ventral spine of the vertebra cranial to the compression site is identified and removed to create a plateau. The 25mm drill guide is placed under radiographic control. Having drilled the first 10 mm of bone to debulk the central core, a 25 mm core saw is used to drill to 30 mm depth. The drilled site is reamed, tapped and implanted with a KCC. A bone graft is placed in the cylinder, and the soft tissues are closed over the implant. Postoperatively horses are confined for 2 months before commencing hand exercise as a prelude to turning out to complete their convalescence.

Results

In the author’s series the Cloward Bagby Basket (CBB) has been used in 24 horses and the Kerf Cut Cylinder (KCC) in 31 horses. Duration of signs was from 1 to 12 months with a median of 2 months and the hind limb neurological grade distribution (out of IV) was grade...
A neurological grade of I or II in the forelimb was also seen in 32 horses. The number of horses treated at each site were: C3/4 – 12, C4/5 – 6, C5/6 – 7, C6/7 – 25. In 4 horses 2 sites were treated and in 1 horse 3 sites.

Horses that died of unrelated causes or that were convalescing at the time of writing were excluded from the analysis of the outcomes (10 horses). There were 30 horses (65%) that returned to full work and at least three of these were show jumping or steeplechasing. Death from unrelated causes accounted for 3 horses; 7 horses sustained cervical fractures but one of these returned to full work; 3 developed right sided laryngeal hemiplegia; 2 developed infection at the implant site. Nine (of 9) horses with C3/4 affected and 14 (of 22) horses with C6/7 affected returned to use and this was statistically significant ($p = 0.0305$: chi squared analysis). Duration of clinical signs, grade of neurological deficit, age of the horse and type of implant did not significantly affect the outcome.

**Conclusion**

The success rate cited here compares favourably with reports from the USA (Moore *et al* 1992, Grant *et al* 1985) and the complication rates are similar. More recently Grant has reported on 500 cases of which 85% improved one grade, 54% 2 grades and 33% returned to athletic use (personal communication).

**References**


