

# HEAD SHAKING IN HORSES: CAUSES, PAIN MANAGEMENT AND TREATMENT

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**Veronica Roberts** looks at this syndrome and explains causative factors, possible links to facial pain syndrome, as well as methods of treating the condition

**ANY normal horse will shake its head occasionally. It is abnormal, however, for a horse to shake its head so frequently, and even violently, as to interfere with normal activities. These horses fall into the pathological syndrome recognised as “head shaking syndrome”.**

## What causes head shaking syndrome?

In a study of 100 head shaking horses, Lane and Mair (1987) found a definitive cause in only two individuals, with the remainder being categorised as idiopathic head shakers. Historically, idiopathic head shaking has been attributed to behavioural avoidance or stereotypy and these horses were often condemned. However, there is mounting evidence that idiopathic head shaking is often due to a facial pain syndrome.

## Facial pain

A positive response to local analgesia supports a diagnosis of pain – this is the mainstay of orthopaedic investigation in horses. Accordingly, diagnostic local analgesia of the caudal portion of the infraorbital nerve (sometimes called a posterior ethmoidal nerve block) abolished head shaking in 23 out of 27 (85 per cent, Roberts et al, 2012) and 11 of 17 (65 per cent, Newton et al, 2000) horses. Where no gross pathology can be found, the facial pain in these horses is likely due to a

trigeminal neuropathy – a sort of sensory reflex epilepsy (Pagni, 1993).

## **Similarities to human facial pain syndrome**

There are striking clinical similarities between facial pain syndromes in people, most notably trigeminal neuralgia, and head shaking in horses. Trigeminal neuralgia usually has a sudden onset in middle age. Sufferers report “electric shock”-like pain across the face, often described as “the worst pain known to man”. At least initially, the pain is elicited by exposure to a specific trigger – the trigger varies between individuals, but is usually a form of light touch to the face. Over time, sufferers often report their trigger becomes less specific and they experience more episodes of pain.

In horses, the median age of first presentation to a referral centre for investigation of head shaking was nine years old (Roberts et al, 2012). Many individuals will only head shake in certain conditions, such as when outside, or only during certain seasons, although, over time, this often becomes less specific. Typically, they show sharp, vertical movements of the head and experience nasal irritation.

### **Investigation of cases**

A typical history and observation of sharp, vertical head shaking with nasal irritation would raise the index of suspicion for facial pain. A positive response to diagnostic local analgesia of the infraorbital nerve caudally would confirm head shaking due to facial pain. However, as is the case in orthopaedic investigations, there are several reasons why diagnostic local analgesia may give a false negative, and a diagnosis may need to be reached by exclusion. Any possible underlying pathology should be searched for, with computed tomography of the head, upper respiratory tract and guttural pouch endoscopy, ophthalmic and oral examination being performed. Where no pathology is found and a diagnosis of facial pain is reached, the likely cause of that facial pain is a neuropathy.

## **Treating head shaking due to facial pain from a trigeminal neuropathy**

Unfortunately, this condition carries a poor prognosis and, as yet, there is no universal, effective low-risk treatment. Many horses are, therefore, euthanised, either because they cannot be ridden, due to their head shaking and retirement is not an option for their owners, or they are experiencing pain even when at rest in the stable or field.

Use of a nose net is an economical, non-invasive and riskfree treatment that can be expected to provide up to 70 per cent relief in 25 per cent of cases (Mills and Taylor, 2003). Nose nets may benefit the horse by providing constant stimulation to the cutaneous components of the infraorbital

nerve (Newton et al, 2000). Carbamazepine and cyproheptadine are drugs that have central effects on neurotransmission and have been used alone or together with varying efficacy (Newton et al, 2000; Madigan and Bell, 2001). Little is known of their pharmacology in horses and this, together with costs of long-term treatment and side effects of drowsiness, often precludes their use.

Bilateral infraorbital neurectomy has been reported, resulting in long-term resolution in only three out of 19 (16 per cent) horses (Mair, 1999). While this is a poor outcome, it demonstrated this type of therapy warranted further investigation. A variety of surgical techniques is used to treat people suffering from facial pain syndromes. Most access the nerve caudally, just before entry to the brainstem. This site is not accessible in horses at the present time.

Newton et al (2000) performed bilateral posterior nasal nerve sclerosis at the caudal extent of the infraorbital canal, giving 90 per cent to 100 per cent short-term resolution of clinical signs in five out of five horses. Caudal compression of the infraorbital nerve is a technique based on balloon compression, sometimes used in human facial pain, to change nerve function as far caudally as possible, with the aim of abolishing bursts of pain conduction without the risk of neuroma formation.

Short-term success of this surgery was 35 out of 57 (61 per cent) but, similar to balloon compression in people, some cases relapsed to give a long-term success rate of 28 out of 57 (49 per cent) horses (Roberts et al, 2012). A majority of these horses suffered a side effect of nose-rubbing and sometimes increased head shaking following surgery. This was usually transient, but in four cases was as severe or prolonged as to require euthanasia. It is for this reason that, while the procedure is likely to be the best available treatment for head shaking, due to trigeminal neuropathy, it is recommended just for those horses where euthanasia is the only alternative (Roberts et al, 2012).

## **Conclusions**

The surgical treatment of head shaking, due to trigeminal neuropathy, is promising, but requires refinement and improvement. However, even in human trigeminal neuralgia there is no universally effective, minimally-invasive surgical treatment that immediately and completely relieves signs with consistent long-term results and without side effects (Tatli et al, 2008). Head shaking in horses remains a significant welfare issue that justifies the application of current treatments in selected cases even though the failure rate is finite.

It is imperative we continue to investigate the aetiopathogenesis of this pain syndrome to develop improved medical and surgical therapies.

## **Appeal for cases**

The author is grateful to the British Neuropathological Society for funding a current study into possible pathology. We require postmortem samples from a limited number of head shaking horses

that are to be euthanised for their condition. Should you have such a case, with owners willing for their horses to be involved in the study, please email [veronica.roberts@bristol.ac.uk](mailto:veronica.roberts@bristol.ac.uk)

- Some of the drugs mentioned in this article are used under the cascade.

## References

- Baabor M G and Perez-Limonte L (2011). Percutaneous balloon compression of the gasserian ganglion for the treatment of trigeminal neuralgia: personal experience of 206 patients, *Acta Neurochir Suppl* **108**: 251-254.
- Brown J A (2009). Percutaneous balloon compression for trigeminal neuralgia, *Clin Neurosurg* **56**: 73-78.
- Kouzounias K, Schechtmann G, Lind G, Winter J and Linderoth B (2010). Factors that influence outcome of percutaneous balloon compression in the treatment of trigeminal neuralgia, *Neurosurgery Oct* **67**(4): 925-934.
- Lane J G and Mair T S (1987). Observations on head shaking in the horse, *Equine Vet J* **19**(4): 331-336.
- Madigan J E and Bell S A (2001). Owner survey of head shaking in horses, *Am Vet Med Assoc* **210**(3): 334-337.
- Mair T S (1999). Assessment of bilateral infra-orbital nerve blockade and bilateral infra-orbital neurectomy in the investigation and treatment of idiopathic head shaking, *Equine Vet J* **31**(3): 262-264.
- Mills D S and Taylor K (2003). Field study of the efficacy of three types of nose net for the treatment of head shaking in horses, *Vet Rec* **152**(2): 41-44.
- Newton S A, Knottenbelt D C and Eldridge P R (2000). Head shaking in horses: possible aetiopathogenesis suggested by the results of diagnostic tests and several treatment regimes used in 20 cases, *Equine Vet J* **32**(3): 208-216.
- Pagni C A (1993). The origin of tic douloureux: a unified view, *Journal of Neurological Sciences* **37**: 185-194.
- Roberts V L, Perkins J D, Skärilina E, Gorvy D A, Tremaine W H, Williams A, McKane S A, White I, Knottenbelt D C (2012). Caudal anaesthesia of the infraorbital nerve for diagnosis of idiopathic head shaking and caudal compression of the infraorbital nerve for its treatment, in 58 horses, *Equine Vet J Epub*.
- Tatli M, Satici O, Kanpolat Y and Sindou M (2008). Various surgical modalities for trigeminal neuralgia: literature study of respective longterm outcomes, *Acta Neurochir* **150**(3): 243-255.