

Acupuncture for Oral Problems

The treatment of animals with orofacial pain and dysfunction can be frustrating. Pharmacologic control may prove ineffective or be contraindicated. When clients request a “natural” treatment for their animal, what can reasonably be offered as an alternative? What will be safe and effective? Is there evidence to support its use? For orofacial pain, research does exist in the human literature on the use of acupuncture.^{1 2 3} Evidence also suggests that acupuncture helps restore facial nerve function⁴ and can effectively treat xerostomia. As with most approaches in complementary and alternative veterinary medicine, however, evidence for similar veterinary clinical applications is largely unavailable as yet.

Scientific Basis

Acupuncture for orofacial pain and facial paralysis works primarily through cranial nerve stimulation of primarily the trigeminal and facial nerves, respectively. In treating xerostomia, needles stimulate parasympathetic function. Acupuncture for craniomandibular pain targets sensitive spots primarily in the muscles of mastication. The value of practicing acupuncture from a neurophysiologic perspective is that one can more readily and justifiably extrapolate treatments from humans onto animals, based on neuroanatomically relevant transposition of acupuncture points across species.

Postoperative dental pain

Treatment of postoperative dental pain, a strongly supported application of acupuncture in humans, provides analgesia by affecting the trigeminal and facial nerves on the face, and by reducing sympathetic nervous system tone with a point on the hand. (See Figures 1 and 2.) Transposed locations of points over these nerves in the dog appear in Figures 3 and 4.

Canine masticatory muscle myositis (MMM)

Anecdotal evidence suggests that acupuncture may be helpful for canine MMM. This inflammatory myopathy is one of the most common forms of myositis in

¹ Rosted P. The use of acupuncture in dentistry: a review of the scientific validity of published papers. *Oral Diseases*. 1998;4:100-104.

² Rosted P. Introduction to acupuncture in dentistry. *British Dental Journal*. 2000;189(3):136-140.

³ List T and Helkimo M. Acupuncture and occlusal splint therapy in the treatment of craniomandibular disorders. II. A 1-year follow-up study. *Acta Odontol Scand*. 1992; 50:375-385.

⁴ Liu YT. A new classification system and combined treatment method for idiopathic facial nerve paralysis: report of 718 cases. *American J Acup*. 1995;23(3):205-210.

dogs with a predilection for adults and larger breeds.⁵ It causes the masticatory muscles (masseter, temporalis, and pterygoid muscles) to enlarge and hurt; eating can become impossible, and animals may be affected permanently. Forced passive manipulation of the jaw may luxate or fracture the mandible. Acupuncture is one alternative to immunosuppressant therapy, reportedly helping to speed recovery, reduce the need for medication, and extend periods of remission.⁶ However, no systematic studies are available to substantiate these claims.

Equine temporomandibular joint (TMJ) pain

TMJ pain in the horse can present as head shaking, bruxism, and local tenderness to palpation. Acupuncture is reportedly effective for horses with temporomandibular joint pain⁷ although once again, research supporting this claim is not available.

Facial nerve paralysis

The facial nerve is susceptible to trauma as it courses superficially over the mandibular ramus and masseter muscle. Prolonged recumbency and poorly designed halters put the facial nerve at risk of compression. This condition may also affect goats during milking if neck chains compress the facial nerve. Facial nerve paralysis can lead to permanent debility by impairing animals' capacity to eat and drink effectively. One study in the veterinary literature evaluated the use of electroacupuncture for the management of unilateral traumatic facial paralysis (UTFP) in horses.⁸ Researchers analyzed the response of twelve horses with clinically diagnosed UTFP to electroacupuncture as the sole therapy. All subjects were evaluated no later than ten days from the onset of paralysis. Treatment took place on alternate days, with needles placed at seven sites along the ventral buccal branch of the facial nerve and one point in the masseter muscle. The study failed to describe which points received electrical stimulation but it does state that stimulation with 125 Hz lasted thirty minutes. The endpoint was "complete recovery", as evaluated by a colleague unfamiliar with the case. On average, full recovery ensued after thirteen treatments, with visible improvements noted by clients after the first one or two. All but one of the study

⁵ Braund KG. Myopathic Disorders. In: *Clinical Neurology in Small Animals – Localization, Diagnosis, and Treatment*. (KG Braund, ed.). Published by International Veterinary Information Service (www.ivis.org), Ithaca, NY, USA. Obtained at www.ivis.org/special_books/Braunds/braund20a/ivis.pdf on 12/17/02.

⁶ Kline KL et al. Chapter 13, Acupuncture for Neurologic Disorders. In *Veterinary Acupuncture, Ancient Art to Modern Medicine, 2nd Edition*. St. Louis: Mosby. 2001, p. 191.

⁷ Fleming P. Chapter 33, Acupuncture for Musculoskeletal and Neurologic Conditions in Horses. . In *Veterinary Acupuncture, Ancient Art to Modern Medicine, 2nd Edition*. St. Louis: Mosby. 2001, pp. 443-466.

⁸ Sumano H et al. The use of electroacupuncture for the management of unilateral traumatic facial paralysis in the horse: preliminary report. *American Journal of Acupuncture*. 1997; 25(2/3):169-174.

participants achieved full recovery – the horse that did not eventually exhibited a neuroma. Over the six month follow-up period, there were no relapses among the fully-recovered horses. The authors acknowledge that one problem with the study design was lack of a control group. However, another issue is that most cases of traumatic facial nerve paralysis resolve on their own, within one to ten days, without acupuncture.⁹ Thus, based on the natural course of the disease, it is difficult to determine whether the animals in this study would have improved on their own or as quickly – an important reason to include a control group and sufficient numbers of subjects to perform statistical analysis. Nevertheless, if rapid and dramatic improvements in facial nerve function did occur immediately following treatment as the authors noted, it is likely that acupuncture was beneficial.

Dental caries

A study on rats fed a caries-inducing diet showed that acupuncture decreased *Streptococcus mutans* counts in rats and increased antibodies against these caries-causing bacteria.¹⁰

Xerostomia

Acupuncture provides statistically significant, and often long-term, improvements in salivary flow rates for people with xerostomia, even in patients who are otherwise refractory to the best current medical management available.^{11 12} Both human and non-human patients are susceptible to xerostomia after radiation therapy to the head and neck. Xerostomia may also accompany autonomic nervous system dysfunction (dysautonomia) and Sjogren's syndrome in animals. Acupuncture stimulation of salivary gland function in animals remains to be studied.

Ptyalism

Tongue acupuncture effectively improves severe drooling problems in children, providing an important alternative to invasive surgical procedures.¹³ This application is presented here for completeness only, as drooling in children frequently results from neurologic impairments in conditions such as cerebral palsy, and is less frequently associated with true hypersecretion of the salivary glands. Suggested Traditional Chinese Veterinary Medical (TCVM) acupuncture

⁹ Smith BP (ed.). *Large Animal Internal Medicine, 2nd Edition*. St. Louis: Mosby, 1996, p. 1173.

¹⁰ Shimura N et al. Prevention of dental caries by acupuncture. *Bull Tokyo Med Dent Univ*. 1980; 27(3):137-9.

¹¹ Johnstone PAS et al. Acupuncture for pilocarpine-resistant xerostomia following radiotherapy for head and neck malignancies. *Int J Radiation Oncology Biol Phys*. 2001;50(2):353-7.

¹² Blom M and Lundberg T. Long-term follow-up of patients treated with acupuncture for xerostomia and the influence of additional treatment. *Oral Diseases*. 2000; 6:15-24.

¹³ Wong V et al. Traditional Chinese medicine (tongue acupuncture) in children with drooling problems. *Pediatr Neurol*. 2001; 25(1):47-54.

approaches for excessive salivation and “foaming from the mouth” in horses involves needling points on the tongue, hard palate, or submental region.¹⁴ However, the differential diagnosis of equine ptyalism includes heavy-metal toxicity, parasympathomimetic poisoning, neurologic disease, and stomatitis. As such, the importance of ruling out life-threatening and zoonotic diseases well before considering acupuncture cannot be overemphasized.

Conclusion

Based on the physiologic influence of acupuncture on neurologic recovery and diminution of pain, acupuncture may benefit animal patients with orofacial pain and dysfunction. Judicious patient selection, informed consent of clients based on the best available information, and careful treatment planning remain continually important.



Fig 1. ST 6, ST 7, and TH 17 in the human



Fig 2. LI 4 in the human

¹⁴ Xie H. *Traditional Chinese Veterinary Medicine*. Beijing: Beijing Agricultural University Press, 1994, pp. 373-4.



Fig 3. ST 6, ST 7, and TH 17 in the dog



Fig 4. LI 4 in the dog