

Electro-acupuncture Combined with Medical Treatment for Successful Management of Legs Paralysis in a Dog

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Abstract

A 5-year-old Siberian Husky female dog was referred with concerned maggots and legs paralysis. The dog was examined clinically and radiographically. She was positive of *E. canis* and Anaplasma. Major clinical sign showed the dog unable to lift the body. Neurological exam was performed, deep pain on all limbs were delayed. The dog got wound treatment and electro-acupuncture through perpendicular insertion into acupuncture points: BL-23, BL-26, BL-40, BL-60, ST-36, and LIV-3 for 20 minutes/day, 70 Hz and 5A, continuously, for 15 days and then reduce to 3 times/week. Significant improvements were observed, finally the dog being recovered. This case showed favorable therapeutic response by alternative treatment.

Keywords: canine, leg paralysis, acupuncture, alternative treatment

Introduction

Peripheral nerve damage is often the cause of leg paralysis. While some conditions can be remedied through surgery, others may not be able to be treated and will require supportive, lifelong care as the limb will not be functional. A variety of research studies have confirmed the efficacy of acupuncture for neurological disorders in veterinary medicine.^{1,2,3,4,5}

Case History and Clinical Observation

A female Siberian Husky, approximately 5 years old, came with concerned maggots and paralyzed on all legs. The owner has put her inside cage for 3 years and never go out. She started to be paralysis a week before brought to Sunset Vet Clinic, Bali. Physical examination was normal, mostly laying down, and could not lift her body. She has maggot accumulation on both lateral of pelvic area and both elbow. Blood test was performed,

HCT was decreased, biochemistry was normal and she got *E. canis* and slightly positive of Anaplasma. Neurological exam was performed as well and all proprioceptive reflexes were negative, deep pain on all limbs were delayed, all withdrawal was negative. Both plain and myelograph X-ray were performed and no abnormality found, she just laid down laterally and unable to move at all.

Treatment and Discussion

The patient got wound treatment with Sangobion, Doxycycline, and Clindamycin for a week. Her condition was improved, she started to move her head. Two weeks after treatment, her both front limb started to be responsive and she started to lift her head and tried to change her position to ventral position. We explained that what we can do now trial with acupuncture since we do not have CT Scan/MRI for further checkup while see her response.

Electro-acupuncture treatment technique was used, with identifying of the meridian known as responsible for leg paralysis and adjacent regions affections. It may be a simple method of indirectly applying an electrical stimulation to deep tissue. Considering the very small

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(about 0.2mm) diameter of an acupuncture needle used for this purpose together with the shape of its tip, electro-acupuncture will cause only minimal tissue damage. In our case, the major meridian was the Bladder channel (BL), Stomach channel (ST), and Liver channel (LIV) with a total of 6 acupuncture points: BL-23, BL-26, BL-40, BL-60, ST-36, LIV-3 (Table 1).

As technique, it was used an electro-acupuncture device and sterile acupuncture stainless steel needles (0.25 x 25 mm) for single use perpendicularly inserted into the acupuncture points. BL-40 (*He-sea* point) was chosen as primordial acupuncture points for master

point for the caudal back and coxofemoral joints, further acupuncture points being selected on the basis of individual response.⁶ The electro-acupuncture treatment session duration was 20 minutes/day, 70 Hz and 5A, and lasted continuously, for 15 days and then reduced to three times a week. Electro-acupuncture treatments using high frequencies (80-120 Hz) induced a stronger local analgesic effect than electro-acupuncture treatments using low frequencies (20 Hz).² The duration of acupuncture treatment accorded to individual response, which was evaluated by continually monitoring symptoms as they evolved during treatment and in the subsequent weeks.⁷

Table 1. Acupuncture points used to treat dog with leg paralysis.⁸

Acupoints	Depth (CUN)	Attributes and indication
BL-23	1	<i>Shen-shu</i> ; Back-shu association point for the kidney; kidney <i>Yin</i> and <i>Qi</i> deficiency, renal diseases, urinary incontinence, impotence, edema, auditory dysfunction, thoracolumbar intervertebral disk disease, pelvic limb weakness, coxofemoral joint osteoarthritis.
BL-26	1	<i>Guan-yuan-shu</i> ; Gate of <i>Yuan-source Qi</i> ; kidney Yang and <i>Qi</i> deficiency, impotence, urinary incontinence, diarrhea, abdominal pain, lumbosacral pain.
BL-40	1	<i>He-sea</i> point (earth); master point for the caudal back and coxofemoral joints; dysuria, urinary incontinence, coxofemoral joint and thoracolumbar intervertebral disk disease, autoimmune disease, vomiting, diarrhea, pelvic limb paresis or paralysis.
BL-60	0.5	<i>Kun-lun</i> ; <i>Jing-river</i> (fire); epistaxis, intervertebral disk disease, cervical pain, thoracolumbar pain, hock pain, epilepsy, dystocia, hypertension.
ST-36	1.5	<i>He-sea</i> point (earth); master point for GI tract and abdomen; nausea, vomiting, stomach pain, gastric ulcer, food stasis, general weakness, constipation, diarrhea
LIV-3	0.5	Tai-chong; <i>Hu-stream</i> point (earth), <i>Yuan-source</i> point; liver <i>Qi</i> stagnation, abnormal cycle, fetlock pain, paralysis of hind limb.

In the first treatment, the patient responded positively. However, she did not show any sensitivity and did not support at all the pelvic limbs. After a week, significant improvements were observed, mainly related a gradually increased sensitivity of all limbs, which proprioceptive on both front limb are better than both

hind limb. Unfortunately, the total support hindquarters were accomplished yet only for a very short period of time (10-15 seconds), not yet strong enough to stand up by herself. After eleventh treatment, she was stronger on both front limb and she started to use both hind limb, proprioceptive on both hind limb changed from negative

to delayed. Right hind limb was stronger than left hind limb. She also got physiotherapy and massage. After

a month, she can stand up after lay down by herself. Following four electro-acupuncture sessions settling the animal's entire recovery.



Fig 1. The case with leg paralysis.(a. Two weeks after medical treatment, the dog's front limb started to be responsive and she started to lift her head; b. A week after acupuncture treatment, the dog not yet strong enough to stand up by herself; c, d. A month after acupuncture treatment, the dog can stand by herself and walk again)

Electro-acupuncture combined with standard conventional medical treatment were more effective for leg paralysis in dog. Treatment consists in the use of local acupuncture points around the affected nerve, combined with corresponding distant meridian points. The success rate of acupuncture is likely to be inversely proportional to the degree of the nerve damage.⁹ From a Traditional Chinese Veterinary Medicine (TCVM) point of view, the treatment of acupuncture is aimed to induce and promote the flow of *Qi* and blood to the extremity.¹⁰ Electro-acupuncture can deliver an electric current of low

frequency via needle electrodes. It can be used to apply electric currents directly to deep tissue, and mainly used for pain control. By improving the circulation, the nerve tissue of the affected area can be nourished, thereby restoring the nerve function and reducing pain.

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References

1. Hunley S and Xie H. Veterinary acupuncture: current use, trends and opinions. *American Journal of Traditional Chinese Veterinary Medicine*. 2011;6:55-62.
2. Xie H, Ott EA, Harkins JD, Tobin T, Colahan PT, Johnson M. Influence of electro-acupuncture stimulation on pain threshold in horses and its mode of actions. *Journal of Equine Veterinary Science*. 2001;21:591-600.
3. Jeong SM, Kim HY, Lee CH, Kweon OK, Nam TC. Use of acupuncture for the treatment of idiopathic facial nerve paralysis in a dog. *Vet Rec*. 2001;19:632-633.
4. Lloret L and Hayhoe H. A tale of two fox-case reports: 1. Radial nerve paralysis treated with acupuncture in a wild fox, 2. Acupuncture in a fox with aggressive and obsessive behavior. *Acupuncture in Medicine*. 2005;23:190-195.
5. Inoue M, Hojo T, Yano T, Katsumi Y. The effects of electroacupuncture on peripheral nerve regeneration in rats. *Acupuncture in Medicine*. 2003;21:9-17.
6. Chrisman C and Xie H. Canine transpositional acupoints. In: Xie's *Veterinary Acupuncture*. First Ed. Blackwell Publishing, Oxford, England. 2007;P129-263.
7. Hulea CI, Cristina RT, Pentea MC, Dumitrescu E. Dry needle acupuncture in locomotory paresis post column trauma in dog - case study. *Animal Science and Biotechnologies*. 2013;46:407-411.
8. Xie H and Preast V. Acupuncture for treatment of musculoskeletal and neurological disorders. In: Xie's *Veterinary Acupuncture*. First Ed. Blackwell Publishing, Oxford, England. 2007;P 251-254.
9. Still J. ABVA course of veterinary acupuncture. Module 4. *British Medical Acupuncture Society*, Winington Court, Northwich. 2003;P1-20.
10. Xie H and Preast V. *Traditional chinese veterinary medicine, Volume 1: Fundamental Principles*. First Ed. Jing Tang Publishing, Florida, USA. 2002;P149-191.