

Case Report

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Montpellier, France

Acupuncture used to treat hindlimb paralysis in a Dachshund

Dominique Moccelin
Clinique Vétérinaire de Baillargues
Impasse Charles Fourier
34670 Baillargues , France
Phone number : 04 67 70 04 30
Mail : scpveterinaires34@orange.fr

Clinical case:

Acupuncture used to treat hindlimb paralysis in a Dachshund

Abstract:

Acupuncture treatment was successfully used in a Dachshund with hindlimbs paralysis following a lumbar disc extrusion surgically treated 3 weeks earlier.

History:

Jessy, a 6 year old dachshund female, was presented at the clinic on December 21, 2019 for a sudden onset of posteriors paralysis. Stage 4 lumbar disk extrusion was suspected. Jessy was referred for a scanner at the veterinary hospital. The scanner revealed a L1-L2 disk extrusion, compressive and mineralized. (figure 1). An hemilaminectomy has been performed on December 22, 2019. The neurological prognosis was reserved.

On January 6, 2020 Jessy came back to the clinic to remove the sutures. The dog is still paralyzed with only a light deep sensibility (stage 3-4 of the classification). In agreement with the owner, it is decided to start an acupuncture treatment beginning January 11, 2020.

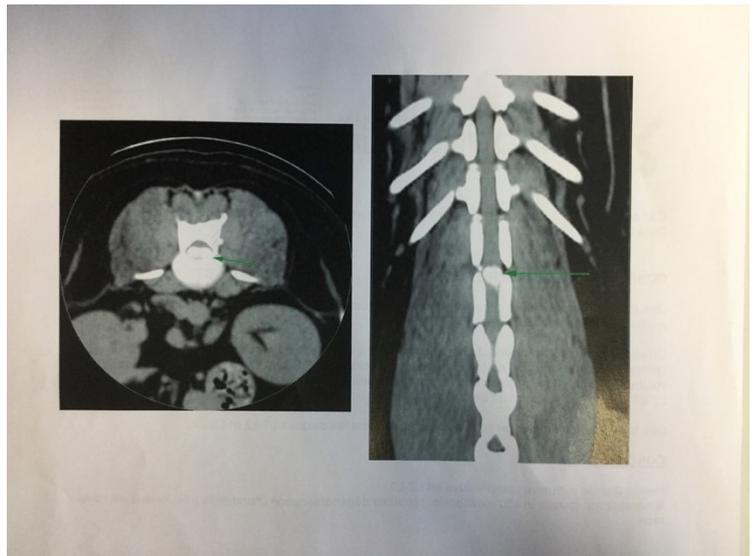


Figure1

Western Diagnostic:

January 11, 2020 (20 days after surgery): Jessy is in good health, appetite is preserved, she is alert. Jessy can only move on the front legs, dragging her rear legs. At neurological examination, a deep pain sensation is present at palpation of some pads, there is no superficial sensation and the hindlimbs are totally paralyzed. Proprioceptive reflexes are absent. Palpation of the surgical area shows no pain. As it stands, the hemilaminectomy did not allow recovery of the neuronal pathway and Jessy is still paralyzed.

Eastern Diagnostic:

January 11, 2020: The paralysis of Jessy's hindlimbs is a Bi Syndrome (1). This is described in TCM as a stagnation of Qi, blood and phlegm localized in the lumbar region where the disc protrusion took place. The cause can be trauma, external pathogens factors, malnourishment of the disk tissue, a Jing deficiency (the dachshund is a predisposed breed) or imbalance in internal organs (kidney deficiency) (1).

In the case of Jessy, the Bi syndrome is mostly of constitutional origin (Jing): on clinical examination, the back shu points and the alarm points are not reactive, the tongue and the pulse are asymptomatic, Jessy's shen is strong and balanced.

Western treatment:

Prednisolone: 0,5 mg/kg BID

Gabapentin: 10mg/kg BID

Tramadol: 2mg/kg BID

Eastern TCVM treatment:

Principles (1):

1. Local points: we use the points of the bladder meridian on each side of the spine, proximal and distal to the lesion.
2. Distal points: they are used to reduce pain, move the Qi and Blood and eliminate Plegm and stagnations.
3. Points to deal with an underlying pattern: treat the Spleen to nourish the muscles, treat the Liver-Gallbladder channel to nourish the sinews and treat Kidney to strengthen the back and improve proprioception.
4. Electroacupuncture: for stimulation of nerves, analgesia and regeneration of the nerve sheath.

Acupuncture:

Dry needle acupuncture treatment using Cloud and Dragon 0,20mm x 13 mm placed at depth of 5mm using an even needle technique at all points for 10 minutes.

Electroacupuncture with the same dry needle, using the AS SUPER 4 Digital (Schwa-medico) (Figure 2), 4-channel needle stimulator with the « Han-Mixed Frequency » program:
2Hz-210µs/15Hz-200µs for 5 minutes.



Figure 2

Points (2,3):

SI 3, Hou Xi , opening point for the Du Mai (Governing vessel),couple point for the Yang Qiao Mai	In the depression proximal to the metacarpophalangeal joint on the lateral side of the 5th metacarpal	Combine with BL62, moves Qi along the spine from the neck to the back
BL62, Shen Mai, coupled point for the Du Mai (GV)	In the depression overlying the joint space between the talus and calcaneus, distoplantar to the lateral malleolus in the standing position	Eliminates obstructions in the channel, strengthens back, benefits pelvis pain, pelvis weakness and paralysis
KI1, Yong Quan, Kidney jing-Well point	In the depression on the plantar surface of the foot, between the 2 nd and 3rd metatarsal bones, proximal to the	Tonifies kidney yin, benefits hindlimbs paralysis, stimulates proprioception.

	metatarsophalangeal joint.	
KI3, Tai Xi, Kidney source point	In the depression cranial to the tuber calcanei, at approximately the midpoint of a line drawn from the tip of the medial malleolus to the point of insertion of the common calcanean tendon	Tonifies the Kidneys, strengthens caudal back
Yao-Bai-Hui , Lumbar Bai- Hui	In the depression on the dorsal midline in the lumbosacral space.	Activates Qi and Blood, Yang deficiency, hindlimb paralysis and paresis
BL60, Kun Lun	In the depression cranial to the tuber calcanei, at approximately the midpoint of a line drawn from the tip of the lateral malleolus to the point of insertion of the common calcanean tendon	Removes obstructions from the channel, relaxes tendons, strengthens the caudal back
GB34, Yang Ling Quan, influential point for tendons and ligaments	In the depression cranial and distal to the head of the fibula	Strengthens the caudal back and extremities
GB39, Xuan Zhong, Hui meeting point for the marrow	In the depression 3 cun proximal to the tip of the lateral malleolus, between the caudal border of the fibula and the tendons of the peroneus longus and brevis mm.	Benefits the marrow (brain and spinal cord), paralysis of hindlimbs.
LIV3,Tai Chong, Source, Shu Stream and Earth point	In the depression on the dorsum of the rear foot, between the 2 nd and 3 rd metatarsal bones, at the level of the junction of their heads and shaft, just proximal to their	Promotes flow of Liver Qi, relieves Qi stagnation anywhere in the body

	associated metatarsophalangeal joints	
BL40, Wei Zhong, Master point for the caudal back and hip region	In the depression of the popliteal fossa at the midpoint of the transverse crease, in the division of the biceps femoris and the semitendinosus mm.	Clears Heat, resolves dampness, removes obstructions from the channel, eliminates blood stasis.
ST36, Zu San Li, Foot Three Miles	In the depression just lateral to the distal aspect of the cranial border of the tibial crest, approximately in the middle of the cranial tibialis muscle	Tonifies Qi and Yang, nourishes Blood and Yin, benefits the hindlimbs
SP6, San-Yin-Jiao, Three Yin intersection	In the depression 3 cun proximal to the tip of the medial malleolus of the tibia, on the caudal border of the tibia	Tonifies Qi, Blood and Yin especially in the hindlimbs, benefits pain, stiffness, paralysis and atrophy of hindlimbs
BL54, Zhi Bian, Master point for the hindlegs, supports the lumbar region	In the depression dorsal to the greater trochanter	Activates channel and alleviates pain, benefits the lumbar region and pelvic limb

Treatments:

January 11, 2020: LI3 and BL62 were used to open Du Mai et move Qi along the spine.

Electroacupuncture was used to stimulate nerve impulses in the hindlimb.

For this, we have linked the 2 KI1 points which help proprioception by stimulating them for 5 minutes with the « han » programme.

LIV3, ST36, SP6, GB39 have completed the treatment to create and move the Qi along the hindlimb and benefit spinal cord.

Finally, Bai Hui is left in place for 10 minutes to tonify the posterior part of the body and bring the Yang up to the highest point of the pelvis.

January 16, 2020: Jessy's proprioceptive reflexes returned as well as superficial sensitivity. Jessy's trying to get up but cannot get there yet. A second electroacupuncture session is performed using this time the couple KI1-BL54 in order to tonify the whole limb.

LIV3, BL40, ST36, GB34 complete the electroacupuncture session.

Bai Hui concludes the session.

January 21, 2020: Jessy manages to stand on all four limbs but does not walk yet. Left limb is tonic, right limb is weak.

Perilesional bladder points are used to remove local stagnations near the surgical area.

KI3 LIV3 SP6 GB34 BL60 complete the session.

Bai Hui concludes the session.

January 25, 2020: Jessy begins to move on her 4 limbs. The right posterior is more tonic.

IG3 BL62 is used again to open Du Mai and move Qi and Yang along the Governing Vessel.

KI1 and Bai Hui concludes the session.

January 29 - February 28, 2020: Jessy moves on her 4 limbs with a little ataxia and paresis. 4 sessions were carried out in February to improve Jessy's mobility. The evolution is progressive and at the end of February Jessy walks and runs without help, from the Clinic to her owner's car !!!

Discussion:

The use of the Extraordinary Vessels (IG3 BL62) and Electroacupuncture (EA) are fundamental in the early treatment of a hindlimbs paralyzed animal. The combination of both techniques is very effective to reactivate the Qi flow and promote the restoration of a superficial and deep nerve sensation.

The couple points IG3 Houxi and BL62 Shenmai opens the Gouverning Vessel, strengthens the spine and tonifies Kidney.

Dr Wang Ju-Yi in « Applied channel theory in Chinese medicine » described those pairs points as follows (4):

This is a classic extraordinary vessel pair for the treatment for both chronic and acute lumbar pain. This is primarily since SI3 is the command point of the Du Mai vessel while BL62 is the command point of the Yang Qiao Mai vessel (associated with coordinated muscle functioning). This pair is also used to treat spinal problems, problems with motor skills and numbness in the extremities due to neurological problems. SI3 and BL62 warm the surface and harmonize the muscles of multiple muscle channels along the Yang areas of the body (Yang Qiao vessel function).

Macioccia (5) uses those points diagonally: IG3 left forelimb-BL62 right hindlimb and vice versa. He removes the needles in reverse order.

Perilesional bladder points and Back Hua Tuo Jia Ji points disperse local stagnations (1).

Yao-Bai-Hui directs the Yang upwards and towards the posterior part of the body.

The others acupuncture points are applied to move and make Qi, move blood and remove phlegm, nourish muscles, ligaments and tendons.

These points are used according to the pattern of the TCM clinical examination carried out at the start of each session:

KD1 benefits proprioception.

SP6 benefits Qi, Blood and Yin especially in the hindlimbs and nourishes muscles.

GB34 tonifies ligaments and tendons, GB39 benefits the spinal cord.

BL40 and BL60 remove obstructions on the Bladder channel.

LIV3 and ST36 make and move Qi.

KD3, KD7, SP3, GB30, GB41, BL23 and the others Channel Bladder points could also be used according to the TCM (eight principles pattern) diagnosis.

Electroacupuncture (EA) refers to the application of direct-current electrical impulses to the needles via a special machine, in our case the AS SUPER4 Digital. EA tonifies muscles and stimulates nerve conduction, induces analgesia by releasing opioids peptides (6,7,8) and promotes peripheral nerve regeneration (9).

Two approaches can be used:

- Low frequency < 10Hz for 1-5 minutes (maximum 10 min) produces an analgesia of slower onset but with long lasting effect (7,8). This frequency is indicated for notification, most of all for patients with paralysis or neurological limb weakness (6).
- High frequency >20Hz during 10 to 20 minutes produces an analgesia of rapid onset but with noticeably short duration (7,8). This frequency is mostly indicated for acute and intense pain (6).

Figure 3 shows us the variation of opioid peptides and opioid receptors involved in analgesia depending on the electroacupuncture frequency. (8)

In Jessy 'case, we choose to use the « Han » stimulation program (program 4.2 on our AS SUPER4 Digital) : the frequency is automatically modified within a specific range : Min frequency-Max frequency-Min frequency, the pulse width is constantly adapted depending on the frequency = 2Hz<->15Hz, 210μs<->200μs in 60s during 5 minutes.

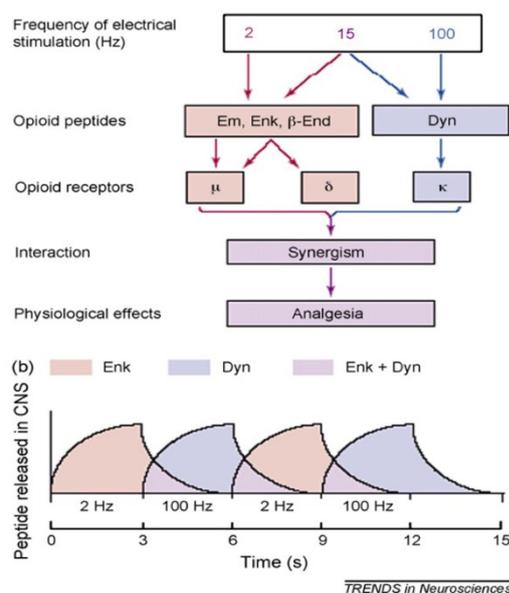


Fig. 3. Opioid peptides and opioid receptors involved in analgesia elicited by electroacupuncture of different frequencies: (a) 2 Hz (red), 100 Hz (blue), 15 Hz (purple). Dyn (dynorphin A); β-End (β-endorphin); Em (endomorphin); Enk (enkephalins). Synergism: simultaneous activation of all three types of opioid receptor elicits a synergistic analgesic effect. (b) Model for the synergistic analgesic effect produced by alternating low- and high-frequency stimulation. Stimulation at 2 Hz facilitates the release of enkephalin (red); that at 100 Hz stimulates the release of dynorphin (blue). The overlapping areas (purple) indicate the synergistic interaction between the two peptides. (with permission from Han, 2003).

The positive results obtained in the case of Jessy attest the efficiency of acupuncture in the treatment of paralysis in our pets.

Some important conditions are necessary to achieve such a result:

1. Treatment must begin as soon as possible after the onset of symptoms. If the paralysis is more than one month old, the results are disappointing.

2. The owner must be motivated, one session per week is a minimum. In the beginning of a non-surgical disc extrusion (which is not Jessy's case), the first sessions are performed every 2 or 3 days or even every days, in this case I recommend hospitalization of the animal during the first week of treatment.

3. Cessation of steroidal anti-inflammatory drugs is mandatory.

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