

## **Case Report**

**2017-2018 Veterinary Acupuncture Hybrid Course**

**BEVAS, Belgium**

### **Report Title**

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**Acupuncture was used in the management of a foal suffering from hind limb paralysis.**

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## ABSTRACT

Acupuncture therapy was used to treat a foal suffering from hind limb paralysis. Four treatments were done during one week, dry needle acupuncture and laser treatment was used, along with conventional medicine. Acupuncture treatment was effective, and we could fully restore sensitivity in the hind legs of the foal, when the conventional treatment wasn't giving effect anymore.

## HISTORY



Vajoras, Lithuanian draft horse, male, 13 days old. The foal was presented to the clinic at July 09, 2018 with both hind leg paralysis. According to the owner, two days before foal was fine. There was no problem with parturition, mare is sound. Foal looked healthy, stood up without the help, strong milk sucking reflex, was moving and playing well, no visual conformation faults. Mare with the foal was kept in a small fenced area with the open shelter, without contact with other horses. All other foals are healthy. Mare and other horses were not vaccinated against herpes virus.

On Friday (July 06, 2018) owner noticed that the foal was lame on the left hind. On Sunday foal lost sensitivity on both hind legs, he couldn't stand and walk by himself. Foal was brought to the local intensive care clinic on Monday morning. This foal was treated for 12 days at the clinic (July 09-20, 2018). Firsts was symptomatic treatment with steroids: *Dexamethasone* 2,0 ml i.v/ 2mg/100kg for the first 3 days, after sol. *Flunixin* (NSAID) 2,5 ml i.v/2,2 mg/kg was used. For the positive effect on energy metabolism, muscles and nervous system: *Biodyl* 10,0 ml i.v for 5 days.; *Vit B complex* 10,0 ml i.v every 6 days (2 times); *Vit E + Se* 2,0 ml. i.m for 5 days.

After the first 3 days of conventional treatment the foal started slowly regaining sensitivity of hind legs. The right hind regained sensitivity from coronary band up to the hock, but no changes in the left hind leg. At the same time the tonus of the tale come back to normal, and it kept strong muscle tone and movement. Foal wants to stand up all the time but cannot use his hind legs at all. From this point on there was no more visible improvement after 5 days of conventional treatment, so owners decided to stop treatment. They agreed to try alternative therapy for one more week and then make final decision.

#### **CLINICAL SIGNS/DIAGNOSTICS/DIAGNOSIS – CONVENTIONAL (WESTERN)**

Conventional diagnosis: paralysis of both hind legs. Legs are worm, but no skin sensitivity from the coronary band, till the coxofemoral joint area. Foal can't move both hind legs at all. The tail lost the tonus and is hanging lose, no pushing reflex, but anus and urethra sphincters are strong and works normally. No signs of evident trauma (no history or skin/soft tissue lesion). No other neurological signs. The head, neck, face, back and body showed no asymmetry.

Foal is active, sensitive, and reacts and is very interested in surroundings; interacts with people. He has very strong, symmetrically developed and abundant musculature. Only paraspinal muscles of the thoracic and lumbar area are tense, due to constant attempts to stand up. No painful reaction, no skin lesion or swellings. Foal is very strong, attentive, has good reactions, eager to move and tries to stand up. Good sucking reflex, drinks very well, urinates, defecates well too.

X-rays from the neck, lumbar and back area are without changes. Blood test showed high WBC count. He has normal body temperature and vital signs normal temperature of the hind legs. The owner declined more diagnostic procedures because of expense.

A presumptive **conventional diagnosis** of both hind leg paralysis due to acute trauma to the lower back area was made based on history, clinical symptoms and by ruling out other conditions.

### **CLINICAL SIGNS/DIAGNOSIS – TCM (EASTERN)**

Foal is 2 weeks old, Earth type: big muscles, calm, eager to eat, standard draft horse. During the evaluation, no reaction was found on Back Shu, Mu points and Meridian pathways. Muscles are developed well, no signs of atrophy or asymmetry; they are warm, in a good tonus. Tongue is pink, good tonus, no covering. Pulse diagnosis was not done.

No evident signs of trauma and pain. No skin sensitivity from the hip area till the coronary band at the plantar and caudal areas. The foal cannot feel and move his hind legs and tail.



**TCM diagnosis** of Qi stagnation and obstruction due to the possible trauma was made based on the history, and gradual sensitivity loss of the hind legs. Governing Vessel Meridian was chosen due to the fact that it is one of the first Meridians that appear in the young animals; also, it has strong connection to the spinal column.

## **CONVENTIONAL (WESTERN) TREATMENT**

This foal was treated for 12 days at the clinic (July 09-20, 2018). First 5 days foal received conventional treatment only. Starting the 6<sup>th</sup> day at the clinic, during acupuncture course, *Syntostigmin* 1,0ml s.c. was used at distal parts of the legs to stimulate muscle functions, also for activation of peristalsis. Infusions of *Ri-Lac* 1000 ml and *Sterofundin* 1000 ml were used every second day. Foal lies down on the side all the time. He receives daily muscle/lymph draining massage and is swapped to the other side every few hours. Foal was drinking mother's milk or synthetic milk replacement every 2 hours.

## **TCM (EASTERN) TREATMENT**

For the acupuncture treatment "Wuijang city"/ "Cloud and Dragon", silicon coated, 0.30mm x 0.13mm dry needles where used together with Red light laser 635 nm "QiPulse" (5-10 sec for a point). Needles were place at depth of 2-5mm and were only inserted and taken out (in and out) without leaving in the acupuncture point, because foal is very young. Laser was used for two different time length: 5 sec for activation and 10 sec for sedation of acupuncture point.

**Principles of Treatment.** To address the main problem, we started by moving Qi stagnation by tonifying Liver and remove obstruction from Governing Vessel.

Addition goals:

1. To strengthen the caudal back and hind legs by using Kidney, Bladder and Gallbladder Meridians and extra points.
2. To strengthen Spleen and Stomach for the better digestion and food elimination.

## Acupuncture points used.<sup>6</sup>

Name	Location	Indication
LIV 3	In the depression just plantar to the 2nd metatarsal bone and distal to its base, at the junction of the proximal and middle thirds of the 3rd metatarsal bone.	Source, Shu Stream and Earth point. Promotes flow of the liver Qi, calms mind and spasms.
GB 44	In the depression on the dorsolateral aspect of the rear foot, just proximal to the coronary band, 1/3 of the distances from the dorsal midline to the plantar border of the lateral bulb of the heel.	Metal and Jing Well (Ting) point. Distal point for problems along the channel. First point the TMM.
Bai Hui Point of 100 Meetings	The depression on the dorsal midline in the lumbosacral space.	Point at which all Yang channels merge. Point for any neurological problem in the hindquarters
WEI Jian Tip of Tail	Directly at the tip of the tail.	Moves Qi and Blood stagnation along the spine. For paralysis and weakness in hind limbs, back pain.
KD 3	In the depression on the medial aspect of the hock area, at the level of the tip of the tuber calcanei.	Earth, Source and Shu Stream point. Strengthens the caudal back, used for paralysis of the hind limbs.
KD 1	In the depression on the plantar midline of the rear foot, between the bulbs of the heel	Jing Well (Ting) point, Wood point. Tonifies Yin. Point for problems along the channel, paralysis of the hind limbs.
BL 67	In the depression on the plantarolateral aspect of the rear foot, just proximal to the coronary band, 2/3 of the distance from the dorsal midline of the coronary band to the plantar border of lateral heel.	Jing Well (Ting) point, Tonification point. TMM point. Removes obstruction from the channel.
SP 2 DA DU	In the depression distal to the metatarsophalangeal joint plantar to the plantaromedial border of the P1.	Ying Spring, Fire and Tonification point. Regulates Spleen and Stomach, Harmonizes Middle Jiao.
ST 36 ZU SAN LI	In the depression just lateral to the tibial crest, in the muscular groove between the tibialis cranialis and the long digital extensor, 2 cun distal to the proximal edge of the tibial crest.	Earth, He Sea point. Benefits Stomach function of the descending, also Spleen function of transformation and transportation. Tonifies Qi and Blood. Immunostimulation.
LI 4 HE GU	In the depression just palmar to medial splint bone and distal to its base, at the junction of the proximal and middle thirds of the cannon bone.	Source point, regulates Wei Qi, activates Qi and Blood, and promotes sympathetic regulation together with LIV 3, ST 36 and GV 20.
GV 20	In the depression on the dorsal midline at the highest point of the poll, just rostral to the nuchal crest.	Has strong influence on Yang, lifts the spirit. For immunostimulation.

***First treatment*** (July 13, 2018).

Red light laser QiPulse for 5 sec on LIV 3, GB 44 to move Qi and KD 3 to strengthen the caudal back. Dry needle (in and out) were used at Bai Hui to activate Yang Meridians of the hindquarters.

Next day after the first treatment foal had stronger tonus in the hind right leg, much better skin sensitivity. He regained sensitivity for the entire right leg, and up to the hock joint on the left one.

***Second treatment*** (July 14, 2018).

Dry needles (in and out) were used at GV 20, KD 1 bilateral, and WEI Jian (tip of the tail) to move Qi and remove obstruction in the vertebra column and hind legs.

Tongue was paler than yesterday, more coating, and sticky saliva. Laser was used for 5 sec on SP 2, ST 36, LI 4 to stimulate digestive system, and help with peristalsis.

Later that day, 4 hours after the treatment, foal was using his hind right leg and tried to put some weight on it, when he was held to drink from the mother. There was strong difference in tonus and movement in both legs. Left is much weaker than the right one. Also, the area of sensitivity became bigger, full strong reaction on sphincters and good tail tonus.

***Third treatment*** (July 17, 2018).

Dry needles (in and out) were used at Bai Hui, BL 67 bilateral to strengthen the lower back and hind legs. Laser was used at Liv 3 and GV 20 to move the Qi, lift the spirit.

Foal still can't stand up by himself, but when staff lifts him up, he can stand for few minutes now. Left hind leg is still much weaker. Paraspinal muscles of the lumbar area are very tense, so foal gets massage few times per day.

***Fourth treatment*** (July 18, 2018).

That morning foal managed to stand up all by himself one time. In the afternoon he even walked few steps alone. There was no needling that day, only massage, stretching and hind leg taping.



### ***Fifth treatment*** (July 20, 2018).

Foal can't stand up by himself every time when he tries, but when he is up, the foal was standing almost without the help.

Laser was used at Bai Hui, WEI Jian (tip of the tail), GV 20 for activation and LIV 1, GB 44 for Qi movement and activation of Tendino muscular meridian.

### ***Sixth treatment*** (July 24, 2018).

Foal stands up and walks all by himself. No acupuncture, just massage.

### ***Last check*** (July 25, 2018).

Foal is doing very well: stands up, walks, trots, even wants to canter.

Update December 26, 2018 (call from the owner)

The foal is growing normally, no visible gait or behaviour changes.

And after 1 Year the foal is perfect



## **DISCUSSION**

13 days old foal was presented to the clinic with both hind leg paralysis. On Friday (July 06, 2018) owner noticed that the foal was lame on the left hind. On Sunday foal lost sensitivity on both hind legs, he couldn't stand and walk by himself. Foal was brought to the local intensive care clinic on Monday morning. This foal was treated symptomatically for 12 days at the clinic (July 09-20, 2018).

After the first 3 days of conventional treatment the foal started slowly regaining sensitivity of hind legs. The right hind regained sensitivity from coronary band up to the hock, but no changes in the left hind leg. At the same time the tonus of the tale come back to normal, and it kept strong muscle tone and movement. Foal wants to stand up all the time but cannot use his hind legs at all. From this point on there was

no more visible improvement after 5 days of conventional treatment, so owners decided to stop treatment. They agreed to try alternative therapy for one more week and then make final decision.

During conventional clinical examination legs were worm, but no skin sensitivity from the coronary band, till the coxofemoral joint area. Foal could not move both hind legs at all. The tail lost the tonus and is hanging lose, no pushing reflex, but anus and urethra sphincters are strong and works normally. No signs of evident trauma (no history or skin/soft tissue lesion). No other neurological signs. The head, neck, face, back and body showed no asymmetry.

A presumptive Western diagnosis of both hind leg paralysis due to acute trauma to the neck/lumbar area was made based on history, clinical symptoms and by ruling out other conditions. Due to the limited owner's budget, some of the diagnostic methods were not used.

For Western medicine the causes of bilateral leg paralysis can be of infectious, intoxication or traumatic origin.<sup>3</sup> This foal is very young (2 weeks old), so infectious origin of the lesion might be a case. We know from the history, that mare wasn't vaccinated against herpes viruses or any other diseases. We also know that other viruses and protozoa that can cause sudden paralysis aren't common in this region. Possible herpes infection was an only option in this case. But blood tests showed no signs of infectious diseases; the body temperature was in normal range so infectious origin of the paralysis was ruled out.

As for toxic materials and plants, the foal is too young to eat them, and the only source of the food is his mother's milk. The mare was in enclosed area without access to the wild plants. All food (hay) was made on this farm and is used to feed other mares with the foals too. Also, there were no other sings for toxicosis as total weakness, convulsions or respiratory distress.

After this analysis the diagnosis of a sudden injury to the spinal cord was considered. Primary mechanical injury to spinal cord result in cord concussion with brief neurological deficits or complete and permanent paralysis.<sup>3</sup> While paralysis started with one hind limb and proceeded to opposite side, possible side of the acute trauma to spinal cord should be located in the lower back, at the lumbar-sacral area and/or peripheral spinal nerves, such as femoral, sciatic, peroneal or tibial.<sup>8</sup> During the examination of the foal, there were no evident signs of traumatic injury on the outside, like swelling, pain, or injury of the skin surface, no changes in the vital signs, blood parameters. The use of anti-inflammatory drugs gave only partial result.

During **TCM diagnostic** was stated that the foal is Earth type: big muscles, calm, eager to eat, standard draft horse. Muscles are developed well, no signs of atrophy or asymmetry; they are warm, in a good tonus. Tongue is pink, good tonus, no covering. Pulse diagnosis was not done.

During the evaluation, no reaction was found on Bach Shu, Mu points and Meridian pathways. This might be to the fact that foal is too young and meridians aren't fully formed yet.<sup>11</sup> While we could not detect affected meridians, they were chosen with correlation to western medicine diagnosis, that is: that hind leg paralysis is usually the cause of the trauma at lumbar, sacral areas and also the peripheral nerves. So meridians of Governing Vessel, Bladder, Kidney and Gall Bladder were chosen as treatment objects.

A TCM diagnosis of Qi stagnation and obstruction due to the possible trauma was made based on the history, and gradual sensitivity loss of the hind legs.

For Traditional Chinese Medicine the causes of the leg paralysis can be due to Qi stagnation, Wei or BI syndromes.<sup>1</sup> Wei syndrome usually is a painless chronic process, and animal will show signs of weakness, poor muscular mass, and spleen deficiency. The foal was too young for this condition and had very good and strong musculature, no signs of weakness. For Bi syndromes we would expect to have strong pain, but there was no evidence of pain in this case.

According to G. Todd (2016), neurological diseases in TCM should be treated based on affected meridian or organ, and by nature of the defect (Qi, blood stagnation, phlegm).<sup>12</sup> This foal is the earth type, with very strong and good developed muscle, but only 2 weeks old, so there is no evident of the phlegm here, as the lifelong Spleen Qi deficiency or Kidney Qi deficiency. Also, the condition of the foal, good spirit showed that there is no essence deficiency at this moment. Even if the foal couldn't stand up, he was adapting to the situation, such as drinking the milk on the sternal recumbence, very well. Was really energetic, attentive, was moving other parts of the body very well, no signs of digestive disorders.

The main question was to separate Qi and Blood stagnation. In TCM pain is the result of Qi, Blood or both Qi and Blood stagnation.<sup>5,7</sup> It is very hard to measure pain level in such young animals, but due to the activity of the foal, normal clinical signs, there was conclusion, that the lesion was no painful. On the other hand, Qi stagnation is less painful; also, the pain might change the localization, while on Blood stagnation it is more fixed at one place. There was no possibility to check this in the foal, if we would consider lameness as sign of the pain expression because he was lying. During Blood stagnation the tongue should be purple in colour, what was not the case with this foal. It wasn't possible to differentiate between location (moving or fixed), nature (distending or stabbing), and hardness (soft or hard) in this case.<sup>1</sup>

In this case the Qi stagnation was most appropriated version in this case. The scheme of removing blood stagnation and strengthening the Water and Wood elements was chosen.

Qi stagnation can be due to excess or deficiency.<sup>1</sup> Trauma usually will cause excess, so the treatment protocol should involve dispersing the Qi and/or Blood Stagnation. Treatment should consist treating the local stagnation and the underlying pattern that allowed the stagnation to occur.<sup>12,13</sup> At this case, the cause was trauma, acute external pathogenic factor.<sup>7</sup> As we were told, the local stagnation should be treated by selecting local points above and below the lesion.<sup>9,12</sup> In our case, there was

no accurate place of the trauma, so as another option the removing of obstruction from the associated meridians was chosen. As Governing Vessel is frequently affected by stagnation, such points as GV 20, Bai Hui, WEI Jian (tip of the tail) were selected.

Based on the diagnosis, we selected main and additional treatment principles. To address the main problem of Qi stagnation due to acute trauma, we decided to tonify Liver, because this organ moves Qi through the body. Dry needles (in and out) at LIV 3, GB 44 were used to move Qi in the whole body.

Then next step was to remove obstruction from Governing Vessel and other presumably affected Meridians. Addition goals were to strengthen the caudal back and hind legs by using Kidney Meridians and extra points. Dry needles (in and out) were used in Bai Hui to activated Yang Meridians of hindquarters. GV 20 and WEI Jian (tip of the tail) points were used to move Qi in the vertebra column and hind legs. The spine is ruled and controlled by the Kidney. Therefore, any back problem is considered to be associated with the Water element, Bladder and Kidney. In this case BL 67 bilateral, KD 1 bilateral, KD 3 points were used to strengthen the caudal back.

Also due to the changes in tongue coating, constant recumbent position was decided to strengthen Spleen and Stomach for the better digestion, food elimination, and to get more Post Heaven Essence. Laser was used for 5 sec on SP 2, ST 36, LI 4 to stimulate digestive system, and help with peristalsis.

In summary, after the initial trauma, foal was losing sensitivity in the hind legs gradually: first he was lame on the left hind leg, later he lost sensitivity of the right one. The reverse pattern of gradually regain of sensitivity was seen after the treatment: first at less affected hind right and later – at hind left. Foal was getting better during the first two days after the start of conventional treatment, but from third day the progress stopped and there was no improvement for three days in a row. The foal couldn't feel and move his hind legs and tail. Foal was down on the side all the time. He received daily muscle/lymph draining massage and was swapped to the other side

every few hours. Owner didn't want to spend more money so alternative treatment was suggested before the final decision of euthanasia.

Acupuncture treatment started at the 6<sup>th</sup> day at the clinic. After the first session, the progress was very strong; everything started to change in hours. Every day foal was getting better and better. Jim Skoien stressed that if the acupuncture is too intense and too frequent, it can result in overstimulation of substance P and CGRP, causing a pro inflammatory effect.<sup>10</sup> The time between the sessions of the treatment was too short, especially in such young animal, but due to the time limit we wanted to do more and do it quick. Also, with such young animals would be better just use the laser instead to needles, but again it was done due to the time limit and stronger effect gain. After the notable progress owners decided to keep that foal, so the length between the sessions was longer. I believe that without acupuncture this foal would have been eutanasied. Also, he has been recumbent for 5 days already and further compression and blood stagnation would have caused damage to the soft tissue and internal organs.

In summary, acupuncture was an effective treatment for this foal and allowed him to stand up and move freely. I strongly believe that acupuncture could be used with very good effect with such type of neurological conditions.

The positive effect of acupuncture can be explained using TCM theory, that acute trauma caused local Qi stagnation. Moving Qi through the body and unblocking the pathways would help to restore balance in the organism.<sup>5,7</sup> The effect of acupuncture using conventional medical theory can be explained by different mechanisms at local (peripheral), segmental (spinal), and suprasegmental (supraspinal) areas.<sup>2,4</sup> This involves local and systemic blood supply activation, toxin removal, tissue repair, and muscle relaxation. Stimulation of acupuncture points activates both peripheral/segmental and central nervous systems. At the spinal cord level, it could be dampening of glutamate receptors, increased serotonin, peptide levels, inhibition of spinal glial activation, blocking of substance P regulation of Nociception receptors. Also the local effect of needle induced inflammation which

stimulates chemoreceptors and A-delta (A $\delta$ ) nerve fibers (nociceptive and proprioceptive nerves).<sup>2,4,10</sup> Due to this endorphins and other neurotransmitters released which will cause local vasodilation, activates healing, and provide a local analgesic effect (neurovascular immune response). Another way is an activation of the spinal reflexes with involvement of proprioceptive sense and cells of anterior horns of the spinal cord.<sup>2</sup>

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## ADDENDUM

		
Foal after first 5 days at the clinic	After the 1 <sup>st</sup> treatment: Foal is using hind right, but not the left one.	After the 3 <sup>rd</sup> treatment: still very weak and needs support to stand.
		
After the 4 <sup>th</sup> treatment: can stand for few minutes	Last days at the clinic.	