

CASE REPORT

2017-2018 BEVAS HYBRID COURSE

RAMSEL, BELGIUM.

**ACUPUNCTURE WAS USED IN THE
MANAGEMENT OF AN 11 YEARS OLD GELDING
SUFFERING FROM CHRONIC OBSTRUCTIVE
PULMONARY DISORDER**

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TITLE

Acupuncture was used in the management of an 11 years old gelding suffering from Chronic Obstructive Pulmonary Disease.

ABSTRACT

'Charlie' is a bay, 11 years old, Irish Sport Horse gelding. He has suffered from asthma since 2017. I saw Charlie on the 13th, 19th, 26th April and again one month later on 24th May 2018. His owner reported an improvement in his condition and a reduced need for his inhaled steroid following acupuncture therapy.

HISTORY

'Charlie' has chronic obstructive pulmonary disorder. He has suffered from the condition for approximately one year. He was particularly bad April 2017. He also suffers from a chronic, serous discharge from his right eye. He has had this for as long as the owner has known him. The owner's previous horse also suffered from COPD.

Charlie divides his time between stabling /outdoor sand manage at the owner's home and pasture at a driving distance from home.

Charlie previously had intraocular fluorescein stain. He was found to have a patent infraorbital foramen.

He had been managed on oral Ventipulmin, (*Clenbuterol hydrochloride 16 micrograms per gram at a dose of 25g BID*). When this treatment failed to provide adequate help, inhaled steroids were used (*Fluticasone propionate inhalation aerosol 250 micrograms/actuation, 8 actuations twice daily as needed*).

CLINICAL SIGNS/ DIAGNOSTICS/DIAGNOSIS- CONVENTIONAL (WESTERN)

Charlie has a chronic, medium-strong cough for a duration of approximately 1 year. He displays dyspnoea at rest and his respiratory rate is increased. Mucous membranes are a little pale. Capillary refill time < 3 secs. Heart rate normal. Temperature is normal. He has mild, clear nasal discharge. He holds his head to the ground when coughing and coughs with great exertion. The owner reports that he improves somewhat with exercise. Lung auscultation reveals bilateral loud crackles, rales and wheezing with sounds being worse on the left- hand side.

His cough and dyspnoea historically have become worse beginning in the spring. He has not had a Broncho-alveolar lavage or Tracheal aspirate done. He does have haematology and biochemistry blood results. Results are included in pictures. Blood results are largely unremarkable but do show slight difference from normal reference range tending towards macrocytic, hyperchromic anaemia, neutrophilia and lymphocytopenia, hyperproteinaemia with hyperglobulinaemia.

CLINICAL SIGNS/DIAGNOSIS – TCM (EASTERN)

13th April 2018

Charlie is 'Metal' constitution being lean and solemn and having a long neck. During my visit he alternated between calm and displaying mild frustration/ irritability. I attributed this frustration to locked or obstructed liver Qi.

Charlie has a longstanding clear discharge (lacrimation) from his right eye. The wood element opens in the eye. Lacrimation is due to Liver Qi pathology. [1]

Pulse diagnosis was not undertaken on this date. His tongue was pale, humid and swollen with a white coating. Swollen and pale tongue relates to Spleen or Kidney Yang or Xue deficiency. White coat is cold external pathogen factor. [2]

He had long, puppy hair on his underbelly. This could either indicate cold or deficiency.

His coat, in general was a little dry (lung qi not nourishing the skin), with particularly dry areas being evident on the stomach and spleen meridians of the hind limbs.

He had a strong, non-productive cough with dyspnoea at rest. (Lung Qi pathology). The owner reported that this cough seemed to improve during exercise (deficiency problem rather than excess, but as there is a strong cough maybe the deficiency lies elsewhere to lung deficiency).

Indicator and Back-Shu points [3]

Left side: -

Pain at LI 16 & LI 17 - indicative of lower respiratory problem and throat pain from external pathogen factor.

Pain at ST 10 – stomach problem or stifle pain

Deficiency at BL 18 – Back-Shu point for liver,

Deficiency at BL 20 – Back-Shu point for Spleen

Deficiency at BL 23 – Back-Shu point for Kidney

Pain at BL 21 – Back-Shu point for stomach

Pain at LV 13 - Mu point for spleen

Ting point examination revealed Lung excess.

Right side: -

Pain at LI 16 & LI 17 see above

Excess felt at BL 13 – Back-Shu point of Lung

Deficiency at BL 18

Deficiency at BL 20

Deficiency at BL 23

Pain at LV 13 – Spleen Mu

Pain at LV 14 – Liver Mu

I made a diagnosis of damp cold in the lungs & spleen and kidney yang deficiency.

I treated him as outlined later in Treatment paragraph.

19th April 2018

On my second visit to Charlie one week later I noted Deficiency in the following Back-Shu points: -

BL 21 Stomach, BL 20 Spleen and BL 18 Liver. I noted that deficiency seemed more on the right-hand side compared to the left.

The owner had reported a slight improvement in his right eye from the first day. Charlie was still showing signs of dyspnoea at rest.

Charlie spends 80% of his time in the sand arena. Upon questioning, the owner admitted it would be difficult for him to put Charlie in the field full time as he would have to box him home each day to ride. I asked the owner to water the sand arena as much as possible to minimize the inhalation of the tiny sand particles. I also asked him to avoid feeding hay from the ground. To place Charlie's hay in a net.

23rd April 2018

The owner had been meticulous about watering the sand arena and had started to feed Charlie from a hay net.

Today, there is still dry skin at stomach and spleen meridians of Charlie's hind limbs. The owner reports this also as a longstanding affliction. His right eye is running again.

Back-Shu points today reveal deficiency at BL 15 Heart Shu and pain at BL 13 and BL 14 Lung and Pericardium back-Shu points respectively.

His tongue is pale, swollen with white slobber – Spleen involvement with damp.

His pulses were stronger after treatment today than before.

For some time, I have felt that there is some level of grief or melancholy here. Horse and owner are empathetic toward each other and there may be mirroring of emotions.

Lung auscultation was noticeably improved today.

24th May 2018

The owner reported that Charlie has been coughing less. He has put on condition and all round, he is happy with his progress. He has followed my instructions and has tried to keep him off the sand arena. He tries to put him in the field where possible and when he cannot, he waters the sand ring. He used 'two puffs' of his inhaler yesterday before a competition but says that this is the only time he has had to use it in the last month. He is happy with him in competition and reports that the horse is 'going very well'.

Indicator points

Left: -

LI 16 small amount pain on palpation no pain on Right LI 16 today.

Ting excess and heat felt at Lung ting point LU 11

Ting excess bladder ting or BL 67

BL 15 excess and reaction – Heart Back-Shu point

Bl 18 reaction – Liver Back-Shu

BL 20 reaction – Spleen Back-Shu

LV 13 reaction – Spleen Mu

GB 24 and LV 14 – slight reaction Liver and GB mu points with deficiency at GB Mu

Right: -

Ting heat TH ting or Th 1

Bl 13 deficiency Back-Shu Lung

Bl 20 Deficiency and reactive Back- Shu Spleen

Bl 15 excess Back-Shu heart

Bl 18 and Bl 19 reactive – Back-Shu Liver and Gall bladder

Ting heat in Spleen ting or SP 1.

CONVENTIONAL (WESTERN) TREATMENT

The only treatment that Charlie was receiving at the time of acupuncture treatment was occasional inhaled Flixotide (Fluticasone propionate inhalation aerosol 250 micrograms/actuation). He would have 7-8 actuations via inhalation route as needed.

TCM (EASTERN) TREATMENT

On my first visit a diagnosis of damp cold in the lungs and spleen and kidney yang deficiency was made.

I used a balanced treatment method aimed at tonifying the Spleen and helped Kidney by use of Back-Shu point. A yin meridian point on one fore and hind limb balanced by a yang meridian point. I used Tai yin and yang Ming energetic levels.

I used Seirin needles 0.18 mm gauge x 15 mm diameter and 0.30mm gauge x 30 mm diameter. I used an even needling technique. Dry needling, duration 15 minutes.

All points used on every visit are tabled below: -

POINT & LOCATION	REASON FOR USE
SP 6, Sanyinjiao. 3 cun proximal to medial prominence of medial malleolus of tibia caudal to the caudal border of the tibia.	Have an effect on SP, LV and KD meridians. This point benefits SP function of transformation and transportation; benefits Kidney function of dominating water metabolism and benefits LV function of flow of Qi
ST 44, Neiting. Dorsal midline of proximal phalanx of hindlimb at level of intersection of the extensor tendon and the medial and lateral extensor branches of the suspensory ligament	Water point of the stomach meridian. His hair on his stomach meridian was dry at the front of hindlimb and I wanted to help this.

LI 4, Hegu. In depression palmar to 2 nd metacarpal bone at the junction of the proximal and middle thirds of the cannon bone.	I used this point to expel the cold. To regulate wei qi and to stimulate the dispersing lung function
LU 1, Zhongfu. In deep depression in the centre of the muscle belly of the pectoralis descendens.	I used this point as the mu point of the lung and because of its reunion with the Spleen. This point stimulates the descending of lung Qi and makes phlegm move and transforms phlegm.
BL 13, Feishu. 3 cun lateral to dorsal midline of back in 8 th intercostal space	Back Shu for Lung. Regulates lung, nutritive and defensive Qi. Dispels and promotes Lung function of dispersing Qi
BL 23, Shenshu. 3 cun lateral to dorsal midline of back between spinous process of L2-L3.	Back Shu for kidney. Tonifies Kidney. Benefits Kidney function of dominating water. Dispels and transforms dampness.

2nd visit 19th April

LU 8, Jingqu. Between styloid process of radius and radial artery 1 cun to most medial prominence of styloid process.	Useful in chronic lung problems. Horary or king point. Descends Lu Qi. Good for use in heaves.
LI 16, Jugu. In muscular groove between cleidomastoideus portion of brachiocephalicus and omotransversarius muscles, cranial to subclavius ventral to cervical vertebral column.	Regulates Qi and blood. Removes obstructions from the channel. I used this point as it was sore to palpate.
LV 3, Taichong. In depression, planter to 2 nd metatarsal bone and distal to its base.	Earth point of LV meridian. Promotes flow of Liver Qi and nourishes Liver blood. Used in hope of helping lacrimation of eye and due to LV Shu feeling deficient today.
ST 36, Zusanli. In depression lateral to tibial crest, 2 cun distal to its proximal edge in the muscular groove between tibialis cranialis and long digital extensor muscle.	Benefits Stomach. Benefits Spleen function of Transformation and transportation. I used this point today as I felt deficiency in ST Shu point.

3rd visit, 23rd April 2018

SP 9, Yinlingquan. In depression caudal and ventral to the medial condyle of Tibia	Benefits function of T&T of spleen. Helps blood.
ST 44, Neitung. Dorsal midline of proximal phalanx of hindlimb at level of intersection of extensor tendon and medial and lateral extensor branches of suspensory ligament	Water point of stomach, used for dry skin on stomach meridian
LU 5, Chize. On cubital crease, in depression lateral to tendon of biceps brachii muscle.	Water point of Lung Meridian. Stimulates descending of Lung Qi. Moistens and invigorates.
LI 4, Hegu. In depression palmar to 2 nd metacarpal bone at the junction of the proximal and middle thirds of the cannon bone.	Regulate Wei Qi. Stimulates the dispersing Lu function. Activates Qi and blood
BL 52, Zhishi. 2 cun lateral to BL 13.	To aid in emotional problems associated with the syndrome
CV 17, (laser with 'Qi Pulse laser pen' Shanzong. In depression on ventral midline at the level of the caudal border of the olecranon.	PC alarm point. Tonifies Qi of the chest. Stimulates Lung Qi descending function. Influential point for the respiratory system and Qi. Connects PC & LU; KD & SI meridians.

4th Visit 24th May 2018

SP 6, Sanyinjiao. 3 cun proximal to medial prominence of medial malleolus of tibia caudal to the caudal border of the tibia	Benefits Spleen function of T&T. Tonifies Qi, Xue and Yin. Benefits LV function of flow of Qi. Calms the mind.
ST 37, Shangjuxu. Between the long and lateral digital extensor muscle 2 cun distal to ST 36	Regulates SI and intestines. Eliminates damp. Calms asthma. Point of sea of blood. Lower sea of LI point.
SI 2, Qiangu. Lateral side of forelimb, caudal aspect of pastern distal to lateral sesamoid bone.	Used as a front yang point to balance Spleen. Is usually a more local point but Charlie responded favourably to it.
LU 7, Lieque. Medial surface of radius 1.5 cun proximal to most medial prominence of styloid process.	Stimulates Wei qi and activates descending/dispersing of Lung Qi.
Tong tang, middle point of a line which connects the medial canthi of the eyes.	Eliminates dampness, especially of the spleen

BL 18, Ganshu. 3 cun lateral to dorsal midline, in the 13th and 14th intercostal spaces in the muscular groove between the longissimus thoracis and iliocostalis thoracis muscles.

Benefits the liver function of patency of flow of Qi. Clears the mind and brightens the eye.

On my first visit I diagnosed damp cold in the lungs with deficiency of spleen and kidney yang. The treatment points I used were: -

SP 6, ST 44, LI 4, LU 1, BL 13 and BL 23.

By this treatment I aimed to be balanced. I wished to help the dry skin of the Stomach meridian, to help descending function of lungs, to enable the kidney to dominate water metabolism and to rid the body of external pathogen factors.

On my second visit, I noted deficiencies in Back Shu points of ST, SP and LV. I aimed to help these deficiencies and to help the Lung by the following point use:

-

LU 8 King point of lung, LI 16 used to balance treatment but also as AH SHI point and to rid body of EPF, LV 3 to help 'motor' function of the Liver, ST 36 to tonify Qi and Xue and to help stomach and spleen functions and for overall immune stimulation. I addressed some major environmental/management issues during this visit.

On my third visit, I still felt there was spleen involvement. I acknowledged that there may also be emotional grief at play. I nourished and moistened the dry skin on the Stomach Meridian and I felt it was important to nourish Xue and Qi. The points I used were as follows: - SP 9, ST 44, LU 5, LI 4, BL 52 and CV 17.

On my last visit the owner reported that Charlie had improved considerably, was coughing less and had put on condition. His hair at Stomach and spleen meridian had improved a lot also (c.f. photos). There was excess/ heat in Lung ting point and excess in LU back-Shu point. There was a reaction Back-Shu HT and reaction Spleen Back-Shu and Mu. There was also slight reaction Liver Mu point. I used the following points: -

SP 6, ST 37, LU 7, Tong Tang, BL 18. The reason I picked them is as follows: -

I picked Tong Tang because it helps with spleen damp heat. SP 6 because I wish to tonify Spleen and also help liver's motor function and kidney for reception of Qi. LU 7, because, I ran my hand over entire Lung meridian and he clearly let me

know me he wanted this point. ST 37 because, again, as I run my hand over the stomach meridian I felt a rush of energy release of the palm at this particular point.

I could not decide myself between SI meridian or TH meridian for balancing my treatment of the spleen so I decided to let Charlie choose and to follow his lead. His facial reactions and demeanour were favourable for SI 2.

As it was my last visit with Charlie, I utilised his own input in his treatment schedule. I ran my hand over his Back- Shu points. I wished to use a Shu point also and it was my intention, again, to monitor his reaction to aid in my point choice. Favourable reaction was noted for BL 18, the second one.

DISCUSSION

In Human Medicine, the American Thoracic Society (ATS) defines COPD as “disease state characterised by the presence of airflow obstruction due to chronic bronchitis or emphysema.” The European Respiratory Society (ERS) definition is based on progressive and irreversible reduction of maximum expiratory flow.[4]

In Veterinary Medicine COPD can be described as follows: -

Chronic obstructive pulmonary disease (COPD) is an inflammatory obstructive lower airway disease of the mature horse. It is a complex syndrome with variable clinical signs ranging from exercise intolerance in performance horses to chronic cough, mucopurulent or purulent nasal discharge, expiratory dyspnoea and sometimes weight loss in horses with severe disease. The term COPD was introduced by Sasse (1971) and is still the most commonly used name for the disease. The disease has also been known as heaves, broken wind, alveolar emphysema, chronic pulmonary disease, small airway disease, chronic obstructive lung disease, chronic bronchiolitis and recurrent airway obstruction. A certain amount of confusion exists with regard to terminology of lower airway diseases in the horse. Inflammatory airway disease (IAD) is a term that has been introduced recently to describe a milder clinical syndrome observed in young horses, particularly racehorses in training (Moore 1996). In most cases COPD can be diagnosed on the basis of the history, clinical features and response to treatment. In mild cases there may be few overt clinical signs and the physical examination may be unremarkable. In these cases, the use of further diagnostic

tests, such as endoscopic examination, respiratory cytology and lung function tests may be necessary to achieve a diagnosis. [5]

Neutrophilia in TW and BALF is a predominant cytological feature of inflammation in mild-to-moderate and in particular in severe equine asthma [19–22], in which neutrophils migrate within hours into the airway lumen, followed by the development of airway obstruction and a late phase of migration [22–24]. Literature on systemic inflammatory processes in equine asthma is rare. Lavoie-Lamoureux et al. [85] compared several acute phase proteins (haptoglobin, serum amyloid A, and C-reactive protein) and cytokines (interleukins 2, 4, and 10 as well as interferon α and interferon- γ) in serum of healthy individuals and horses affected by severe equine asthma over 30 days of exposition to hay and straw. Haptoglobin was found to be a suitable marker for both acute and chronic systemic inflammation, whereas high concentrations of serum amyloid A indicated acute inflammation. In the long term chronic obstructive pneumopathies lead to chronic remodelling of bronchial walls and lung parenchyma which is accompanied by fibrosis formation. [102-104]

Matrix metalloproteinases (MMPs) are very likely to have a central role in destructive pulmonary disease, characterized by fibrosis formation and the loss of elastin and collagen fibres. ASM hyperresponsiveness and hyperplasia are known phenomena in severe equine asthma [152]. In vitro and in vivo studies have shown that the proliferative, secretory, and contractile functions of airway smooth muscle (ASM) are dysfunctional in human asthma. The same is true in equine asthma [153], but ASM remodelling is not necessarily associated with pulmonary neutrophilia and clinical status. It has been shown that ASM is not only an effector of bronchoconstriction, but has additional roles as an immunomodulatory of inflammation and remodelling. ASM can both produce and respond to an array of cytokines, chemokines, and growth factors, leading to cell migration and proliferation, production of ECM proteins and altered reactivity.[6]

Potential mechanisms of silica (found in sand) pathogenicity in the lungs is as follows: -

The predominant inflammatory cells involved in the airways remodelling and parenchymal destruction characteristic of COPD are neutrophils, macrophages and T lymphocytes (CD8+ and CD4+) [15]. There are several potential

mechanisms by which silica particles can initiate cell injury leading to COPD. These include cytotoxicity, [20-23] and fibrogenic factors. [24,25]. Potentially these mechanisms can initiate changes in lung tissue leading to airflow obstruction as follows; (a) silica particles can initiate toxic and inflammatory processes in conducting and peripheral airways and alveolar tissue characterised by release of mediators leading to increased production of oxidants, cytokines, chemokines and elastase, inducing airways inflammation [16,17], or (b) silica particles can cause epithelial cell injury that facilitates penetration of the silica particles through the walls of small airways causing localised fibrosis [24,25]. [4]

In Charlie's case, once management issues had been solved, acupuncture was used to halt & ameliorate inflammatory and pathological changes in the lung parenchyma and systemic blood circulation.

From a modern perspective, acupuncture represents a form of nerve stimulation. Depending upon the acupuncture point selected and the method of stimulation, there will be sequential and simultaneous activation of local, segmental and super-segmental neural pathways. These changes ultimately lead to altered blood flow (circulatory system), altered humeral responses (Endocrine system) and affects within the immune system. The biochemistry of acupuncture is the same as that from Electrotherapy TENS methods and involves the complex interaction of the endogenous opiod compounds with substance P, acetyl choline, serotonin, norepinephrine and gamma amino butyric acid (GABA) to name a few. According to some authors a supraspinal mechanism may be activated by acupuncture that is a neurohormonal mechanism. Beta-endorphins and Adreno-corticotrophic hormone (ACTH) are released from the pituitary gland into the blood stream (*lundenberg, 1999*):

-ACTH in turn may influence the adrenal gland increasing the production of anti-inflammatory corticosteroids (*Sato et al 1997*).

- Beta-endorphin levels may fluctuate with changes in the number and activity of T-lymphocytes and natural killer (NK) cells (*Lundenberg, 1999*).

There is also a reduction in the stress response that can be related to stimulation of the release of oxytocin, a hormone that regulates the parasympathetic nervous system. [7]

Over a period of circa 6 weeks that I treated Charlie, I used acupuncture points on the Meridians of Yang Ming, Tai Yin, Liver, Bladder, Small intestine and the

Conception Vessel in order to elucidate anti-inflammatory, circulatory, humeral, and emotional changes to his beneficial effect. This, along with pertinent managemental changes proved to help Charlie by reducing his need for Corticosteroid inhaled medication and by reducing and easing his symptoms.



Above: Charlie, First visit, 13th April 2018.

Below: Charlie after last acupuncture treatment 24th May 2018



Below: Hair on hind limbs before and after treatment



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