

THE USE OF ACUPUNCTURE IN THE TREATMENT OF A DOWNER COW

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ABSTRACT

A cow was presented for treatment of forelimb dysfunction four and a half weeks after calving. She was bright and eating and drinking well but there was marked weight loss and muscular atrophy. The owner was willing to attempt multiple acupuncture treatments for the therapy of pressure sores, right forelimb paralysis and forelimb muscular compression. Treatments performed over seventeen days resulted in the cow being able to stand and walk.

HISTORY

Treatment was requested for a beef cow that had not stood after a dystocia that had been managed by the owner. A large bull calf had been delivered alive eight hours previously with what was described as “ a tight but routine pull”. She had been sitting in Summer heat all day without food or water and her temperature was 39.8 degrees Celsius. No pelvic fractures were found on rectal examination. It was reported that she would not bear weight on her hindfeet or attempt to rise with the front limbs when she had been lifted with a hip hoist. She was treated with meloxicam [a] i/v at 0.5mg/kg, long-acting penicillin[b i/m]at 15mg/kg and a calcium borogluconate, phosphorus, magnesium and dextrose mixture[c] 350mls s/c.

She was offered water and drank well.

Four and a half weeks later, re-examination was requested. At this stage, the cow was eating Lucerne hay and drinking water well and could stand on her hindlimbs. She could only rise to her front fetlocks when she was attempting to stand. Whilst sitting she was able to straighten her left forelimb but she was not able to place the foot to the ground. The owner reported the cow had been using her hindlimbs since two days after the first examination and that the forelimbs had reached this stage three weeks ago. She had been recumbent on the right side when she was found having difficulty calving. Sores had been present on this side and some of these had been open for two weeks.

a. Metacam 20mg/ml solution for injection Boehringer Ingelheim

.b. Benacillin 300 mg/ml Ilium

c. Calcigol Plus 350mls Pharmachem

WESTERN EXAMINATION

The patient was bright and attempting to stand but she was thin. All her muscles were atrophied but this was most remarkable in the forelimbs. She could bear weight on her hindlimbs. As the cow continued to attempt to stand, she straightened her front legs so that the cranio-distal aspects of the fetlocks were on the ground but she was unable to rise far. The right forelimb had very limited extension from the elbow and carpus when checked by the attending veterinarian.

There was loss of skin at the site of an eight centimetre pressure sore over the distal right scapula. Skin edges were attached to the underlying musculature and this appeared to be limiting movement. Centrally, there was an everting muscle tear. At the lateral right elbow, there was also skin loss but no involvement of the underlying musculature. Over the right mid-chest wall, another area of skin loss secondary to pressure was present and over the right ilium, skin was lifting off another pressure sore. Lifting was not attempted but the use of a Cow Jack or Pelvic Lift would have helped in the examination and diagnosis of this case. [1]

TRADITIONAL CHINESE MEDICAL EXAMINATION

The patient was thin and the muscles were weak. The Shen was bright as typified by the patient attempting to stand when approached and by her interest in her calf. Pain was not obvious. Her appetite had been good and her thirst had been normal. Stools and urine were normal. Pressure sores as described above were present in the skin. The tongue, mouth and lips were normal. Her gait was limited as described under Western Medical findings.

WESTERN MEDICAL DIAGNOSIS

Radial Nerve Paralysis with complications associated with recumbency of Pressure Sores and Musculature Compression.

TRADITIONAL CHINESE MEDICAL DIAGNOSIS

Obstruction to the flow of Qi and Blood in the right forelimb due to the external factor of trauma.

WESTERN MEDICAL TREATMENT

Topical treatment of the pressure sores with antiseptic and fly repellent ointment[a] and spray[b] and antibiotic and cortisone cream[c] was the only Western Medical therapy used at these visits.

a. Septicide Cream Virbac

b. Triclovet Spray Country Life Animal Health

c. Neocort Cream Ilium

TRADITIONAL CHINESE MEDICAL TREATMENT and RESULTS

Pressure sores were treated by Circling the Dragon. To encircle the affected area is one of the ten laws of mating points [2]

Points for treatment were chosen for proximity to the radial nerve, to stimulate circulation of Qi and Blood in the forelimbs' channels and to tonify the sinews, muscles and bones of both front legs.]

The anatomical positions and natures of these points are described in Table 1 with the relevant indications for each point. [3,4]

Seirin BEC needles No. 5 [0.25x 40mm] or 18 G x 1.5” luer needles were used for dry needling, De Qi was obtained and a tonifying method of treatment was used for twenty to thirty minutes.[5] With electroacupuncture, Seirin BEC no.5[0.25x30mm] needles were used with electrodes attached to the electroconductive handles. Electroacupuncture was administered for twenty minutes to both forelimbs using a Meyer model-501 unit with a battery operated alternating current source. Continuous stimulation was applied through acupuncture needles at the selected points and frequency was increased slowly until a muscle twitch was observed. This was achieved between 200-250Hz at an amplitude of 5 [6]

Day 1

Both forelimbs were treated with Electroacupuncture between HT 1 and LI 11 at 200 Hz stimulated to an amplitude of 5.

The two pressure sores on the right forelimb over the scapula and the lateral elbow were treated by Circling the Dragon.

Day 8

The owner was very happy with the progress made in the healing of the treated pressure sores. She had seen the patient extend the right forelimb for the first time since calving on this day. Both forelimbs' pressure sores which had been treated on day 1 were healing better than the two sores over the chest and ilium which had not been treated with acupuncture. Due to an inadequate number of needles, further treatment of pressure sores was delayed for another two days. Electroacupuncture between HT 1 and LI 11 on both front legs was repeated.

Day 10

The patient had been moving hundreds of metres by standing on her hindlimbs and dragging her forelimbs in the past two days. On clinical examination, the left forelimb could be fully extended and the right front leg was still slightly limited in extension.

Treatment included Circling the Dragon for four pressure sores, Electroacupuncture of the right front leg between LI 4 and Baxie, LI 15 and LI 11, LI 11 and LI 4, and dry needling of BL 11 and SI 11 and TH 10.

Day 17

On this day, it was noted that the skin had begun healing inwards from the margins of the pressure sores. The right forelimb could be easily extended during the examination but when the cow stood, she was bearing weight on the right carpus. She was attempting to take weight on the foot of the left forelimb. Muscular atrophy of the right forelimb was now very evident. The pressure sores were treated by encircling the affected area. Electroacupuncture was used between LI 11 and LI 14, LI 15 and TH 10, LI 4 and Baxie. The points, BL 11 and SI 11 were dry needled.

Day 26

The cow was now walking on the foot of her left front leg and occasionally on the fetlock. Then, it could be seen that the right forelimb was dropped from the shoulder, the muscles were atrophic, the carpus was on the ground as was the anterior aspect of the metacarpus and the phalanges. There was very little skin sensation on the anterior aspect of the lower limb. These clinical signs confirmed right radial nerve paralysis as a diagnosis. The pressure sores were healing well and a much smaller area could now be treated with topical creams only. The right forelimb was treated with Electroacupuncture between SI 11 and LI 4, TH 10 and LI 11, HT 1 and LI 15.

Eight days later, a distant examination was made because the cow was increasingly mobile and not in a sitting position at any time during the visit. The left forelimb was better muscled and she was walking consistently on the foot. She had evidently gained weight and was grazing as well as being supplementary fed. The right forelimb was held much higher and the patient was placing the toe and the foot occasionally. Over the next two weeks, the cow regained full function of both forelimbs.

TABLE 1

POINT	LOCATION	INDICATION	NATURE
HT 1	In the depression in the axilla	Activates the meridian and benefits the limb. Paralysis of the front limb and avulsion of the brachial plexus.	
LI 11	At the end of the lateral cubital crease, halfway between the biceps tendon and the lateral epicondyle of the humerus with the elbow flexed	Regulates Qi and Blood Activates the meridian and alleviates pain Pain and paralysis of the forearm and shoulder	Tonification Point He Sea and Earth Point
LI 4	Approximately in the middle of the metacarpal bone on	Activates the meridian and	Yuan point

	the radial side.	alleviates pain. Promotes the circulation of Qi and Blood and relieves pain and is therefore useful for painful conditions of the forelimb, paralysis and atrophy.	Master point of face and mouth
TH 10	1 cun proximal to the olecranon lateral to the triceps tendon.	Dispel stagnation Regulates nutritive and defensive Qi Relaxes tendons	Sea, Earth and Sedation point
LI 15	Cranial and distal to the acromium on the anterior margin of the distal muscle deltoideus.	Promotes circulation of Qi. Local point for any shoulder condition.	
BL 11	1.5 cun lateral to the caudal border of the spinous process of the first thoracic vertebra	Tonifies the Blood Local point	Sea of Blood point Influential point of bone Meeting point with Small Intestine, Triple Heater, Gall Bladder and Governor Vessels.
SI 11	In the depression at the caudal border of the scapular cartilage, at the junction of the dorsal and middle third of the scapula, on the caudal border of the deltoid muscle.	Local point	Metal point
Baxie	Metacarpo-phalyngeal junction	Moves Blood	Non-meridian point

between the two digits.		
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DISCUSSION

Trauma to the radial nerve as it passes over the humerus causing paralysis, pressure sores and muscular compression are all seen as sequelae to lateral recumbency [1] Thus, the history in this case of right lateral recumbency after calving and the findings of disease worst on the right side supported the diagnosis of right radial nerve paralysis, bilateral forelimbs' muscular compression and pressure sores on the right side. It is easiest to diagnose a radial nerve paralysis when the patient is lifted and the carriage of the affected limb can be seen easily. In this case, a cow jack or pelvic lift was not available.[1] Radial nerve paralysis in the bovine is diagnosed with the signs clinically of loss of sensation to the anterior coronet and the characteristic position seen when extensor muscles lose their motor ability. This was evident in the latter stages of treatment. The obvious restriction to movement in the forelimbs was due to a combination of muscular weakness from compression, denervation of the right forelimb making it very difficult for an animal of this size to rise and the pressure sore over the shoulder adhering to underlying structures and further limiting mobility.

Nursing care in the “downer” cow is very important. The commitment of the owner to ensuring that the patient had adequate water and food and the fact that the cow was attempting to stand and thus using muscles helped in the first four and a half weeks when no further treatment was given.

In a Traditional Chinese Medical setting, the damage described is considered to be due to an obstruction of Qi and Blood in the right forelimb. Qi is the energy which ensures functional use of any part of the body including the Blood. Acupuncture points in the yang meridians were chosen for their ability to tonify Qi primarily and Blood secondarily. Using Electroacupuncture in continuous stimulation mode is the treatment of choice for neurological disease {8}. Therefore, this was used to stimulate some of the selected points.

Electroacupuncture was first used in China in the 1930s and is used in the same manner as manual acupuncture. Its physiological effects include analgesia and propagation of sensation along the channel. Results are increased electrical conductivity and excitability of nerves and or muscle cells. In the treatment of nerve damage, electroacupuncture promotes regeneration of fibres if cell bodies are still vital and facilitates muscle contractions in denervated muscles.[9]

Circling the dragon or encircling a small area of visible disease is a technique of treatment for scars, tumours and was used here effectively to treat pressure sores.

It would have been interesting to see the response to acupuncture earlier in the course of this recumbency. However, marked response was visible rapidly once acupuncture was commenced and the final result of a mobile cow was very satisfying.

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