The Use of Acupuncture in a Cat with Chronic Bronchitis

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ABSTRACT

Chronic bronchitis in cats can be difficult to manage and the stress of using conventional medication protocols can cause significant distress for both patient and owner, often resulting in negative patient outcomes.

In this case, acupuncture was successfully used to reduce clinical signs associated with poor respiratory function in a patient diagnosed with chronic bronchitis. Reports by both the owner and integrative clinician indicated that the patient clinically improved over the course of three months with resolution of respiratory wheezing and overall improvement in the patient's comfort.

The positive outcome of this case indicates that acupuncture may be useful in the treatment of chronic bronchitis in cats and should be considered as a complementary therapy to conventional medications when treating inflammatory respiratory disease.

HISTORY

A six-year-old neutered male Norwegian Forest Cat presented for integrative care in March of 2022 as the owner was looking for alternative therapies to steroids for treatment of chronic bronchitis. The patient was purchased as a four-year-old from a rescue agency and the owner noted he had increased respiratory sounds at rest. Due to this, he underwent nasal scoping at a previous veterinary clinic to assess his upper respiratory tract for nasal polyps and anatomical changes, no diagnosis was made at this time as no abnormalities were noted. Additionally, the patient had chest radiographs taken by his previous primary care veterinarian in August 2021. It was noted by this veterinarian that the patient had lung hyperinflation and changes associated with bronchial inflammation. The owner declined further diagnostic work up. The patient was diagnosed with chronic allergic bronchitis and was prescribed prednisolone therapy (“Pred-X” Apex Laboratories) at a dose of 1mg/kg which he responded to well. After four weeks of therapy the patient was examined and found to be clinically normal. During this therapy however, the owner noted several changes to the patient including increased weight gain, inappetance, lethargy and increased hiding behaviours. The initial treating veterinarian identified these changes to be associated with steroid medications and began to wean the patient to a lower dose which resulted in return of his respiratory signs. Alternatively, the patient was placed on to a steroid and bronchodilator in the form of an inhaler: fluticasone (“Flixotide” GSK plc.) 125mcg twice a day and albuterol (“Ventolin” GSK plc.) 100mcg as required. The owner noted that this medication plan was not as effective or convenient as oral prednisolone but did alleviate the symptoms of increased respiratory noise without the side effects presented by prednisolone therapy.

WESTERN CLINICAL EXAMINATION AND DIAGNOSIS

Upon clinical examination and auscultation, it was noted the patient had a lower respiratory wheeze with a slight increase in respiratory effort, characterised by increased abdominal breathing, and an upper respiratory nasal stridor. The rest of the patient’s physical examination was normal.

As the previous veterinarian had already performed upper airway imaging and chest radiographs, it was decided that it was unnecessary to repeat these procedures. It is noted that these images were not made available at the time of the consultation. A bronchioalveolar lavage (BAL) was recommended to definitively diagnose the etiology

of the patient's bronchitis. The owner declined further diagnostics as it was unlikely to change the treatment options available to them and there were considerable financial constraints.

A Western diagnosis of chronic bronchitis was tentatively made based on the previous veterinary history and diagnostic interpretations, the response to medications, and the clinical examination at the time of initial presentation. Definitive diagnosis of etiology cannot be made without a bronchioalveolar lavage.

INTEGRATIVE HISTORY AND CLINICAL EXAMINATION

Traditional Chinese Medicine (TCM) History:

The patient is a rescue cat that was extremely overweight when the current owner purchased them. The patient is known to gain weight easily despite having a poor appetite. To combat his appetite, the owner feeds the patient a hybrid diet consisting of mostly kibble with approximately 20% raw meat. The raw meat is favoured by the patient.

The owner noted that the patient has always suffered from loud breathing but it is considerably worse in the colder weather. The patient also does not cope well in the summer months so the owner grooms the patient's coat very short to prevent discomfort. Upon further questioning the owner also noted that the patient drinks excessively during the hotter months even if he has been groomed.

The owner's main concern is the patient's comfort. During winter his breathing worsens and he is placed back on oral steroid therapy. This therapy has side effects which the owner is wanting to avoid. When on steroids the patient is distant and not very affectionate, he appears lethargic and sleeps more than normal, it is also noted that he seems to sleep in smaller spaces where he is warmer. The owner struggles to use the inhaler medication and would prefer a completely alternative approach to management of the patient's condition.

Initial TCM Examination:

On initial examination the patient was quiet in demeanor and was uninterested in his surroundings. The patient was breathing through his nose and whilst he appeared relaxed, his breathing was audible across the consultation room and he had active abdominal breathing.

The patient's nails and coat were in good condition. Upon vitals examination, the patient's pulse was fast, slippery and thin. His tongue was thin, red, and dry with

no coating. Auscultation of his chest revealed wheezing and an upper respiratory stridor with a mild increase in respiratory effort. The patient was neutral to handling. The patient refused to walk so gait was unable to be assessed. It was noted that the patient was slightly overweight. The rest of his examination was considered normal.

TCM Diagnosis:

Accounting for the owner's history, the patient's increased respiratory wheezing and effort, as well as a slippery pulse, the patient was diagnosed with a Lung Qi obstruction.

The fast nature and thinness of the patient's pulse also suggested an underlying deficiency. This deficiency diagnosis was also supported by a thin, dry tongue. A Yin deficiency was diagnosed as the redness to the tongue and rate of the pulse indicated a diagnosis of empty Heat or relative Yang excess. Signs of a Yin deficiency can also be noted in the patient's history characterised by excessive thirst and heat intolerance.

CONVENTIONAL (WESTERN) TREATMENT

The owner made an informed decision to decline conventional pharmaceutical therapies and understood the risks associated with this decision.

The role of increased dietary carbohydrates in inflammatory conditions, including worsening symptoms of bronchitis in humans (Clemente-Suárez et al., 2022), and the negative impact of obesity in cats with bronchitis (Caro-Vadillo et al., 2022) was discussed for this patient. A high protein diet with low glycaemic index carbohydrates was recommended as the most beneficial in reducing and maintaining body weight in this patient (Keller et al., 2017). The owner declined a biologically appropriate wholefood diet for this patient, instead they made the decision to change to a grain free kibble with the addition of a fish bone broth.

In addition to the recommendation of a diet change, the patient's environmental air quality was discussed at length. The owner had already removed all perfumes from the household and changed to a dust free litter.

INTEGRATIVE/TCM TREATMENT

Dry needle acupuncture has been shown to reduce airway inflammation, improve lung function, and reduce airway remodelling in bronchitis patients (Tang et al., 2021; Nurwati et al., 2019). The acupuncture point prescription used in this patient was guided by the patient's TCM diagnosis of Lung Qi obstruction, and Yin deficiency

with empty Heat.

The Traditional Chinese Medicine (TCM) treatment goals for Lung Qi obstruction and Yin deficiency with empty Heat revolve around nourishing Yin and clearing obstructed Qi. As the Heat signs are due to a relative Yang excess, the treatment goal is directed at nourishing and building Yin to improve the balance of Yin and Yang within the body.

Steel Sensei Acupuncture needles in two sizes 0.2mm x 15mm and 0.2mm x 30mm were used for all visits. Treatment one conducted on the day of initial presentation (30th March 2022) used 15mm needles placed at LU 6, LU 9, SP 6, KI 2, KI 3, and CV 17 and 30mm needles placed at BL13, and ST 40. The needling technique, precise location and rationale for use of these points can be found in Table One, Appendix A. On conclusion of treatment, the patient's pulse was slightly more moderated in tone but was still fast and thin. The patient remained docile throughout the treatment as long as needles were not adjusted. It was noted to the owner that a regular appointment schedule would benefit the patient as his condition was chronic in nature and he was currently poorly controlled. The recommendation was made to see this patient weekly, with the owner monitoring respiratory rate and noise, activity levels, and appetite at home. The owner was unable to commit to a weekly schedule so a monthly appointment was the compromise with the understanding that the patient may have reduced outcomes.

At the second visit on the 27th May 2022, the owner reported that the patient overall had a minor reduction in respiratory rate and appeared to have an improvement in energy levels. He still had audible wheezing and was sneezing more than normal. There was an improvement in the patient's appetite as the owner was using fish broth to soak the kibble. On examination, the patient's tongue was dry and pink, which was an improvement in empty Heat and deficiency signs when compared to the initial presentation. The pulse was slippery however it was not as thin as previous, and the rate was moderated. These minor improvements supported the conclusion that the empty Heat signs were resolving, indicating the Yin deficiency was being corrected. The initiation of sneezing however was evidence that Damp was accumulating in the upper respiratory tract. To resolve this, points including LU 7, SP 3, and CV 22 (see Table One, Appendix A) were added to the original point prescription to reduce the Damp accumulation, open the airways and descend the Lung Qi. The patient tolerated needling well despite being slightly resentful of the addition of CV 22. Treatment was

continued until the patient's tone moderated. During this consultation, the patient's diet was readdressed and the owner agreed to transitioning to a wholefoods diet to reduce the amount of carbohydrates and improve the patient's appetite. The third appointment was booked for four weeks time.

The third visit was conducted on the 27th June 2022. The owner reported at this visit that the patient had stopped sneezing within a few days of the previous treatment. He had more energy and an improved appetite. The owner had transitioned to a raw whole foods diet with a balancing aid (Bestie Balancer for Cats, Bestie Health Australia). Since starting the new diet, the patient had begun vocalising for dinner, had lost 200g of bodyweight, and was playing with the other household cat. The owner reported that respiratory sounds were no longer audible when the patient was resting. On examination, the patient was brighter and more alert than previous visits and actively seeking attention. The tongue was slightly dry, and bright pink in colour. The patient's pulse was slippery. The previous point prescription was repeated. ST 36 was also used in addition to continue to tonify and build Qi. The patient's treatment session continued until the pulse moderated in tone. A continued plan of monthly visits was recommended to the owner.

DISCUSSION

A six-year-old neutered male Norwegian Forest Cat presented for an acupuncture assessment after the owner had struggled to medicate the patient for chronic bronchitis. Prior to assessment, the patient underwent a diagnostic work up that included chest radiographs and upper airway scoping. After these tests, the previous veterinarian diagnosed the patient with chronic bronchitis. As the radiographs were unavailable for viewing and the owner declined a bronchioalveolar lavage, a definitive diagnosis including etiology was unable to be reached however as the patient's clinical signs and history supported the previous veterinarian's conclusions, the patient's diagnosis of chronic bronchitis was accepted.

The Western diagnosis was further supported when the TCM examination revealed signs of a Lung Qi obstruction. A Lung Qi obstruction would result in airway noise, increased respiratory effort and a slippery pulse (Marsden, 2022). Lung Qi obstruction often has an underlying excess or deficiency pattern leading to the clinical syndrome (Schwartz, 2006). In this patient's case, the underlying syndrome is a Yin and Qi deficiency evident by the thin, dry tongue, and thin pulse. The fast nature of the

pulse and the redness of the tongue further supports a diagnosis of Yin deficiency as these signs are associated with empty or deficiency Heat. An empty Heat will arise when Yin is deficient leading to a relative Yang excess. Yin deficiency with empty Heat is further supported when the patient's history is taken into consideration as there are obvious signs of heat intolerance with excessive thirst particularly in the Summer season.

The owner declined continuing conventional Western medication and instead treatment was focused on acupuncture, diet, and environmental management. The decision to use acupuncture as a sole therapy was supported by several studies that have demonstrated the success of acupuncture in reducing airway remodelling and hyper-responsiveness, reducing mucous secretion and airway inflammation, as well as improving lung function and patient comfort in cases of chronic bronchitis (Tang et al., 2021; Nurwati et al., 2019).

Treatment outcomes were determined by a combination of the owner's report of the patient's symptoms and behaviours, as well as the integrative clinician's TCM assessment at subsequent visits.

Treatment of the patient occurred over several visits. At the second visit, the owner had noted the patient had a new symptom of increased sneezing at home. This report accompanied with the clinical evaluation of the patient led to the conclusion of Damp accumulating in the upper respiratory tract. The exact cause for this was unknown however the point prescription was altered to include points useful for supporting the Spleen in transporting and transforming Damp and descending Lung Qi. The addition of these points was considered successful as the owner reported a cessation of sneezing after this treatment.

The patient's positive response to this treatment supported the likelihood of the Spleen's role in the underlying disease pathology. Weak Spleen Qi, often a result of an inappropriate diet, leads to reduced Qi dispersion and Damp accumulation which was evident in this patient by weight gain and wheezing. Eventually the Damp turns to Phlegm where it obstructs the flow of Lung Qi (Marsden & Sivula, 2022). This pathophysiology was supported when the patient drastically improved after being placed on a more biologically appropriate diet.

Treatment was considered successful over the three visits as there was a reduction in respiratory wheezing and nasal stridor, an improvement in the patient's appetite and general demeanor, resolution of symptoms associated with Yin deficiency

and empty Heat, and an improvement in the patient's comfort levels at home. The positive outcome in this case supports the role of acupuncture and diet in the successful management of a patient with chronic bronchitis and further indicates that acupuncture should be considered as an important therapy option when treating inflammatory diseases of the airways.

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APPENDIX A

Table One: Treatment Points with Location and Rationale			
Point	**Location**	**Rationale**	**Needling Technique**
LU 6	Medial aspect of the forelimb, proximal to the midpoint and medial to the extensor carpi radialis muscle	Clears Heat, regulates Lung Qi	Depth of 0.3 Cun*; perpendicular insertion
LU 9	On the medial aspect of the carpus, cranial to the tendon of the flexor carpi radialis and immediately distal to the radial styloid process	Transform Phelgm, nourish Yin, and supplement Lung Qi	Depth of 0.2 Cun*; oblique insertion, directed distally
ST 40	At the midpoint of the line between point ST 35 (located at the lateral side of the patella, at the junction between the patella and the patellar ligament) and the lateral malleolus of the fibula. The point is between the muscles of the cranial tibial and the long digital extensor.	Transform and disperse Phelgm, open the chest, move Qi along the channels.	Depth of 1 Cun*; perpendicular insertion
SP 6	Medial aspect of the hindlimb, caudal to the tibial bone, 3 cun proximal to the medial malleolus, on the posterior border of the tibia	Disperse Damp, tonify Qi and Yin, tonify Spleen Qi	Depth of 0.4 Cun*; perpendicular insertion
BL 13	Lateral to the caudal border of the spinous process of the third thoracic veterbra, along the longitudinal line of the costal tubercula	Support Lung function to lower and disperse Qi, regulate Lung Qi, open aiways, reduce coughing	Depth of 1 Cun*; perpendicular insertion
KI 2	Immediately ventral to the central tarsal (navicular) bone	Clear empty Heat, support and nourish Yin	Depth of 0.2 Cun*; oblique insertion in a proximal direction
KI 3	In the depression ventral to the medial malleolus of the tibia, between the malleolus and the talus	Clear deficiency Heat, tonify Kidney Qi and Yin	Depth of 0.2 Cun*; perpendicular insertion
CV 17	Located on the ventral midline, at the level of the fourth intercostal space	Regulates Qi of the chest, strengthen Lung Qi, tonify deficient patients	Depth of 0.3 Cun*; tangential insertion directed caudally
LU 7	Medial aspect of the forelimb, proximal to styloid process of radius and medial to the tendon of the extensor carpi radialis, 1.5 Cun above the transverse crease of the carpus	Move Phlegm, restore Lung descending function, reduce coughing	Depth of 0.5 Cun*; oblique insertion, distal direction
SP 3	Medial to the head of the first metatarsal bone if hind dewclaw is present. If no hind dew claw, midpoint of the medial side of the second metatarsal bone.	Strengthen the Spleen’s ability to transform and transport Qi, drains Damp	Depth of 0.3 Cun*; oblique insertion, directed from a distal to proximal direction and from a plantar to dorsal direction

CV 22	On the ventral midline at the cranial tip of the manubrium	Descend Lung Qi, clear heat, reduce coughing	Depth of 1 Cun*; inserted over the dorsal edge of the sternum, directed caudally
ST 36	Three Cun below ST 35 (located at the lateral side of the patella, at the junction between the patella and the patellar ligament), about one digit breadth lateral to the tibial crest, in the lateral portion of the cranial tibial muscle.	Build Qi, tonify deficient patients	Depth of 1 Cun*; perpendicular insertion
*in this patient 1 Cun was measured to be 14mm Table data adapted from Matern, 2012, and Schwartz, 2006			