The Use of Western Herbal Medicine in Canine Allergic Airway Disease Elyse Hoffman, Pennsylvania, USA, CVT, GDVWHM

Abstract

This case study describes the use of Western herbal medicine in the treatment of a four-year-old rescue beagle with allergic airway disease. A liquid herbal formula containing *Withania somnifera, Albizia lebbeck, Althea offinicalis, Matricaria recutita,* and *Glycyrrhiza glabra* was as effective as prednisone in controlling cough.

History

A four-year-old female spayed beagle weighing 10 kilograms was adopted from a local rescue in February 2021. She was spayed prior to adoption and owners quickly noted that she had a cough. She was diagnosed with kennel cough and prescribed doxycycline and a cough suppressant. In March the patient returned with a persistent cough. Azithromycin was prescribed after thoracic radiographs showed small airway inflammation. In April the patient was still coughing and was dewormed with a course of fenbendazole to rule out lungworm. After no improvement, the patient was referred to a specialist for a tracheal wash of which the most notable finding was eosinophils. The patient was diagnosed with allergic airway disease and prescribed prednisone 5 mg once daily which was expected to be tapered to the lowest effective dose and then continued long term. Prednisone reduced the cough to only a few times per day, more if the patient became excited or stimulated by exercise. However, the owners sought out an alternative therapy to long term steroids due to the undesired side effects such as polyuria, polydipsia, and hyperphagia. Since starting the prednisone, the patient vomited occasionally which was attributed to the steroid. Famotidine was given on occasion to prevent this. The patient also began to exhibit inappropriate elimination due to increased urine production. The patient received a commercial diet formulated for adult dogs, routine vaccinations, and monthly Heartgard and Nexgard.

Clinical Signs: Western Diagnosis

The patient was first presented for a wellness exam after recent adoption. The patient had just been spayed and was up to date on vaccinations. The owners noted a cough that was worse upon waking and when she was excited. After a negative 4dx test, the patient was prescribed hydrocodone/homatropine (Hycodan, Genus Lifesciences Inc.) 5 mg/1.5 mg q8-12hrs PO and doxycycline (Vibramycin Hyclate, Pfizer Laboratories Div Pfizer Inc) 50mg g12hrs for ten days. The cough did not improve by the end of the prescribed course and the patient was prescribed azithromycin (Generic, Teva Pharmaceuticals USA Inc) 60mg q24hrs PO for ten days and hydrocodone/homatropine (Hycodan, Genus Lifesciences Inc.) 5 mg/1.5 mg q8-12hrs PO. One month later the owners communicated that the cough had never resolved and they would like more antibiotics. An azithromycin (Generic, Teva Pharmaceuticals USA Inc) course was repeated and diphenhydramine (Johnson & Johnson) 25mg q12hrs PO was added. Thoracic radiographs were performed a week later which revealed small airway inflammation. As the cough was still persistent, a 30 day course of hydrocodone/homatropine (Hycodan, Genus Lifesciences Inc.) 5 mg/1.5 mg q8-12hrs PO was dispensed, as well as fenbendazole (Panacur, Merck Animal Health USA) 500mg g24hrs PO for six days to rule out lungworm. The patient was referred to an internal medicine specialist. A tracheal wash was performed showing eosinophilic to mixed inflammation, and aerobic culture was negative. The patient was prescribed prednisone (Generic, Teva Pharmaceuticals USA Inc) 5mg q24hrs PO. A diagnosis of allergic bronchitis/eosinophilic broncho pneumopathy was made based on the history, clinical signs (persistent cough that did not respond to antibiotics or antitussive medications), radiographs, tracheal wash cytology and negative culture.

Clinical Signs: Integrative Aspects

The presenting complaint of frequent coughing was noted at adoption by the owners and it is unknown how long it had been an issue for the patient. The patient was relocated from West Virginia to Pennsylvania during the adoption process. The patient was described by owners as a laid back, if somewhat shy, dog that enjoys long walks with plenty of opportunities to sniff out new smells. The patient prefers warm places to sleep and rest. At the time of the Western herbalism consultation, the patient had an increased appetite, increased thirst, and an increase in urination. Urine was clear and copious. When not on prednisone, the patient had a mild appetite. The patient was visibly nervous during the exam and trembled on the exam table. On the physical exam, eyes were bright, ears were clean and warm and the coat was bright and shiny. There was normal range of motion of the limbs, with no discomfort noted. Lungs and heart auscultated normally, though a sinus arrhythmia could be heard. Pulse quality was assessed by palpation of the femoral artery of the left rear leg. Pulses were deep and slow with a rhythm that matched auscultated cardiac sinus arrhythmia. The tongue was lavender centrally to pale pink on the edges. A diagnosis of melancholic humoral temperament was made based on observed signs of cold dryness in the pulse quality and tongue assessment as well as patient behavior and complaints of persistent dry cough as well as warmth seeking behavior. Clinical signs of pale copious urination, increased hunger, and increased thirst, although they are side effects of prednisone also fit with the diagnosis.

Treatment: Conventional (Western) Treatment

The patient received hydrocodone/homatropine (Hycodan, Genus Lifesciences Inc.) 5 mg/1.5 mg q8-12hrs PO and doxycycline 50mg q12hrs for ten days. Two weeks later azithromycin (Generic, Teva Pharmaceuticals USA Inc) 60mg q24hrs PO for ten days and hydrocodone/homatropine (Hycodan, Genus Lifesciences Inc.) 5 mg/1.5 mg q8-12hrs PO were prescribed. One month later the azithromycin course was repeated and diphenhydramine (Benedryl, Johnson & Johnson) 25mg q12hrs PO was added. Thoracic radiographs were performed a week later which revealed small airway inflammation. The patient was kept on hydrocodone/homatropine (Hycodan, Genus Lifesciences Inc.) 5 mg/1.5 mg q8-12hrs PO and was given fenbendazole (Panacur, Merck Animal Health USA) 500mg q24hrs PO for six days to rule out lungworm. A tracheal wash was performed by an internal medicine specialist which showed eosinophilic to mixed inflammation. Aerobic culture was negative. The patient was prescribed prednisone (Generic, Teva Pharmaceuticals USA Inc) 5mg q24hrs PO. When the patient presented for a Western herbalism consultation they were on

prednisone (Generic, Teva Pharmaceuticals USA Inc) 2.5mg q24hrs PO after tapering it in the hopes of mitigating polyuria, polydipsia, and hyperphagia.

Treatment: Western Herbal Treatment

On physical examination there were signs of cold dryness from a Western herbal medicine perspective as well as impaired vitality and overall imbalance. The goals within a Western herbal medicine framework were to support, strengthen, and modulate the immune system, decrease inflammation, support the body through physiological signs of stress and steroid use, and soothe irritated mucosa in the respiratory tract thereby reducing the cough.

Day 1 - The cough was well controlled on the prednisone (Generic, Teva Pharmaceuticals USA Inc) 2.5mg q24hrs PO with only an occasional cough noted but the patient was experiencing hyperphagia, polyuria, and polydipsia with accompanying inappropriate elimination. The patient was started on a liquid herbal formula containing *Withania somnifera* 1:5 37.5 mLs, *Matricaria recutita* 1:5 25 mLs, *Althea offinicalis* glycetract 1:5 25 mLs, *Albizia lebbeck* 1:2 25 mLs and *Glycyrrhiza glabra* 1:5 12.5 mLs for a total volume of 125 mLs. The patient was to receive 2.5 mLs every 12 hours for three weeks. The owner was to slowly wean the patient off of the steroid over the next three weeks at which time we would reassess.

Day 21 - The owners reported that they stopped prednisone the same day that they began the herbal formula. The cough was as well controlled as it was on the prednisone. The patient was no longer experiencing polydipsia, polyuria, and there were no more accidents in the house but the patient was still slightly hyperphagic. The tongue was pale pink, pulses were steady, shallow, strong. The patient was treated with a liquid herbal formula containing *Withania somnifera* 1:5 75 mLs, *Matricaria recutita* 1:5 50 mLs, *Althea offinicalis* glycetract 1:5 50 mLs, *Albizia lebbeck* 1:2 50 mLs, and *Glycyrrhiza glabra* 1:5 25 mLs for a total volume of 250 mLs. The patient was to receive 2.5 mLs every 12 hours for six weeks.

Day 75 - The owners ran out of herbal formula while they were out of town. Some occasional coughing was noted after about seven days off the formula. Pulses were steady, strong, slightly deep and the tongue was pale pink. The formula was adjusted to remove the licorice since the cough was well controlled when on the herbal formula. The patient was treated with a liquid herbal formula containing *Withania somnifera* 1:5 80 mLs, *Matricaria recutita* 1:5 53 mLs, *Althea offinicalis* glycetract 1:5 53 mLs, and *Albizia lebbeck* 1:2 53 mLs, for a total volume of 239 mLs. The patient received 2.5 mLs every 12 hours for ongoing cough maintenance.

Discussion

The diagnosis of allergic airway disease (eosinophilic broncho pneumopathy) was made after the cytology results of the tracheal wash revealed eosinophils and inflammatory cells. This information coupled with a negative airway wash aerobic culture, and the lack of response to antibiotic, antitussive, and antiparasitic medications lends credence to a diagnosis of allergic airway disease.

The principals of Western herbal medicine include a holistic approach when treating disease or imbalance to promote and support vitality within the patient. The energetics of the plants and the signs exhibited by the patient are considered when making a formula. With a holistic approach, more than just the clinical signs are considered. For this patient that meant considering the tendency towards shy and timid behavior, and the recent stressful event of relocation and adoption. Adaptogens are herbs that aid the body through physiological signs of stress. Some of them provide relaxant properties as well. *Withania somnifera* and *Glycyrrhiza glabra* were included in this formula for their adaptogenic properties.

Within Western herbal medicine, humoral theory is a concept originated from the work of Hippocrates that has been expanded upon by herbalists over the centuries that describes a balance of energetic qualities of warmth, coldness, dryness, and moisture within the patient. Melancholic humoral temperament is a result of imbalance and impaired vitality with a tendency towards cold dryness. With signs of cold dryness (deep pulse, pale tongue, large volumes or pale urine, timid/shy behavior, warmth seeking, dry cough, and allergic conditions), the use of warm moistening herbs is indicated (Wynn and Fougere, 2007). *Withania somnifera* is a warming herb and that is one of the reasons it was included in this formula. *Althea offinicalis* is a moistening herb and that is one reason it was included in the formula. Although the other herbs included in the formula are neutral and one is cold and dry, the goal is to balance a formula and not exacerbate cold or dry signs by including warming, moistening, or neutral herbs and by not giving an abundance of cooling or drying herbs. *Withania somnifera* had an antitussive effect in aerosolized citric acid induced cough in guinea pigs (Nosálová, 2014). *Althea offininalis* has been proven effective in the management of dry cough in animal clinical trials (Mahboubi, 2019). *Glycyrrhiza glabra* contains multiple constituents that have been shown to decrease cough frequency in animal models (Yi, 2018). Both *Matricaria recutita* (Chandrashekhar, 2011) and *Albizia lebbeck* (Venkatesh, 2010) were shown to have an inhibitory effect on mast cell degranulation and histamine release.

The patient's cough was well controlled on the Western herbal medicine formula with none of the side effects of prednisone use. The urination and thirst was reduced to what was normal for the patient prior to steroid use and therefore the inappropriate elimination had also stopped. The patient's appetite was less intense than it was while on the prednisone but was still increased compared to right after adoption. Long term to lifelong prednisone is a commonly accepted therapy for dogs with allergic airway disease. Systemic steroid use has been associated with suppressed immune function, predisposition to infections such as urinary tract infections, a decrease in urine concentration, thinning of the skin, polyuria, polydipsia, hyperphagia, weight gain, and muscle wasting (Elkholly, 2020). The importance of effective alternative treatments without the potential for these side effects cannot be understated.

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