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Herbal Therapy in a Dog with Severe Atopic Dermatitis
Leilani Alvarez DVM

Abstract
Herbal therapy provided effective treatment for a dog with severe atopic dermatitis that had been refractory to conventional therapies. A combination of conventional therapies, acupuncture, herbal medicines and dietary changes were used to treat the patient and, in the last 15 months, the condition has been well managed with the integrated approach. This case demonstrates that herbal therapy can be a successful treatment option for refractory atopic dermatitis cases or as complementary treatment for patients with dermatologic problems.

Introduction
Atopic dermatitis (AD) is a common dermatologic diagnosis in dogs consisting of chronic relapsing pruritic skin (Olivry et al. 2010). Dogs are genetically predisposed to this inflammatory skin condition, which is characterized by specific clinical features associated with IgE antibodies, usually directed against environmental allergens (Haliwell 2006). Appropriate diagnosis of AD is based on the patient’s signalment, clinical signs and history of disease (Favrot et al. 2010). Favrot’s criteria for diagnosis of AD include five of eight satisfying criteria, which yield a sensitivity of 85% and specificity of 79% to differentiate dogs with AD from dogs with chronic or recurrent pruritus without AD (Table 1).

Dogs with AD usually have skin lesions consisting of erythematous macules, patches and papules. However, in most patients, the skin lesions are due to self-induced trauma, including excoriations, alopecia, lichenification and hyperpigmentation (DeBoer & Hillier 2001). The areas most commonly affected include the face, concave ear pinnae, ventral neck, axillae, groin, abdomen, perineum, ventral tail and extremities. One must also be careful to rule out other pruritic conditions, which can mimic AD including scabies, demodicosis and infectious bacterial and yeast pyodermas.

Experts in the field of dermatology have agreed that intradermal tests and allergen-specific IgE tests cannot be used as the sole means of diagnosing AD (Hillier & DeBoer 2001). Instead, results from these tests can be used to implement allergen-avoidance interventions and targeted immunotherapy against select allergens.

Current practice guidelines on successful treatment of AD state that a combination of several interventions and treatments is often necessary to achieve satisfactory results (Olivry et al. 2010). These measures include: Identification and avoidance of flare factors (such as fleas, food, dust mites, pollens or other environmental allergens); improvement of skin and coat hygiene and
care; and reduction of pruritus and skin lesions with pharmacological agents (such as glucocorticoids, antihistamines, essential fatty acids, tacrolimus and cyclosporine).

Herbal medicine has shown some promise in the treatment of AD. Several human studies have demonstrated that a combination Chinese herbal medicine, Zemaphyte® is helpful in the management of atopic eczema (Chung 2008, Hon et al. 2007, Zhang 2005, Xu et al. 1997). Zemaphyte® contains *Ledebouriella saseloides* (pictured next page), *Potentilla chinensis*, *Clematis armandii*, *Rehmannia glutinosa*, *Paeonia lactiflora*, *Lophatherum gracile*, *Dictamnus dasycarpus*, *Tribulus terrestris*, *Glycyrrhiza glabra* (licorice) and *Schizonepeta tenuifolia*.

As well, in a randomized double-blind placebo-controlled trial with dogs it was shown that Phytopica® (Intervet-Shering Plough), a Chinese herbal supplement and a derivative of Zemaphyte®, significantly reduced the dose of methylprednisolone required to control pruritus as compared to placebo (Schmidt et al. 2010). Phytopica® contains *Rehmannia glutinosa*, *Paeonia lactiflora* and *Glycyrrhiza uralensis* (licorice). An earlier randomized, controlled study on the same product showed favorable results in the treatment of atopic dogs compared to placebo (Nagle et al. 2001).

**Case presentation**

A 7-year-old, female spayed German Shepard dog, weighing 67 lbs (~ 30 kg) and living primarily indoors, presented in early summer with a primary complaint of severe atopy that had not responded to conventional medicine. Her allergies first manifested when she was a year old and had worsened over the years. She had a history of aggression and anxiety issues since she was first acquired as a puppy. Prior to presentation, the patient had been treated by a board-certified dermatologist for three years, including treatments with hyposensitization injections, antihistamines, steroids, antibiotics, Atopica® (cyclosporine) and medicated baths. Despite these therapies, the patient’s symptoms were not well controlled.

Intradermal skin testing revealed she was reactive to several tree pollens, house dust mite and tobacco. Serum IgE testing for aeroallergens revealed positive titers to several species. The dermatologist developed a vaccine combining these results with those of the intradermal skin test and the patient received the appropriate course of hyposensitization injections. After six months of weekly injections, the owner reported the pet’s pruritus was not improved and she continued to have flare-ups. The dog also received Staphage Lysate injections for over a year. The owner reported the injections helped initially, but the dog continued to have severe outbreaks with bloody excoriations, especially in summer time. After almost two years, Staphage Lysate injections were continued but hyposensitization injections were discontinued.

Most recently, she had some relief with the antihistamine, hydroxyzine, and initial relief with Temaril P® (trimeprazine 5 mg and prednisolone 2 mg), but these were no longer helping. The owner bathed the pet every 2 to 3 days with hypoallergenic shampoo. The pet had had an episode of severe colitis six months prior to presentation. When presented, she had a
great appetite and no current vomiting, diarrhea, coughing or sneezing.

**Conventional evaluation**

On initial exam, the pet was bright alert and responsive and had normal vital signs. Her demeanor was anxious and fearful. On physical exam, she had severe moist erythematous lesions in the periocular region, ventral abdomen, inguinal region, medial thighs and perianal region. There were crusting excoriations over the trunk and flanks. The dog was extremely pruritic and was itching incessantly throughout the exam. Her current medications included Temaril P® – 1 tablet daily and Omega 3 fatty acids 1000 mg daily. Her diet consisted of commercial dry kibble (Innova) and dehydrated food by the Honest Kitchen, Thrive variety (chicken and quinoa). Her clinical presentation and history fit with Favrot’s criteria for an accurate diagnosis of AD (see Table 1). Her assessment was severe atopic dermatitis, anxiety disorder and a history of colitis.

**Traditional Chinese Veterinary Medicine (TCVM) evaluation**

The owner described the pet as very protective and food aggressive. She barked and attacked other dogs and was generally irritable and compulsive. Her TCVM Constitution was interpreted as Wood.

Her tongue was purple-red and the pulse was strong and slippery. She had active acupuncture points at BL 15, BL 22, LI 4. Her TCVM assessment was long standing Damp leading to Blood Heat, Liver Yang Rising and Wind.

We initiated herbal therapy with Long Dan Er Miao San (Kan Essentials) 1250 mg (2½ tabs) orally two-three times daily.

We elected to continue the essential fatty acids but discontinued the Temaril P®. We changed the diet to fresh raw frozen food with high protein and low carbohydrate, using cooling proteins including fish, soy or rabbit. She also received five weekly acupuncture treatments aimed at reducing pruritus, inflammation and to calm her anxiety. (In TCVM these treatments were Wind and Heat clearing and Shen calming).

Within two weeks of treatment, the owner reported she was much better, less itchy and calmer. On presentation, she had fewer skin lesions, mild to moderate, in comparison to presentation. Her tongue was red and her pulse strong.

On the fourth week of treatment, which was at the end of July and historically her worst season, she had a flare-up. She had multifocal excoriations and erythematous macules on the face, medial front legs, caudal ear pinnae, perianal region, as well as swollen and erythematous front paws that were warm to the touch. Her tongue was red and her pulse strong and bounding.
We started Temaril P®- three tabs orally twice daily for three days, then once daily for seven days to decrease inflammation and Cefpodoxime (a third generation cephalosporin) 150 mg orally once daily for seven days to treat the suspected pyoderma. We switched the herbal formula to Long Dan Xie Gan Tang (Kan Essentials) – 1½ tabs orally three times daily for a stronger Heat clearing effect.

On recheck one week later (five weeks after initial presentation), the dog was significantly improved. She had mild pin-point papules on the ventral base of her neck and no other active lesions. Her tongue was red and pulse strong. On recheck the following week (six weeks after presentation), her skin was still doing well but she had an episode of colitis and was still itchy around the perianal region. On exam, she had an anal gland impaction. Her tongue was red and wet and pulse slippery and strong. Her anal glands were expressed and we added an additional herb, Si Miao San (Kan Essentials) – two tabs orally in the morning and reduced Long Dan Xie Gan Tang to two tabs orally in the evening.

On recheck 11 weeks following presentation, she continued to do well. The owner reported she was more playful and calmer. On exam, she had mild erythema around the perianal region and medial thighs, but there were no open lesions. Her tongue continued to be red and pulse strong and wide. At this point, we changed her herbal formula to Qing Ying Tang (Kan Essentials) – two tabs by mouth two-three times daily.

The patient was not seen again until spring of the following year (nine months following initial presentation), at which time the owner reported her skin had never looked better. On exam, she had a beautiful shiny coat and no active lesions. Her tongue was pink and the pulse was still strong but more moderate at the superficial level.

During the following summer, the patient’s worst allergy season, she continued to do well on the Qing Ying Tang, although we did use low doses of Temaril P®- 1-2 tabs once daily to help control her allergies. During a phone conversation with the owner 18 months after starting herbal therapy, she reported her pet’s skin has never looked better and she could not be more pleased with how well she was doing.

**Discussion**

This patient shows signs of severe Damp Heat as evidenced by the strong slippery pulse, inflamed skin with excoriations and history of colitis. The long-standing Damp has led to stagnation as evidenced by the purple-red tongue. The underlying cause is likely Damp accumulating in the Spleen, in part from the carbohydrate rich and highly processed diet (dry kibble). Carbohydrates and processed foods have a higher glycemic index and lower content of vitamins and minerals. Processed foods, therefore, are less nutritious and promote more inflammation and insulin resistance. The combination of herbs and unprocessed raw foods promotes improved bioavailability of nutrients, increased insulin sensitivity and improved blood flow to inflamed areas to help limit and resolve them.

The pet’s previous diet was mostly chicken, which is very warming from a Chinese medical perspective. As the Damp
accumulates, it stagnated the Triple Burner leading to genital inflammation (as noted in the perianal and inguinal erythema and active BL 22). As the Heat accumulated, it transferred to the Heart and Liver leading to the behavioral problems of anxiety, aggression and irritability. In addition, the Liver Heat manifested in periocular erythema. The Heat transferred to the Blood leading to severe itching and Blood Heat. Aggression is a sign of Liver Yang rising, while itching is a sign of External Wind.

Long Dan Er Miao San is a combination of Er Miao San and Long Dan Xie Gan Tang, which treat severe Damp Heat. Long Dan Cao, Huang Qin and Gardenia clear Heat from the Liver and Heart and dry Damp. Bupleurum and Huang Qin promote movement through the Triple Burner. Rehmanna cools Blood while protecting Yin damaged by the Heat and drying effects of the other herbs. Plantain seed, Poria and Ze Xie drain Damp. Er Miao San (Phellodendron and Atractylodes) clear Heat and dry Damp in the Lower Burner, but have warming effects in the Middle Burner to protect the Spleen. Atractylodes, Mulberry leaf and Dictamnus have Wind expelling effects. Kochia drains Damp and relieves itch. Red Peony and Peony tree bark move Blood and relieve itch.

The formula was switched to Long Dan Xie Gan Tang to have a stronger cooling action and to focus more on clearing Heat from the Liver channel which was likely leading to the dominance aggression. Si Miao San was added when the patient developed colitis, a sign of Spleen Qi deficiency and Damp. Si Miao San contains Phellodendron and Atractylodes, which both tonify Spleen and dispel Damp. Phellodendron is also Heat clearing. Coix further supports the Spleen and helps stop diarrhea. Achryanthes is a Blood mover that helps decrease inflammation and relieve Blood Heat. Although the patient improved

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<tr>
<th>Table 1. Favrot’s 2010 criteria for canine atopic dermatitis (Favrot et al. 2010)</th>
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<tr>
<td>1. Onset of signs under three years of age</td>
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<tr>
<td>2. Dog living mostly indoors</td>
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<tr>
<td>3. Glucocorticoid-responsive pruritus</td>
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<td>4. Pruritus sine material at onset (i.e., alesional pruritus)</td>
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<tr>
<td>5. Affected front feet</td>
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<td>6. Affected ear pinna</td>
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<td>7. Nonaffected ear margins</td>
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<td>8. Nonaffected dorso-lumbar area</td>
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A combination of five satisfied criteria has a sensitivity of 85% and a specificity of 79% to differentiate dogs with AD from dogs with chronic or recurrent pruritus, without AD. Adding a sixth fulfilled parameter increases the specificity to 89%, but decreases the sensitivity to 58%.
significantly with the combination of Long Dan Xie Gan Tang and Si Miao San, the patient continued to have a red tongue with strong pulses, indicating there was still a strong component of Blood Heat.

The patient has been best managed with Qing Ying Tang, a formula that helps clear severe Heat pathogens that have invaded the Blood. It contains Rehmannia, Scrophularia and Ophipogon, which clear Heat and protect Yin. Honeysuckle, Forsythia and Coptis dispel Heat pathogens, while Lopatherum cools Heart Fire to help relieve aggression and Salvia moves and cools Blood.

Rehmannia glutinosa (Di Huang – pictured next page), the first ingredient in Long Dan Er Miao San and also in Qing Ying Tang, has multiple anti-inflammatory effects (Kim 1999, Park 2009). It was shown to help specifically with AD by enhancing T-hyper 2 lymphocytes respond to allergens (Sung et al. 2011). In a recent study, modified Si Miao San extract was shown to have significant anti-inflammatory effects by inhibiting nitrous oxide, tumor necrosis factor-alpha and Interleukin-6, among other pathways (Fan et al. 2010).

Further, a Chinese herbal formula containing Angelica sinesis (Dang Gui) and Astragalus membranaceus (Huang Qi) was shown to decrease eosinophilic infiltration in asthmatic mice and helped in the treatment of AD in dogs (Lin et al. 2011).

Combining Chinese herbal medicines with acupuncture has been shown to be more beneficial in improving patients’ symptoms than Chinese herbal medicine alone (Salameh et al. 2008) and using herbal therapies along with diet change can benefit patients with AD that have failed conventional approaches (Kobayashi et al. 2004). The present patient achieved unparalleled improvement in AD symptoms with much lower doses of conventional medications than used historically, indicating a significant contribution of the acupuncture, herbs and diet change to the dog’s health and overall quality of life.

Summary/Conclusions
This case report is an example of a challenging clinical manifestation of severe atopic dermatitis that failed expert conventional dermatologic management. Atopic dermatitis can be very frustrating for any clinician to manage. This report demonstrates that using herbal medicines and integrated therapies can be successful in the management of these challenging cases.

References


Fan, J, Liu, K, Zhang, Z et al. 2010, ‘Modified Si-Miao-San extract inhibits the release of inflammatory mediators from lipopolysaccharide-stimulated mouse


A Chinese Medical Approach to Cholangiohepatitis in the Dog
Lauren A Bauer DVM

Abstract
A 7½ year-old, male intact Golden Retriever presented for alternative therapy for liver failure. He had weighed 103 pounds (~47 kg) until just recently. At the time of initial presentation he weighed 78 pounds (~34 kg).

A month before initial presentation he stopped eating and started vomiting. He was diagnosed by ultrasound and biopsy at a specialty hospital as having cholangiohepatitis with biliary stasis and cirrhosis. Autoimmune disease was suspected. While at the specialty hospital he also developed a corneal ulcer, complicated by keratoconjunctivits sicca (KCS) and required a graft.

He came into our hospital for supplemental help. Herbs were prescribed but the owner did not use them as the dog’s internist advised not to. The dog was not seen at our clinic for the next four weeks. He then presented for euthanasia. He had dropped down to 69 pounds (~31 kg). The internist and the owners had given up. The owners, however, did agree to try the herbs previously prescribed. The dog responded and was subsequently seen on a weekly to bi-weekly basis for Chinese herbs, acupuncture, diet instructions and gastrointestinal symptom management using conventional medicine.

Over the next five months the dog continued to improve in energy, appetite and laboratory values. To date he is markedly improved.

This paper offers an overview of the role of Chinese Herbal Medicine, acupuncture and case management including conventional therapies, diet and supplements in the treatment of autoimmune cholangiohepatitis in the dog.

Introduction
Cholangiohepatitis is a common disorder in the cat but uncommon in the dog. It is an inflammation of the biliary tree as well as the surrounding hepatocytes (Magne & Shell 2004). Ultrasound and biopsy confirmed the diagnosis of lymphoplasmacytic cholangiohepatitis with bridging fibrosis and biliary cysts. After anaerobic and aerobic culture of the area ruled out an infectious cause, an immunologic component to this condition was suspected.

The purpose of this case reports is to show the value of an integrative approach to liver disease using herbal medicine, acupuncture, supplements and diet in addition to conventional drugs.
Presentation

Initially, the dog presented on October 7, 2010 after being treated at a specialty hospital for the previous three weeks. The owners were seeking another opinion on his condition of acute lymphoplasmacytic cholangiohepatitis with gastrointestinal complications of vomiting, diarrhea and anorexia with profound weight loss. He was on multiple medications. (See Appendix 2 for the dog’s initial medication list).

Blood work, ultrasound and liver biopsy confirmed severe liver failure. (See Appendix 1 for laboratory values).

On physical examination, the dog was profoundly thin with muscle wasting. He weighed 78 pounds, down from his previous weight of 103 pounds. He was severely icteric, 3% dehydrated and lethargic with a subdued Shen (mind). He had a corneal graft in his right eye that was healing. There was a dry, yellow discharge from this eye and he held his eyelids halfway shut. His nose was dry and flaky. His mucous membranes were pale and very yellow. He had a 2/6-grade heart murmur with a normal heart rate. His abdomen was painful. His temperature was normal. He got up occasionally in the exam room to vomit bright yellow stomach fluid that contained pieces of grass and a few kibbles of dog food.

The TCVM (Traditional Chinese Veterinary Medicine) physical exam revealed a pale and dry Tongue. His Pulse was deep, weak and slippery. His abdominal area was warm and painful. His conventional diagnosis of cholangiohepatitis with biliary stasis and cirrhosis with an immune component is stated above.

His TCVM diagnoses are Damp Heat in the Liver, Liver Blood Deficiency and Liver Over-Controlling the Spleen and Stomach with Rebellious Stomach Qi. The severe Damp Heat resulted in a Triple Burner (TB) Obstruction which gave rise to the sudden onset of signs, elevated cholesterol and high liver enzymes.

Si Miao San for Damp Heat and Xiao Chai Hu Tang for TB Obstruction were recommended. Suggestions were made to add homemade foods that were Qi and Blood tonics. It was recommended that all current medications be continued at this time.

The owners called the next day and said they had talked with their internist who said not to use any of the supplements or herbs because the internist was not familiar with them. I did not see the dog again for four weeks.

On November 4, 2010, the owners returned for euthanasia. They had stopped all the medications from the specialists and had given up as their dog was not getting better. He was not eating and would vomit several times every day. The specialists had implied that the dog was not improving and the prognosis was poor. At that point, I suggested giving the herbs a try since they had nothing to lose. They agreed.

Physical exam revealed a dog that now weighed only 69 pounds (~34 kg). He had lost an additional eight pounds in the last four weeks. His previous weight had been 103 pounds. His Tongue was pale, icteric and dry. His Pulse was deep, soft and weak. His TCMV disease pattern had not changed. He still had Damp Heat in the Liver, Liver Blood Deficiency, Liver Over-Controlling the Spleen and Stomach with Rebellious Stomach Qi. The severe Damp Heat had resulted in a TB Obstruction.
The dog was put on Xiao Chai Hu Tang and Si Miao San, both at three tablets BID. The owners were instructed to continue Denamarin (milk thistle and Sam-E) at 950 mg once daily. Zinc was added at 50 mg once daily to help with copper accumulation in the liver. Hepagen-C, a liver supplement and anti-oxidant, was added at two tablets daily. The vomiting was controlled with a Cerenia injection (3.1 cc) and Cerenia tablets at 120 mg once daily for the next three days. Regular vitamin B-12 injections (2 cc) were injected into the acupuncture Association points for the Gall Bladder, Liver, Spleen and Stomach (BL 18, 19, 20 and 21 respectively). The owners made a diet of chicken and rice and were force feeding this combined with Hill’s LD canned food. Si Miao San consists of four herbs to treat cases of Damp Heat. Together these four herbs tonify the Spleen, Drain Damp and Clear Heat. They are especially useful in cases of Damp Heat in combination with Spleen Qi Deficiency. Xiao Chai Hu Tang is used for TB Obstruction and Shao Yang disorders. The dog’s symptoms fitted this diagnosis: vomiting, Qi Deficiency (weakness), separation of Yin and Yang due to the Middle Burner Obstruction resulting in a lack of Source Qi production, very high liver enzymes, KCS due to Yang trapped in the Upper Burner and a slippery Pulse, from the Yang trapped peripherally in the Upper Burner (Marsden, 2010a).

One week later, on 11/10/10, the pet was more energetic with good Shen. His tongue was pale pink and dry. His pulse was deep and weak. He was still not eating well. There was improvement in liver values but albumin was dropping. I saw the dog weekly to for the next month.

His weight stabilized and then started to increase. His ALT and ALK PHOS values improved, with some fluctuations, while his albumin level was slowly dropping from 2.4 to 1.7 (normal value 2.5 – 4.0). His appetite improved only slightly but the owners were able to force feed the dog regularly. Daily vomiting and loose stools with blood were routine. Cerenia was used on an as-needed basis for vomiting, with instructions not to use more than three to four days in a row. His right dry eye continued to produce tear secretions. His Tongue remained pale and dry and his Pulse slippery throughout this period.

On 12/15/10, the owner had fed a rich canned dog food and the dog had vomiting and diarrhea. He felt warm with a pale, wet Tongue and slippery Pulse. His TCVM diagnosis was Spleen Qi Deficiency with Damp Heat and Rebellious Stomach Qi. Liu Jun Zi Tang (Six Gentlemen) was ordered for the patient. Baytril injection, Baytril tablets, subcutaneous fluids, vitamin B and injectable Cerenia were given (see Appendix 3 for medication and herbal doses). The dog improved by the next day and the owners were instructed to avoid rich and high fatty foods.

On 12/29/10 the dog was better than at the previous visit, but still had problems with anorexia, some vomiting and soft stools.
The Tongue was pale, pink and dry. His Pulse remained slippery. Blood values were improving except for albumin. The dog was put on Liu Jun Zi Tang at three tablets BID for the gastrointestinal symptoms.

The dog’s pattern was changing from an Excessive TB Obstruction to a Deficient Liver Blood condition. The low appetite was most likely the result of a Liver Spleen disharmony. Xiao Yao San was chosen because it is one of the best formulas for Liver Blood Deficiency resulting in hypoalbuminemia (Marsden 2010b).

On 1/6/11, it was noted vomiting had decreased since starting on Liu Jun Zi Tang. The Tongue was pale and dry and the Pulse still deep and slippery. The dog was more energetic. The stomach area was less painful and rubbing this area caused him to scratch with his rear foot. He no longer guarded his abdomen. Xiao Yao San was started at two tablets BID for the Liver Blood Deficiency. Xiao Chai Hu Tang and Si Miao San were both discontinued. Liu Jun Zi Tang was continued.

Xiao Yao San is a Deficiency formula used in cases of Liver Blood Deficiency, Liver Qi Stagnation and Spleen Qi Deficiency. Its actions are to Disperse Liver Qi, relieve Stagnation, Tonify Spleen Qi and Nourish Blood (Xie 2010). This is a good formula for liver disorders when albumin is low. The Chai Hu (pictured left) herb stimulates RNA synthesis in hepatocytes, which may lead to increased albumin production (Marsden and Wynn, 2003). The Minister herbs, Dang Gui (Angelica) and Bai Shao Yao (Paeonia) tonify and build Blood, increasing blood flow. This increase in circulation may also help with albumin production (Marsden 2010a).

A novel protein was introduced using Royal Canin Rabbit and Potato Limited Ingredient diet. The idea was to combat any inflammatory bowel disease that was creating or adding to the gastrointestinal symptoms of anorexia, vomiting and diarrhea. If there was inflammation in the intestines, it could contribute to the liver inflammation via the bile duct just as the liver inflammation can contribute to gastrointestinal inflammation.

Over the next few visits, the pattern was becoming less Blood Deficient but persistently Spleen Qi Deficient. The pet had very good energy. He was eating his novel protein diet fairly well. There was no significant vomiting but stools were still soft. His Tongue was moister than before but still pale. His Pulse was soft. Liver values had reduced to near normal levels. The herbs, diet, acupuncture and vitamin B-12 were continued.

On 2/10/11 the dog was reported to be very energetic at all times. He was running up the stairs and jumping into the car. The neighbors commented on how good he seemed. His Tongue was moist and a
normal pink color. His Pulse was not as deep and weak as before, but still slippery. He still had occasional soft stools. The owner had been feeding him a quarter of his old food, dry Eukanuba, because he liked it. A test for albumin only was run and the value had improved to 2.0. The owner was instructed to be stricter with his diet. It was considered best to eliminate his old diet at this time and probably forever.

Three weeks later the dog was doing well. His appetite was excellent with no vomiting. His energy levels were back to normal. His weight had increased to 80 pounds (~35 kg). This case will continue to be monitored and adjustments made. Diet will be a very important factor in the long-term maintenance of this dog.

Discussion
This dog originally was overweight with many symptoms of Damp and Damp Heat including dermatitis, otitis and arthritis. His diet consisted of dry commercial dog food until the time he became ill.

The Spleen Qi deficiency from the inadequate diet led to manufacture of Damp and Damp Heat. The Spleen failed to manufacture sufficient Blood resulting in a Liver Blood Deficiency. Damp and Phlegm occluded the Triple Burner causing Obstruction and collapse from Yin and Yang failing to mingle. Initially, many of the symptoms fit this pattern: vomiting, KCS, very high liver values and elevated cholesterol.

The herbal formulas used were Si Miao San for Damp Heat and Xiao Chai Hu Tang for TB Obstruction.

Si Miao San is indicated for Damp Heat Patterns. The King herb, Atractylodes (Can Zhu), dries Damp and strengthens the Spleen to eliminate Dampness in the Middle Jiao. The Minister herb, Phellodendron (Huang Ba), predominantly removes Damp Heat in the Lower Jiao. The Adjuvant herb, Coix (Yi Yi Ren), smoothes the channels and joints to help tendon and ligament stiffness (Bi Syndrome) and removes Damp. The Messenger herb, Achyranthes (Huai Niu Xi), descends the herbs’ effect to the Lower Jiao to eliminate Damp Heat (Xie 2010).

Together these four herbs Tonify the Spleen, Drain Damp and Clear Heat. They are especially useful in cases of Damp Heat in combination with Spleen Qi Deficiency.

Xiao Chai Hu Tang was originally designed for Shao Yang Patterns. It consists of the King herb, Bupleurum (Chai Hu). This herb cools and ascends and relieves Liver Qi stagnation. It decreases ALT enzymes and prevents hepatic necrosis and cell degeneration (Marsden 2010b). Chai Hu stimulates RNA synthesis in hepatocytes, which may lead to increased albumin production (Marsden & Wynn 2003).

The Minister herb, Scutellaria (Huang Qin), drains Heat from the Shao Yang. It descends Yang from the Upper Burner to reintegrate with the Lower Burner. The Adjuvant herbs consist of Pinellia (Ban Zia) and Zingiberis (Shen Jiang). They work together to resolve Phlegm and Stagnation in the Middle Burner. This action helps to reduce vomiting. The other two Adjuvant herbs are Ginseng (Ren Shen) and Jujube (Da Zao) that tonify Qi and protect the Spleen and Stomach. The Messenger herb, Glycyrrhiza (Gan Cao), harmonizes all of the herbs to work together (Xie 2010).
Numerous studies investigating this formula focus on hepatoprotective and regenerative functions. Research done by Chang et al. (2007, vol.35, no. 2), found Xiao Chai Hu Tang inhibited Hepatitis B virus and exhibited anticancer effects. Research done by Chen et al. (2007, vol. 32, no. 2), showed that Xiao Chai Hu Tang could inhibit liver fibrosis and collagen induced by bile duct ligation. It also reduced the hyperbilirubinemia by four-fold compared to the control group.

After several months, the dog became more Deficient and less Excessive. The dropping albumin was of concern. The Liver Blood Deficiency continued to Over-control the Spleen resulting in numerous gastrointestinal issues, being a depressed appetite, vomiting and soft stools with blood. These issues were addressed with the formulas Liu Jun Zi Tang for gastrointestinal issues and Xiao Yao San for Liver Deficiency, including hypoalbuminemia.

Liu Jun Zi Tang is based on Si Jun Zi Tang with the addition of Er Chen Tang.

Si Jun Zi Tang (Four Gentlemen) is a basic Qi tonic. The King herb, Ginseng (Ren Shen) is a sweet, warm herb that tonifies the Qi and strengthens the Spleen. The Minister herbs are Atractylodes (Bai Zhu) a bitter and warm herb that serves to drain Damp and strengthen the Spleen, and Poria (Fu Ling) that aids in strengthening the Spleen and draining Damp. Poria also balances the warm nature of Ginseng and Atractylodes by eliminating Heat. The Messenger herb, Glycyrrhiza (Zhi Gan Cao), harmonizes the formula and also invigorates the Spleen (Xie 2010).

Clinical studies have reported a recovery rate of 92.3% when Si Jun Zi Tang was used to treat functional dyspepsia and malabsorption, abdominal distension, loose stools and debilitation (Wang & Xie 2003).

To this is added Er Chen Tang. The King herb, Pinellia (Ban Xia), transforms Phlegm and dries Dampness. The Minister herb, Citrus (Chen Pi), promotes the flow of Qi and harmonizes the Stomach (Xie 2010).

Li Jun Zi Tang is used in patients with Spleen Qi Deficiency. It will strengthen the Spleen, harmonize the Stomach and relieve pain while promoting Qi flow. It is useful in cases of anorexia and chronic inflammatory bowel disease.

Xiao Yao San is a Deficiency formula used in cases of Liver Blood Deficiency, Liver Qi Stagnation and Spleen Qi Deficiency. Its actions are to Disperse Liver Qi, relieve Stagnation, Tonify Spleen Qi and Nourish Blood.

The King herb, Chai Hu (Bupleurum), relieves Liver Qi Stagnation. The Minister herbs, Dang Gui (Angelica) and Bai Shao Yao (Paonia) tonify and build Blood to soothe the Liver. The three Adjuvant herbs, Bai Xhu (Atractylodes), Fu Ling (Poria) and Gan Cao (Glycyrrhiza) tonify the Spleen. Gan Cao also works with Bai Shao Yao to reduce painful spasms. The Messenger herbs have different functions. Wei Jiang (Zingiberi) harmonizes the Middle Burner and Bo He (Mentha) aids Chai Hu’s actions of relieving Liver Qi Stagnation and cooling the heated liver (Xie 2010).

Xiao Yao San should be considered when Spleen deficiency signs seem at the root of a Liver Blood Deficiency. For instance, when gastrointestinal signs are most prominent and include vomiting and anorexia. One of the most common laboratory abnormalities
responding to this formula is low blood albumin (Marsden 2010b).

Soon after starting these two herbal formulas, there was improvement in the dog’s appetite, liver values and albumin levels. His energy was notably enhanced.

Vitamin B-12 treatments were given almost every time the dog was seen. Vitamin B-12 is a good treatment for Liver Blood Deficiency (Jilin et al. 1995). Vitamin B-12 injected into the acupuncture Association points for the Liver, Gall Bladder, Spleen and Stomach enhanced the treatment of the liver cholangiohepatitis and gastrointestinal issues. Zinc supplementation was instituted because it is known to reduce lipid peroxidation, has antifibrotic properties, prevents hepatic copper accumulation and can reduce the severity of hepatic encephalopathy (Marchesini et al. 1996, Sokol 1996). Hepagen-C and Denamarin, liver antioxidants, were used because, according to Rutgers and Biourge (2006, p.147): “Many liver diseases result in increased generation of free radical and oxidant stress. Supplementation with antioxidants will therefore help to reduce oxidative liver injury”.

Conclusion
This case clearly demonstrates the value of Traditional Chinese Medicine when conventional western medicine does not result in improvement. The owners tried a multi-drug approach to this difficult and uncommon liver condition under the care of a highly trained, board-certified, veterinary internist. Only when the outcome was bleak were they willing to try alternative therapy combined with minimal conventional therapies. This case shows a positive outcome with integrative medicine and the largely untapped positive results that Chinese Herbal Medicine can bring.

References


Marsden, S 2010a, Severe Liver Failure, CIVT Case Discussions.

Marsden, S 2010b, Course Lectures for CIVT 1002 Chinese Herbal Medicine, internet course.

Marsden, S 2010c, Course Notes for CIVT 1002 Chinese Herbal Medicine, internet course: pp. 174-175.
### Appendix 1. Weight and laboratory values

<table>
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<tr>
<th>Date</th>
<th>Weight in pounds</th>
<th>Alk Phos (23-212)</th>
<th>ALT</th>
<th>CHOL (112-328)</th>
<th>GGT (0-114)</th>
<th>TBili (0-.4)</th>
<th>DBili (0-.2)</th>
<th>ALB (2.5-4.0)</th>
<th>BUN (7-27)</th>
<th>HCT/ WBC</th>
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<td>310</td>
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<td>Hct 47%</td>
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</table>

**9/14/10 ultrasound:** Liver is normal size with coarse, heterogenous texture. Gall bladder is small. Multiple ultrasound guided biopsies taken.

**9/14/10 culture/sensitivity of Liver:** negative

**9/14/10 leptospriosis titer:** negative

**9/14/10 liver biopsy:** Mild lymphoplasmacytic cholangiohepatitis with severe bile stasis and bridging fibrosis and biliary cysts.

**Biopsy remarks:** There is evidence of mild inflammation but also with severe bile stasis. There is fibrosis, which is bridging from portal area to portal area. This is indicative of cirrhosis. Special stains for copper: **Copper level:** 790 (Normal reference range 100-300)
Appendix 2. Medications at initial presentation (October 7, 2010)

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
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<tbody>
<tr>
<td>Sam E</td>
<td>425 mg BID</td>
</tr>
<tr>
<td>Silybin</td>
<td>35 mg BID</td>
</tr>
<tr>
<td>Metronidazole</td>
<td>500 mg BID</td>
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<tr>
<td>Actigall</td>
<td>300 mg BID</td>
</tr>
<tr>
<td>Prednisone</td>
<td>20 mg BID</td>
</tr>
<tr>
<td>Leukeran</td>
<td>2 mg EOD</td>
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<tr>
<td>Colchicine</td>
<td>0.6 mg daily</td>
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<tr>
<td>Ondanstsetron</td>
<td>8 mg – 2 tablets BID</td>
</tr>
<tr>
<td>Mirtazapine</td>
<td>15 mg – 1.5 tablets daily</td>
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<tr>
<td>Pepcid AC</td>
<td>10 mg – 2 tablets BID</td>
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<tr>
<td>Soloxine</td>
<td>0.8 mg BID</td>
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Appendix 3. Herbal formulas and medications used in treatment

<table>
<thead>
<tr>
<th>Date instituted</th>
<th>Herb/medication/supplement and dose</th>
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</thead>
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<tr>
<td>11/4/10 to 1/6/11</td>
<td>Xiao Chai Hu Tang – 3 tablets BID</td>
</tr>
<tr>
<td>11/4/10 to 12/29/10</td>
<td>Si Miao San – 3 tablets BID</td>
</tr>
<tr>
<td>11/4/10 to present</td>
<td>Denamarin – 950 mg daily</td>
</tr>
<tr>
<td>11/4/10 to present</td>
<td>Zinc – 50 mg daily</td>
</tr>
<tr>
<td>11/4/10 to present</td>
<td>Hepagen-C – 2 tablets daily</td>
</tr>
<tr>
<td>11/4/10 to 12/29/10</td>
<td>Cerenia – injectable (3.1 cc) and tablets 120 mg daily for 3 days or as needed</td>
</tr>
<tr>
<td>11/4/10 to present</td>
<td>Vitamin B 12 – 2 cc per treatment</td>
</tr>
<tr>
<td>12/15/10-12/25/10</td>
<td>Baytril injection – (75 mg) and tablets 68 mg BID for 7 days</td>
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<tr>
<td>12/15/10</td>
<td>Subcutaneous lactated ringers 600 ml</td>
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<tr>
<td>12/29/10 to present</td>
<td>Liu Jun Zi Tang – 3 tablets BID</td>
</tr>
<tr>
<td>1/6/11 to present</td>
<td>Xiao Yao San – 2 tablets BID</td>
</tr>
</tbody>
</table>

References (continued)

Marsden, S & Wynn, S 2003, Manual of Natural Veterinary Medicine Science


Xie H. 2010. Xie’s Chinese Veterinary Herbol-...
Integrative Management of Canine Allergic Bronchitis with Veterinary Chinese Herbal Medicine
Tom Schell DVM DABVP (eq)

Abstract
A middle-aged Jack Russell Terrier, diagnosed as having chronic allergic-type bronchitis with a dry cough, presented for alternative therapy options. Throughout the course of treatment, the patient’s dependence on steroidal medications was decreased and she was transitioned to a lower dosage antihistamine/steroidal combination with the use of supplemental herbs.

Signalment
Sydney is a seven-year old spayed female Jack Russell Terrier, with a presenting weight of 10.2 kg. She was being medicated with 5.0 mg prednisone daily for control of her cough.

Medical history
Sydney presented for evaluation of a chronic, dry cough that has been present for over two years. She has been on 5.0 mg of prednisone daily to help control the cough for over this time, however, the cough was still present. The previous veterinary facility had performed thoracic radiographs that indicated end-on bronchi in the hilar region as well as a mild interstitial pattern. Sydney has been allergy tested via intra-dermal technique at a specialty facility and is receiving weekly desensitization injections for grass, mold and ragweed. She is fed an organic-type diet, high in grains with no supplementation of human foods. The owner is concerned about long-term steroidal usage as well as weight gain and increased water consumption, not to mention long-term health effects.

Examination and clinical progression
Sydney first presented to Timbercreek Veterinary Hospital on 8.12.2010 for evaluation of a chronic, dry cough that was being treated with daily prednisone therapy. The cough was diagnosed as being an allergic bronchitis after extensive intra-dermal skin testing. She was receiving weekly desensitization injections as described above. The cough improved while on the prednisone but was still present. The owner’s concern was Sydney’s overall health as well as weight gain since starting the steroidal therapy.

On the initial examination, there was a slight wheezing noted in the lung fields with normal cardiac auscultation. Sydney was markedly overweight. There was a dry, honking-type cough elicited on manipulation of the trachea. She was currently being treated by her primary veterinarian for a moist Malassezia otitis with topical otic medications. A complete blood count and chemistry panel showed the only abnormal value was ALKP (see Table 1), and was associated with chronic prednisone therapy.
Thoracic radiographs indicated a normal tracheal diameter with no noted narrowing. There was a bronchial pattern in the hilar region with end-on bronchi noted. There was marked right heart enlargement, plus hepatic enlargement with rounded margins noted on both views. There was no evident compression of the trachea by the enlarged heart, which, if present, would contribute to the cough. The Traditional Chinese Medicine (TCM) examination indicated a red/dry tongue with very superficial, rapid and thin pulses. TCM diagnosis of Yin Deficiency with deficient Heat present was based on the exam. The herbal formula Zhi Bai Di Huang Wan (ZBDHW) was started at 1 teapill per 10 lbs twice daily, or 60-75 mg/kg split BID, to tonify Yin and reduce deficient Heat. Enalapril 5 mg one daily was prescribed along with CoQ10 30 mg daily for overall cardiac support.

It was recommended that the owner continue the current prednisone therapy, but reduce the dosage to 2.5 mg once daily after one week if Sydney was well clinically. She was started on a canned holistic tuna-based diet that was grain and preservative free. It was hoped the canned food would be less heating to the body, more cooling in nature and support the digestive process.

First follow-up
Sydney presented in two weeks for a recheck examination. The cough was noted to be unchanged per the owner and she had reduced the dosage of the prednisone as recommended. On examination, the cough was still present but more moist in nature with some wheezing noted on auscultation. The owner reported that Sydney becomes congested when off prednisone and begins to chew at her feet and scratch diffusely. The TCM examination indicated a red tongue with moist, white coating. The pulses were rapid, thin and had a slippery component bilaterally. The TCM diagnosis of Damp Heat was made based on the TCM examination, with a suspected Yin deficient component. The red tongue is indicative of Heat while the white, moist coating is reflective of Dampness. The rapid pulse implies Heat, while the thin component is suggestive of Blood or Yin Deficiency. The slippery component of the pulse also supports Dampness.

The Yin Deficiency was suspected to be a result of the long-term prednisone therapy, which can be very drying in nature. The Yin Deficiency could also be a result of long term Spleen Qi Deficiency. The ZBDHW formula was discontinued due to concern over worsening Dampness and the formula Si Miao Wan (SMW) was prescribed at 1 teapill per 10 lbs twice daily to support the Spleen, reduce Heat and resolve Dampness. The owner was advised to continue the prednisone at 2.5 mg daily along with CoQ10 and Enalapril as described.

Second follow-up
Sydney was rechecked in one month. The cough was improved per the owner and she had been able to reduce the prednisone to 1.25 mg daily. Pruritus and chewing the feet appeared to be reduced, but still present. No cough was noted on examination and there was a slight wheeze in the lung fields, however, the moist component was also improved. TCM examination indicated a red-mauve colored tongue with moist coating. The pulses were rapid, thin and wiry bilaterally. The TCM examination was indicative of the presence of a Stagnant Qi, Heat, Dampness and Yin/Blood Deficiency. At this time, the presence of Dampness was not as pronounced. It was still believed that
the Yin Deficiency was present as a result of long-term prednisone usage.

At this time, the decision was made to switch tactics. Sydney was changed to a taper course of Temaril-P®1, a low dose antihistamine/prednisone combination, in order to help reduce her reliance on a strictly corticosteroid product and minimize health side effects. The herbal formula was changed to San Reng Tang (SRT), ½ tsp BID, or 60-75 mg/kg split BID, in order to help reduce Heat, address Spleen support and further Dampness resolution. The herbal formula was changed from SMW to SRT due to a perceived decrease in the amount of Heat present as well as reduced Dampness, negating the need for a strong formula such as SMW.

Third follow-up
Sydney was checked again in 30 days and seemed to be doing much better per the owner. She was currently on ½ tablet Temaril-P® on an every-other-day dosage, as well as the organic canned diet which she was tolerating very well. She was still on the SRT formula in addition to the Enalapril and CoQ10 for cardiac support. The cough was markedly improved and frequency was dramatically reduced. The overall pruritus was resolved as was the feet chewing and otic infection. TCM examination indicated a red/pink tongue with slight moisture coating. The pulses were less rapid but still slightly thin in nature.

She was continued on SRT, the cardiac medications and Temaril-P® and is currently doing well. The chemistry panel was repeated and reflected improvement in ALKP values (see Table 1) secondary to herbal therapy and reduction in prednisone usage.

Herbal treatments
During the course of Sydney’s therapy, three herbal formulas were utilized to help control her condition and reduce dependence on corticosteroids.

The herbal formula Zhi Bi Di Huang Wan (8 Flavors) was utilized to tonify Kidney/Liver Yin, subdue Deficiency fire and clear mild Damp Heat. ZBDHW contains Shu Di Huang (Rehmannia glutinosa) which nourishes Blood and Liver/Kidney Yin; Shan Yao (Dioscorea) tonifies Q, nourishes the Spleen and tonifies Yin; Shan Zhu Yu (Cornus) tonifies the kidney and liver; Mu Dan Pi (Paeonia) clears Heat, cools the blood and invigorates circulation; Fu Ling (Poria) resolves Damp and supports the Spleen; Ze Xie (Alisma) resolves Damp and clears deficient Heat; Huang Bai (Phellodendron) clears Heat, dries Damp and sedates fire; Zhi Mu (Anemarrhena) clears Heat and nourishes Yin (Wrinkle 2008 p. 116). This formula was chosen based on a red/dry tongue in addition to a rapid and thin pulse, which implied a Yin Deficiency and Heat presence.

The herbal formula Si Miao Wan (Four Marvels) was chosen to clear Heat and resolve Dampness. SMW contains Huang Bi (Phellodendron) which clears Heat, cools the blood and invigorates circulation; Yi Yi Ren (Coix) strengthens

<table>
<thead>
<tr>
<th>Table 1. Laboratory Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Value</td>
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<td>ALKP</td>
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</table>
the Spleen, resolves Damp and clears Heat; Cang Zhu (Atractylodes) dries Damp and strengthens the Spleen; Huai Niu Xi (Achyranthes) tonifies the Liver and Kidney and activates blood circulation (Wrinkle 2008, p. 58). SMW was chosen based on the presence of a red, moist tongue coating and a rapid pulse with a slippery component, which indicated Damp Heat. SMW was shown to significantly inhibit excessive production of NO, TNF-alpha, IL-6 and the overexpression of relative genes in LPS-stimulated macrophages (Fan 2010). This action indicates that SMW has anti-inflammatory effects by reducing pro-inflammatory cytokines which may be present in cases of allergic bronchitis. The ethyl acetate extract of Coix also exhibited potent inhibitory activity that suppressed degranulation and histamine release from RBL-2H3 cells, which supports an inhibitory effect on allergic responses (Chen 2010).

The final herbal formula chosen was San Reng Tang (Three Seeds Combination) to unblock the descent of Lung Qi, resolve mild Damp Heat and support the Spleen. SRT contains Xing Ren (Apricot) which arrests cough and relieves wheezing; Yi Yi Ren (Coix) strengthens the Spleen, resolves Damp and clears Heat; Hua Shi (Talc) clears Heat and resolves Damp; Ban Xia (Pinellia) dries Damp and redirects rising Qi; Bai Dou Kou (Cardamon) regulates Qi, strengthens the Stomach and dissolves Damp; Dan Zhu Ye (Lopatherum) clears Heat; Hou Po (Magnolia) regulates Qi, reduces Stagnation, dries Damp and relieves wheezing; Tong Cao (Rice Paper) resolves Dampness (Marsden 2009, p. 55). SRT was finally chosen to continue to support the Spleen, resolve Damp Heat symptoms and secondarily tonify Yin and Blood. It is noted that restoring the normal flow of Lung Qi helps to resolve Dampness (Chen 2009, p. 1093). The three seeds that help to unblock the descent of Lung Qi, transform and dry Damp in the Middle Burner as well as drain Damp are: Apricot Seed, Coix Seed and Cardamon (Marsden 2009, p. 120). The SRT formula contains a similar component to SMW formula, Coix, which has been previously documented to inhibit mast cell degranulation in allergic conditions.

Sydney was changed to an organic canned tuna-based diet which was grain and preservative free in order to help reduce further Heat as well as tonify the digestive process. The ZBDHW and SMW formulas were both dosed at 1 teapill per 10 lbs body weight twice daily, while the SRT formula was dosed at ½ tsp twice daily in the food, or 60-75 mg/kg split orally BID.

**Discussion**

Allergic bronchitis typically involves an inflammatory response within the airways, usually due to an inhaled allergen. In chronic cases, excessive mucus is present within the airways which can lead to small airway obstruction. Chronic bronchitis is generally treated symptomatically from a western perspective, commonly using glucocorticoids, bronchodilators, cough suppressants and antibiotics (Nelson 1992, p. 295).

Sydney had originally presented for evaluation of a chronic dry cough that was believed to be an allergic type of bronchitis based on prior laboratory testing. The condition was mildly responsive to corticosteroid therapy, however, there were concerns over increased water consumption and weight gain while on medications. The initial examination
indicated the presence of a Yin Deficiency, noted by a red/dry tongue and rapid/thin pulses. When the herbal formula ZBDHW was implemented to tonify Kidney Yin, along with reduced a reduced dosage of prednisone, Damp Heat signs became apparent at the next recheck, noted by a moist cough as well as chewing and pruritus. The prior history of a moist otitis was suggestive of a Damp Heat presence, but was not considered early in the course of therapy. With the presence of Damp clinical signs, such as weight gain and moist otitis, the initial choice of ZBDHW was improper due to most Yin tonics being ‘cloying in nature’ and likely to contribute to Dampness.

Prednisone is thought to be drying and cooling in nature and thus can help to reduce the presence of Heat and Dampness, but with chronic use it can be very Yin depleting to the body. After reducing the prednisone dosage, the Dampness that was being controlled was now becoming more obvious and possibly aggravated by the richness of the ZBDHW formula. The tongue continued to be red, indicative of Heat, but began to show a very moist coating which was suggestive of Dampness, especially when considering a slippery and rapid pulse. It is noted the side effects of polyuria/polydypsia while on corticosteroid therapy are indicative of the presence of Dampness. The herbal formula SMW was implemented at this time to address Damp Heat and appeared to be successful with improvement in the cough as well as reduced pruritus.

At the next recheck, the condition was improved with reduction in Heat and Dampness signs but a continued need for support was still evident. The formula SRT was chosen to continue to reduce Damp Heat, but to a lesser degree than SMW, and to continue to support the Spleen. The patient was changed to a more tolerable combination of an antihistamine and prednisone, reducing the clinical impact of the medication, and the overall cough was much improved in the long term.

In reviewing this case, it is now obvious that the underlying problem was likely a Spleen Qi Deficiency, possibly related to diet. The Spleen Qi Deficiency likely led to Damp formation. This became prominent not only in the skin but in the lungs, which then contributed to the cough. The accumulation of Dampness then led to the formation of Heat, which depleted Yin over time. The prednisone therapy aided the condition in drying Dampness and reducing Heat, but in the process, it further depleted Yin. The Yin Deficiency was the most prominent clinical sign in the early stages, but efforts to tonify the Yin resulted in exacerbation of the Damp signs. In the end, Spleen Qi tonification and Damp resolution yielded the best results and allowed us to reduce prescription corticosteroids. Tonification of Yin should be a secondary event to Spleen tonification over time.

**Notes**
1. Temaril-P®, Pfizer Animal Health (Trimeprazine/Prednisone)

**References**


Nelson, R & Couto, C 1992, Small Animal Internal Medicine, 2nd edn, Mosby, St. Louis, Mo.


“I LOVE the course. It is amazing. I’ve studied TCVM for 15 years – including four years of human acupuncture college – and I think that I am learning more in the CIVT course than I learned in all those years…”

CIVT student

Marguerite Hernandez, VMD
Use Of Huo Xiang Zhing Qi San for the Treatment of Recurrent Diarrhea in a Juvenile Poodle
Dr Grace S Y Li

Abstract
A juvenile canine was presented with chronic recurrent diarrhea. The symptoms included inappetence, weight loss, lack of thriftiness and loose stools with occasional bloody and mucoid discharge.

Conventional medicine helped, but symptoms immediately recurred when discontinued. Herbal treatment Huo Xian Zhing Qi San (Agastaches Rectify the Qi Powder) was chosen to complement conventional medicine for a lasting effect on the loose bowel motions.

Signalment
Elgar was an 18 months old, male entire, chocolate Teacup Poodle imported from Japan.

History and diagnosis
Elgar was purchased and imported into Hong Kong from Japan at a young age. He had been fully vaccinated and was up to date with deworming, heartworm, flea and tick prevention. Apparently he was fed only on yoghurt and nothing else as a pup in Japan. The new owner tried switching to a dry commercial diet but reversed back to yoghurt after Elgar first developed diarrhea in June, 2009. The diarrhea was mostly pasty to liquid in consistency, with occasional blood or mucus. The first clinic visited by Elgar treated him with courses of Flagyl (Metronidazole suspension) and prescriptive diet (Royal Canin Sensitivity Control). However, the response was transient according to the owner and the diarrhea relapsed on and off after treatments.

At presentation on 13/06/2010, physical examination of Elgar revealed a body weight of 1.36kg, a thin body condition (BCS 1.5/5), subnormal body temperature at 37C, mild mucoid ocular discharge, a lacklustre coat with bacterial collarettes, dermatitis, a significant amount of dental tartar on his teeth. In addition, he had an unusually depressed, quiet attitude atypical for this breed and age. No other abnormalities were detected at the time.

The initial differential diagnosis included infectious bowel disease (IBD), bacterial overgrowth and parasitic/infectious enteritis. A simple in-house fecal flotation test was performed and was negative for parasitic ova. Another fecal sample was requested two weeks later for a comprehensive routine analysis that included checks against giardia, cryptosporidium, coccidia, as well as aerobic and anaerobic culture and sensitivity tests. Urinalysis (Table 1) revealed moderate proteinuria and mild bilirubinuria.
Table 1. Urinalysis In-House 10/7/2010

<table>
<thead>
<tr>
<th>Test</th>
<th>Results</th>
<th>Reference range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refractometer</td>
<td>&gt;1.05</td>
<td></td>
</tr>
<tr>
<td>Leukocytes</td>
<td>NEG</td>
<td></td>
</tr>
<tr>
<td>Nitrite</td>
<td>NEG</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>Blood</td>
<td>NEG</td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td>+++</td>
<td></td>
</tr>
<tr>
<td>Glucose</td>
<td>NEG</td>
<td></td>
</tr>
<tr>
<td>Ketones</td>
<td>NEG</td>
<td></td>
</tr>
<tr>
<td>Urobilinogen</td>
<td>NEG</td>
<td></td>
</tr>
<tr>
<td>Bilirubin</td>
<td>++</td>
<td></td>
</tr>
<tr>
<td>Microscopic exam</td>
<td>NAD</td>
<td></td>
</tr>
</tbody>
</table>

Baseline blood test values (Table 2) were all within normal limits.

Table 2. Baseline Blood Profile 10/7/2010

<table>
<thead>
<tr>
<th>Test</th>
<th>Results</th>
<th>Reference range</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALB</td>
<td>26 g/l</td>
<td>23-40</td>
</tr>
<tr>
<td>ALKP</td>
<td>111 U/L</td>
<td>23-212</td>
</tr>
<tr>
<td>ALT</td>
<td>24 U/L</td>
<td>10-100</td>
</tr>
<tr>
<td>AMYL</td>
<td>638 U/L</td>
<td>500-1500</td>
</tr>
<tr>
<td>UREA</td>
<td>9.4 mmol/l</td>
<td>2.5-9.6</td>
</tr>
<tr>
<td>Ca</td>
<td>2.6 mmol/l</td>
<td>1.98-3</td>
</tr>
<tr>
<td>CHOL</td>
<td>4.36 mmol/l</td>
<td>2.84-8.27</td>
</tr>
<tr>
<td>CREA</td>
<td>58 umol/l</td>
<td>44-159</td>
</tr>
<tr>
<td>GLOB</td>
<td>27 g/l</td>
<td>25-45</td>
</tr>
<tr>
<td>GLU</td>
<td>5.73 mmol/l</td>
<td>4.11-7.94</td>
</tr>
<tr>
<td>PHOS</td>
<td>1.42 mmol/l</td>
<td>0.8102.19</td>
</tr>
<tr>
<td>TBIL</td>
<td>&lt; 3 umol/l</td>
<td>0-15</td>
</tr>
<tr>
<td>TP</td>
<td>53 g/l</td>
<td>52-82</td>
</tr>
<tr>
<td>Na</td>
<td>154 mmol/l</td>
<td>144-160</td>
</tr>
<tr>
<td>K</td>
<td>4.1 mmol/l</td>
<td>3.5-5.8</td>
</tr>
<tr>
<td>Cl</td>
<td>120 mmol/l</td>
<td>109-122</td>
</tr>
<tr>
<td>HCT</td>
<td>39.5 %</td>
<td>37-55</td>
</tr>
<tr>
<td>HGB</td>
<td>14.1 g/dl</td>
<td>12-18</td>
</tr>
<tr>
<td>MCHC</td>
<td>35.7 g/dl</td>
<td>30-36.9</td>
</tr>
<tr>
<td>WBC</td>
<td>12 x10/L</td>
<td>3.3-12</td>
</tr>
<tr>
<td>GRANS</td>
<td>9.2 x10/L</td>
<td>3.3-12</td>
</tr>
<tr>
<td>%GRANS</td>
<td>77%</td>
<td></td>
</tr>
<tr>
<td>NEUT</td>
<td>8.4 x10/L</td>
<td>2.8-10.5</td>
</tr>
<tr>
<td>EOS</td>
<td>~ 0.8 %</td>
<td>0.5-1.5</td>
</tr>
<tr>
<td>L/M</td>
<td>2.8 x10/L</td>
<td>1.1-6.3</td>
</tr>
<tr>
<td>%L/M</td>
<td>23 %</td>
<td></td>
</tr>
<tr>
<td>PLT</td>
<td>&gt; 308</td>
<td>175-500</td>
</tr>
</tbody>
</table>

The only significant finding was that clostridial species were found in the stool samples.

From a Traditional Chinese Medicine (TCM) perspective, Elgar’s tongue appeared to be pale indicating Blood or Qi (especially Spleen Qi) Deficiency. His skin was not very warm to touch and his pulse was soft, slippery and weak, which also reflected deficiency and poor peripheral circulation. Combined with the description of the diarrhea and dermatopathy, tentative TCM diagnoses were made, being Blood Deficiency, Wei Qi Invasion, Spleen (Qi and Yang) Deficiency and Dampness Accumulation.

Table 3 (next page) summarizes the medications and supplements prescribed during the three visits by Elgar. After over a year of chronic diarrhea which partially responded to conventional medications alone, Elgar was fully recovered within approximately one month of combined therapy of diet change, antibiotics and herbal treatments.

The original source of Huo Xiang Zhing Qi San (Agastaches Rectify the Qi Powder) can be found from Tai Ping Hui Min He Ji Ju Fang (Imperial Grace Formulary of the Tai Ping Era), 1079-85. It contains 13 components in total. Elgar was treated orally with 0.5g three times daily of the preparation manufactured by Sheng Chun Tang (SCT).

For persistent enteric pathogens, the internal Dampness and chronic clostridial infection may be best treated with HXZQS over other choices. It is the author’s opinion...
that formulas such as Si Miao San may be chosen for patients with more overt inflammatory signs; San Ren Tang perhaps is a little too cooling for Elgar; Wei Ling Tang is also a good Spleen tonic which fits the energetics, but perhaps not as effective against a deep-seated, invading pathogen such as clostridia. Other formulas such as Yi Guan Jian, Liu Jun Zi Tang, Bu Zhong Yi Qi Tang may be too tonifying in the beginning and may be only given after the pathogen/Dampness has been dispelled.

Included on the next page for comparison is the original composition listed from Chen and Chen’s ‘Chinese Herbal Formulas and Application’ (C&C).\(^1\) Note the original composition might be more warming and tonifying on Spleen as it contains almost four times the amount of Zhi Gan Cao by percentage weight. In contrast, SCT’s version has a stronger action of dispelling Dampness as it contains double the percentages of Zi Su Ye, Bai Zhi, Fu Ling, and Da Fu Pi.

From a TCM perspective, Agastaches (Huo Xiang) releases exterior wind-cold and dispels Dampness. Magnolia Bark (Hou Po) and Areca husk (Da Fu Pi) activate Qi and dispel Dampness. Tangerine peel (Chen Pi) and Pinellia root (Ban Xia) dry Dampness, harmonize Stomach and descend rebellious Qi. Perilla leaf (Zi Su Ye) and Angelica root (Bai Zhi) release the exterior wind-cold and dispel interior Dampness and turbidity. White atractylodes (Bai Zhu) and Poria (Fu Ling) strengthen the Spleen, dispel Dampness, and harmonize the Middle Jiao. Platycodon root (Jie Geng) ventilates the Lung and resolves Dampness. Ginger (Sheng Jiang), Jujube (Da Zao) and Liquorice (Zhi

<table>
<thead>
<tr>
<th>Date</th>
<th>Therapy</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>13/6/2010</td>
<td>Diet change (whole food, low residue, high protein low carb diet), Klacid, probiotics, slippery elm for two weeks.</td>
<td>Diarrhea stopped within 48 hrs; then liquid diarrhea developed when Klacid was stopped.</td>
</tr>
<tr>
<td>10/7/2010</td>
<td>Klacid, slippery elm, kao pectin, bonemeal powder, multivitamin, omega oil, Huo Xiang Zhing Qi San for two weeks.</td>
<td>Diarrhea stopped again within 48 hrs. Dermatitis resolved.</td>
</tr>
<tr>
<td>14/7/2010</td>
<td>Phone consultation.</td>
<td>No relapse when Klacid was stopped.</td>
</tr>
<tr>
<td>21/7/2010</td>
<td>Augmentin, Metronidazole (against clostridial spp.), HXZQS, probiotics for two more weeks.</td>
<td>Normal stools and weight gain.</td>
</tr>
<tr>
<td>14/8/2010</td>
<td>Stopped all conventional treatments except probiotics and dietary supplements (multivitamin, omega oil, bonemeal powder).</td>
<td>No relapse when all antibiotics were discontinued. Coccidia-free stools. Happy dog.</td>
</tr>
</tbody>
</table>
Gan Cao) regulate the Spleen and Stomach and harmonize the herbs in the formula.  

Therefore, the overall actions of this formula are to release the exterior, regulate Qi, harmonise Middle Jiao, expel Dampness and transform Damp turbidity. It is indicated for exterior cold-Damp, and deep-seated interior Dampness accumulation in the Stomach and Intestines which blocks the Middle Jiao. This manifests as weakness, cold aversion, chronic diarrhea, pale tongue and deficient pulse, as it did in this case.

**Results**

Table 3 summarizes the response corresponding to the time of treatments. As expected by the owner, the diarrhea resolved whenever antibiotics were given to Elgar. The diarrhea stopped within 48 hours and Elgar would become transiently happier and more energetic while on antibiotics. The diarrhea returned after completing the first two weeks of Klacid (Clarithromycin 125mg/5ml). Klacid and slippery elm powder were chosen for taste and ease of administration during the first visit. After further discussion on the second visit, Elgar’s owners agreed to treat him with Chinese herbs using HXZQS and a completely 100 percent home-made diet supplemented with multivitamins, probiotics, omega oil and bonemeal powder, in addition to the current conventional medications. Two weeks later, his stools remained normal; he started to gain weight and became more energetic.

The fecal culture and sensitivity results came back much later when Elgar was already doing much better. The clostridial

<table>
<thead>
<tr>
<th>Composition by</th>
<th>SCT weight</th>
<th>%</th>
<th>C&amp;C weight</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herba Agastaches (Huo Xiang)</td>
<td>3.0g</td>
<td>10</td>
<td>15g</td>
<td>15</td>
</tr>
<tr>
<td>Magnolia Bark (Hou Po)</td>
<td>2.0g</td>
<td>6.7</td>
<td>10g</td>
<td>10</td>
</tr>
<tr>
<td>Aged tangerine peel (Chen Pi)</td>
<td>2.0g</td>
<td>6.7</td>
<td>10g</td>
<td>10</td>
</tr>
<tr>
<td>Perilla leaf (Zi Su Ye)</td>
<td>3.0g</td>
<td>10</td>
<td>5g</td>
<td>5</td>
</tr>
<tr>
<td>Angelica root (Bai Zhi)</td>
<td>3.0g</td>
<td>10</td>
<td>5g</td>
<td>5</td>
</tr>
<tr>
<td>Poria (Fu Ling)</td>
<td>3.0g</td>
<td>10</td>
<td>5g</td>
<td>5</td>
</tr>
<tr>
<td>Pinellia rhizome (Ban Xia)</td>
<td>2.0g</td>
<td>6.7</td>
<td>10g</td>
<td>10</td>
</tr>
<tr>
<td>Balloon flower root/platycodon root (Jie Geng)</td>
<td>2.0g</td>
<td>6.7</td>
<td>10g</td>
<td>10</td>
</tr>
<tr>
<td>Areca husk, areca peel (Da Fu Pi)</td>
<td>3.0g</td>
<td>10</td>
<td>5g</td>
<td>5</td>
</tr>
<tr>
<td>White atractylodes rhizome (Bai Zhu)</td>
<td>2.0g</td>
<td>6.7</td>
<td>10g</td>
<td>10</td>
</tr>
<tr>
<td>Jujube, Chinese date (Da Zao)</td>
<td>1.0g</td>
<td>3.4</td>
<td>amount not specified</td>
<td></td>
</tr>
<tr>
<td>Honey prepared liquorice (Zhi Gan Cao)</td>
<td>1.0g</td>
<td>3.4</td>
<td>12g</td>
<td>12</td>
</tr>
<tr>
<td>Fresh ginger rhizome (Shen Jiang)</td>
<td>3.0g</td>
<td>10</td>
<td>amount not specified</td>
<td></td>
</tr>
</tbody>
</table>
species isolated were found to be resistant to Klacid all along, despite the clinical improvement shown by Elgar. After discussions with Elgar’s owner, they decided to play safe and not risk another relapse with the dog on HXZQS alone. A final course of antibiotics (Augmentin + Metronidazole) which tested sensitive to clostridia was given against clostridiosis. When combined with HXZQS, the diarrhea did not relapse after the antibiotics were finished, much to the owner’s relief.

Two months after the initial consultation, Elgar remained diarrhea-free and had become a much happier dog according to the owner. A final fecal culture and sensitivity test was repeated and no bacterial pathogens were found.

**Discussion**

In terms of scientific research into HXZQS, it has been shown to be an extremely effective formula for the treatment of gastroenteritis.\(^1\) It has antispasmodic and antiemetic activities by relaxing the smooth muscle of the gastrointestinal (GI) tract. Research with rabbits and dogs show the ability to regulate GI tract smooth muscle motility, relieve GI spasm and help to lessen colic pain.\(^5\) In addition, it is antifungal, antibacterial and has broad spectrum inhibitory activity against candida, *Staphylococcus aureus*, *Salmonella typhi*, bacillus species *E.coli*, pseudomonas and some dermatophytes.\(^1\)

Huo Xiang contains aromatic, volatile oils and various flavone compounds which have antimicrobial, antifungal actions, plus the ability to promote digestion by gastric acid secretion as well as to suppress upper respiratory tract infection (URTI). Chen Pi, Zi Su Ye have aromatic oils which act as an disinfectant; Hou Po has a stronger antimicrobial action; Ge Gan works as an antispasmodic and can increase phagocytic ability. This formula also has anti-allergic ability, for example Zi Su Ye, Chen Pi, Liquorice are useful against external pathogenic attacks.\(^3\)

The main Chinese pathophysiology mechanism underlying this case is Spleen Qi Deficiency, which results in the accumulation of Dampness in the Stomach and Intestines of the Middle Jiao/Burner. The poor diet since young likely weakened the Spleen function and aggravated/depleted Kidney Qi. In the cooking pot analogy as described by Dr Steve Marsden, the Middle Burner is responsible for the continuous production of Qi and Fundamental Substances.\(^6\) Stasis in the Middle Burner hence blocks clear Qi from moving upward and turbid Qi from moving downward, and it can become a self-propagating pathology. As Dampness accumulates, it causes further obstruction at the Spleen and Stomach. Pathological Damp or Yin increases and (Spleen/Kidney) Yang decreases, leading to less heat for the cooking pot to produce Fundamental Substances.

There is another self-propagating cycle that we may detect in Elgar’s case, even though it is less obvious and of a lesser degree clinically. The poor diet contributed to a mild form of Liver Blood Deficiency as shown by the pale tongue, weak pulse, and cold extremities. Liver Blood Deficiency can lead to Liver Qi Stagnation, which impairs the transformation and transportation functions of the Spleen further.
To summarise, the TCM diagnosis of Spleen Qi/Yang Deficiency, Blood Deficiency and Dampness Accumulation need to be addressed. Treatment principles hence are to clear Dampness, harmonise the Middle Burner, activate Qi and strengthen Spleen. The selection of a suitable herbal formula is important as it should act on multiple organs and solve multiple problems simultaneously.

Conclusion
The two most frequent culprits of clostridial enteritis in dogs are Clostridium difficile and Clostridium perfringens. These gram-positive anaerobes are capable of producing endospores which can survive stomach acid to cause disease in the colon. C. difficile is resistant to most antibiotics and without prior culture and sensitivity testing, some common antibiotic treatments can actually make it possible for C. difficile to overgrow other bacteria in the dog's gut and cause pseudomembranous colitis. C. perfringens is a part of the normal flora and it is often found in sick dogs without being the cause of the illness. Therefore, IBD cannot be ruled out and one should still tackle this case integratively with the correct antibiotics, food therapy and supportive alternative therapies, such as Chinese herbs.

The patient diagnosed with suspect IBD and clostridial enteritis had a comprehensive work up with conventional diagnostic procedures and was treated integratively with both conventional medications and an herbal formula named Huo Xiang Zheng Qi San. This dog suffered from chronic diarrhea for more than one year and had a long history of relapses each time after conventional drugs were discontinued. He responded within two weeks of introducing the herbal formula and remained free of his symptoms thereafter.

The successful outcome may be due to the combined therapy of a suitable diet change and introducing an herbal remedy to ensure a lasting recovery. This avoided prolonged courses of antibiotics, steroids or further invasive diagnostic procedures such as gut biopsy which are commonly recommended for IBD patients.

References
2 Sheng Chun Tang Pharmaceutical Industrial Co Ltd, Taiwan, phone + 886-6-2325155-7.
Clinical Pearls of Wisdom
Priceless pearls from CIVT faculty members

Saw Palmetto for Urethral Obstruction
Dr Steve Marsden

Dr Steve Marsden suggests using saw palmetto, *Serenoa repens/serrulata*, for urethral obstruction in order to abort impending obstruction. He uses a glycerite at 3-5 ml every 30-60 minutes until the cat urinates, then scales back. The liposterolic components are extracted into glycerin and urethral relaxation is confirmed by ultrasound.

Herbal Treatment for Multiple Papillomas in Dogs
Dr Barbara Fougere

Dogs that present with multiple papillomas, oral or otherwise, can be treated with herbs that have documented systemic antiviral activity. These include St Johns Wort, echinacea, pau d’arco, thuja and cats claw. Topical herbs include licorice, calendula and lemon balm. St Johns Wort is not considered effective for naked viruses, papovaviruses, (warts) but I have included it as an anti-inflammatory, vulnerary herb.

I have formulated this combination for several patients and have been impressed with its efficacy and safety.

- 100 mls
- Echinacea 1:2 20 ml
- *Glycyrrhiza glabra* 1:1 or 1:2 20 ml
- *Hypericum perforatum* standard extract 20 ml
- *Thuja accidentalis* 1:5 10ml
- *Uncaria tomentosa* 1:2 30ml
- Dose 0.5 1 ml per 10lb/5kg twice daily

You could also use lemon balm tea topically.

I’ve seen patients which chronic papillomas respond within days, they just drop off. This could be coincidental, however, most patients seen have a history of previous surgical removal or chronicity over months.

Gaining TCM Insights from Lab Results
Dr Steve Marsden

Using Biochemistry and Hematology to help with TCM diagnosis:

- Low RBC, platelets or WBC: Blood deficiency
- Low Liver enzymes, BUN, cholesterol or albumin: Liver Blood deficiency
- Mild to moderate liver enzyme elevations: Liver Blood deficiency
- High ALP: Damp Heat
- Splenomegaly (due to neoplasia or immune reactions): Triple Burner Obstruction
- High triglycerides: Damp or Blood stasis
- Amylase/ lipase elevations: Middle Jiao disharmony
- Ultrasound – hyperechoic or large organs: pathological excess, eg Qi or Blood stasis, Damp Heat
- Ultrasound – hypoechoic or small organs: deficiency in substance stored by that organ, eg Kidney essence.
Introduction

Alkaloids are a highly potent class of secondary metabolites in plants that have been used as medicines for centuries. Alkaloids are heterocyclic, contain nitrogen, generally have a potent action and are of limited distribution in nature. Although their role in plants is not fully understood, alkaloids are generally believed to be an evolutionary defense measure against herbivores, insects and pathogens such as bacteria, fungi and viruses. Other possible roles include transfer of growth factors and transfer or storage of specific acids, as alkaloid levels have been shown to be higher at times of rapid growth.

The term alkaloid was first applied by Meissner, a German pharmacist and derives from the fact that early isolates from plants were alkaline in nature. However, not all alkaloids are alkaline. The names of most alkaloids end in –ine, but they may originate from the generic name of the plant (eg., hydrastine), from a specific name (eg cocaine), or from the common name (eg ergotamine). The name may derive from the discoverer’s name, eg lobeline (after L’Obel), or from its physiological action (eg emetine).

Alkaloids are found in 15-30% of all flowering plants and are particularly abundant in the Fabaceae, Lilacea, Ranunculaceae, Solonaceae and Papaveraceae families. They include the well-known substances that many may take every day: caffeine and nicotine, as well as the medical drugs morphine and cocaine. The most widely occurring alkaloids are caffeine and berberine. While the higher plants are the major source of alkaloids, they are also known to occur in lower plants such as horsetails, in algae, fungi, microorganisms and in insects. Over 10,000 different alkaloids have been isolated from over 300 plant families. They may be found in roots, rhizomes, leaves, bark, fruit or seeds. More than 40 alkaloids may occur in a single plant.

Chemistry

Alkaloids are a large and diverse group of chemical compounds that are not easy to classify. Their actions are highly specific, with each alkaloid having unique properties. However, certain alkaloid groups tend to be confined within certain plant families and are usually grouped according to their chemical structure.

Typical alkaloids are alkaline organic compounds containing one or more nitrogen atoms, each connected to at least two carbon atoms within a heterocyclic ring system. Most alkaloids are derived at least partly from amino acids as their direct precursors, while a few are derived from isoprene units (terpenoids). Alkaloids are generally insoluble in water (the notable
exception is caffeine) and soluble in alcohol. Alkaloid salts are more water-soluble which led to their historical use as anaesthetic agents, being added to the organic solvents ether and chloroform.

Alkaloids have variable bioavailability, frequently being oxidized by the cytochrome P450 enzyme system in the liver to form N-oxide compounds that are non-toxic and water soluble. In addition, they are irreversibly bound and are precipitated by tannins, which is why they should never be combined in a herbal formula as they would not be absorbed. In certain circumstances this precipitation can be usefully harnessed, such as for the treatment of alkaloid toxicosis or overdose.

**Pharmacology and potential veterinary indications**

A key feature of alkaloids is their strong bitter taste and, because many act as poisons in their natural state, this is nature’s way of reminding animals they should not be eating the plant. As well as a deterrent, the bitter taste of most alkaloids acts as digestive stimulant. Many have the ability to cross the blood brain barrier, giving central nervous system effects that are either stimulatory or depressant. In fact, much of our understanding of the mechanisms of neurotransmitters and receptor sites comes from research into the pharmacodynamics of alkaloids.

Nowadays alkaloids are widely used either as isolated compounds or as semi-synthetic derivatives in the pharmaceutical industry. Their diverse array of actions includes analgesia, local anesthesia, cardiac stimulation, respiratory stimulation and related vasoconstriction, muscle relaxation, toxicity, anti-neoplastic as well as hyper- and hypotensive effects. The only rule common to alkaloids is that they all tend to be potent in their actions; hence very small doses exert significant clinical effects.

Some well-known alkaloids, such as atropine (in Belladonna) and datura (in Thornapple species) in the Nightshade, or Solonaceae, family contain atropine and scopolamine. These are tropane alkaloids and muscarinic receptor antagonists. The strong anticholinergic activity of these herbs is responsible for their muscle relaxant action and their use in the treatment of smooth muscle spasm and associated pain.

Another group of alkaloids are the purine alkaloids, which are methylated xanthines that form weak, pharmacologically active bases. There are three methylxanthines, all of which are present in the most popular stimulant beverages —coffee and tea. Caffeine is found in a number of botanically unrelated species, including *Coffea arabica* (Rubiaceae), *Camellia sinensis* (Theaceae) or tea, *Cola nitida* (Sterculiaceae - pictured above) or kola nut and *Paullinia cupana* (Sapindaceae) or guarana. Caffeine is bound to chlorogenic acid in raw coffee beans with the roasting process liberating the caffeine
and other compounds that contribute to coffee’s aroma. Purine alkaloids generally exert a stimulating effect on the nervous system.

Caffeine is a central nervous system stimulant, enhancing alertness and overcoming fatigue. High doses lead to insomnia and tremors. It stimulates cardiac output and heart rate and acts as a mild diuretic. Caffeine raises metabolism, influences blood sugar and is habit forming. It is sometimes used in formulations for treating migraine. Theophylline is a purine alkaloid in the tea plant and is structurally and pharmacologically similar to caffeine. The main medical use for theophylline is as a bronchial smooth muscle relaxant for the treatment of bronchial asthma and emphysema.

The next group to consider is the isoquinoline alkaloids, most frequently found in the Papaveraceae (eg papaverine), Berberidaceae and Ranunculaceae families. This is a very large class of medicinally active alkaloids and includes curare, morphine and codeine from the opium poppy, berberine (in Barberry, Coptis and Goldenseal – pictured), canadine and hydrastine (from Goldenseal), emetine (from Ipecac) and sanguinarine (from Bloodroot). Properties of isoquinoline alkaloids are extremely variable. Reported pharmacological properties include antispasmodic, antimicrobial, antitumour, antifungal, anti-inflammatory, cholagogue and hepatoprotective, antiviral, amoebicidal and antioxidant actions. It has been shown these alkaloids act to inhibit oxidation and the activity of pathogenic bacteria (reducing their ability to adhere to cell surfaces), as well as stimulating bone marrow leukocyte production. Hence they have potential action to enhance immune function and help fight infection. The therapeutic uses of isoquiline alkaloids mirror these effects. They are used in animals with bacterial or viral infections and to support those that are weak and immunocompromised. Studies show it is likely all the plants’ constituents have synergistic actions as whole extracts are as effective as alkaloid constituents alone (Fougere & Wynn, p. 176).

The final group is the indole alkaloids. These typically involve multiple, often complex, carbon-ring structures and form the basis of several pharmaceutical drugs as well as some of the most potent hallucinogenic drugs. The indole alkaloids include catharanthine, vinblastine and vincristine (from Madagascar periwinkle), ergotamine (from rye ergot), reserpine, yohimbine, strychnine and the hallucinogen, harmaline (found in Passiflora incarnata and tobacco). Serotonin is another indole alkaloid and is found in bananas, tomatoes and hairs of the stinging nettle.

**Herbal Toxicity and Cautions**

All alkaloid-containing plants are potentially toxic substances and should be treated with care at all times. As alkaloids are extremely reactive, even at small doses, most alkaloid-rich plants are used sparingly as medicines. Indeed, use of many of the alkaloidal species is restricted by law, or listed on poison schedules in certain countries.

An important group of alkaloids are potentially highly toxic to the body, these are the pyrrolizidine alkaloids (PA) that can cause hepatotoxicity. Plant families known to contain PAs include the Asteraceae and the Boraginaceae (plus a few members
of other plant families). However, toxicity is mainly found in unsaturated PAs. This occurs when hepatic cytochrome P450 converts them to a toxic N-oxide.

Hepatic damage by PAs is due to veno-occlusive disease, cirrhosis and cancer. The degree of susceptibility varies amongst species. Although horses and cows are believed to be the most susceptible species, Symphytum officinale (Comfrey) has been traditionally used as part of their feed, likely due to low levels of unsaturated PAs it contains. Comfrey and other plants containing PAs, such as borage (Borago officinalis), coltsfoot (Tussilago farfara) and liferoot (Senecio) are restricted to use by herbalists in many countries, (eg the UK) and are banned in others.

In addition, steroidal alkaloids (found in the Liliaceae and Solanaceae families) contain potentially toxic glycoalkaloids. These substances are mainly concentrated in unripe fruits and green potatoes and disappear during ripening. Steroidal alkaloids are toxic so avoiding sprouting potatoes and unripe tomatoes is recommended. As there is evidence of teratogenicity, this recommendation is particularly pertinent to pregnant women.

Selected alkaloid monographs:
Goldenseal

Source: Hydrastis canadensis, native to North America; traditional names are Indian Tumeric and Ground Raspberry. It is now an endangered species and highly threatened in the wild, therefore it is important to buy Goldenseal from sustainable sources only and not buy wildcrafted products. It is in the family Ranunculaceae and the yellow coloured roots and rhizome are used, with the leaf used in teas. It is a perennial that may grow to 12 inches and usually blooms after its third year to produce a single white-green flower with no petals. The flower becomes a single raspberry-like fruit in summer.

Chemical composition: isoquinolone alkaloids (hydrastine), protoberberine alkaloids (berberine, berberastine, canadine), phenolic acids and resin.

Energetics: bitter, cold, clears heat and toxins and dries damp. King's American Dispensatory notes it is useful for improving blood circulation in cases where there is stasis.

Traditional use: the Cherokee were said to have used Goldenseal for treating cancer, as a wash for localized inflammation, for dyspepsia, as a tonic and a dye. A principal indication was for inflammation and ulceration of mucus membranes in the gastrointestinal or reproductive tracts. It was used in treating liver disease, to help stop bleeding after parturition and in sinusitis. Goldenseal was also indicated for treating diarrhoea, presumably due to its antimicrobial and anti-giardia actions. Titus (1865) recommended Goldenseal as being very important for farm animals as a tonic and alterative.

Veterinary uses: Goldenseal can be used in the treatment of gastrointestinal complaints such as stomatitis, gastritis and colitis. It can be used to treat enteric pathogens, such as giardia, and bacterial overgrowth. In addition, Goldenseal may be used as an eyewash for bacterial or other infective conjunctivitis cases and topically to treat bacterial and fungal skin complaints.
Potential interactions and cautions: not to be used in very young animals or those with high blood pressure. There are theoretical concerns about using Goldenseal for patients with liver and cardiovascular disease. Safety in pregnancy and lactation has not been established.

Prickly Ash

Source: Zanthoxylum clava-herculis (common names Toothache bark and Hercules club). This plant is found all over the United States with different species in the north and south. It is in the Rutaceae family and the bark (sometimes berries) is used medicinally.

Energetics: pungent, warm and bitter.

Chemical composition: amides (herclavin and others), lignans and benzophenathridine alkaloids (chelerythrine, nitidine and others).

Traditional use: native North Americans used the bark topically for toothache and skin problems.

Veterinary use: Its actions are a topical anodyne, anti-inflammatory, antirheumatic, bitter tonic, diaphoretic and circulatory stimulant. Hence it has indications for use in rheumatism and circulatory disorders, to help bring blood flow to the periphery. Prickly Ash may be indicated, for example, in conditions where there is coldness and cramping in peripheral muscles.

Potential interactions and cautions: it should not be used in pregnancy, lactation or for patients with gastric ulcers. Nausea is possible in clinical patients. No interactions with drugs have been noted.

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Astragalus membranaceous, Astragalus root, Huang Qi

Description and classification
This is the dried root of Astragalus membranaceous, a perennial herb from Inner Mongolia, and the Shanxi, Gansu and Heilongjiang provinces of northern China. It is used in Traditional Chinese Medicine and, within this realm, it is classified as a Qi-Tonifying Herb (Chen & Chen 2004).

TCM properties
Radix Astragali is considered sweet and slightly warm and it enters the body through the spleen and lung channels (Chen & Chen 2004).

TCM indications
This herb is used primarily as a Qi Tonic and Yang supporter. It is useful for Spleen Qi Deficiency, internal organ prolapse, Lung Qi Deficiency, Blood Deficiency secondary to Qi Deficiency and Qi Deficiency caused by chemotherapy and radiation. It is also used to Tonify Wei Qi, induce diuresis (in cases of edema due to Yang or Qi Deficiency) and for muscle numbness secondary to Blood/Qi Deficiency (Chen & Chen 2004).

Modern research/TCM use
The root of Astragalus membranaceous contains flavonoids, saponins and polysaccharides (Dharmananda 2006). Flavonoids (formononetin, ononin, calycosin and calycosin-7-O-β-d-glucoside) have been shown to enhance glucose consumption in adipocytes, improve insulin sensitivity and lower lipids (Zhao et al. 2011), as well as stimulate erythropoietin (Zheng et al. 2011), protect the myocardium against infarction injury (Zhang S et al. 2011) and prevent tumor growth of human breast cancer cells (Chen et al. 2011). This group of chemicals would appear to Tonify Qi (particularly Wei Qi) and to Tonify Blood.

The Astragalus saponin Astragaloside IV has been shown to suppress the growth of human colon cancer cells (Auyeung et al. 2010), induce apoptosis of gastric adenocarcinoma cells (Auyeung et al. 2011), reduce blood pressure and triglyceride levels in induced metabolic syndrome in rats (Zhang N et al. 2011), and reduce cochlear damage in guinea pigs via the ability to prevent the formation of reactive nitrogen species (Xiong et al. 2012). This saponin has strong anti-inflammatory properties helpful in preventing asthma attacks (Yuan et al. 2011). This group of chemicals supports Lung Qi and appears to regulate the Triple Burner.

Astragalus polysaccharide (APS) can improve energy, nausea, pain and appetite during chemotherapy (Guo et al. 2011). Additionally, APS stimulates the production of GM-CSF, TNF-α and NO through increased binding with macrophages (Zhao et al. 2011) and has been shown at doses of
200mg/kg in dogs to significantly increase CD4+ cells, CD8+ cells, INF-γ and IL-2 (Qiu et al. 2010). Through their documented effects, these polysaccharides could be said to treat Qi Deficiency secondary to chemotherapy, Tonify Wei Qi, and act as a general Qi Tonic.

Potential veterinary uses
- Chemotherapy adjuvant, both for preventing side effects and suppressing cancer cell growth of some cell lines
- Asthma-anti-inflammatory
- Diabetes mellitus
- Bone marrow disorders such as myelodysplasia, anemia, bone marrow toxicity
- Infectious disease
- Congestive heart failure

Dosage in animals
**Dried herb:** 60mg/lb tid
**Tincture:** 1.0-2.0 mL per 10kg (20lb) divided daily (optimally TID) and diluted or combined with other herbs. Higher doses may be appropriate if the herb is used by itself and not combined in a formula (Wynn & Marsden 2003). The safety dose in dogs has been shown to be up to 2.85-19.95 g/kg (Yu et al. 2007).

Precautions/Drug interactions
Due to its ability to stimulate the immune system, Astragalus should not be used in combination with immunosuppressive medications such as cyclophosphamide and corticosteroids.

References


Holly’s Herb Walk
Holly Mash  BVSc IVAS MRCVS

British veterinarian and CIVT student, Holly Mash takes a stroll around her Bristol home, identifying the local herbs.

Vervain (Verbena Officinalis)

Family: Verbenaceae
Genus: Verbena
Parts used: leaves and flowering heads

Identification
- There are no other wild members of the Verbena family found in the United Kingdom. (NB: Lemon Verbena is often called Vervain).
- It is a slender perennial, to 60cm, with square stalks and spikes of small white, or pale lilac, flowers in late summer.
- Leaves are opposite and cut into toothed lobes.
- Flowers have no perfume.

Materia medica
This herb has a reputation for magic as well as medicine. It was a sacred plant of the Druids, used as an alter plant in ancient Rome. (Until recent times picking Vervain was always accompanied by a prayer).
- Vervain is used as a tea or tincture.
- It restores and calms the nervous system – used for insomnia, anxiety, stress and tension
- Has a reputation as a ‘cure all’.
- Is a digestive tonic.
- Alleviates headaches.
- Restorative after a long illness and during convalescence – especially indicated for nervous exhaustion.
- Use the crushed or chewed fresh leaf as a vulnerary on wounds to speed healing.
- Recent studies show Vervain helps (along with Self-Heal) to normalize thyroid hormones – therefore, it may be useful in conditions of the thyroid gland.

Tansy (Tanacetum Vulgare)

Family: Asteraceae
Genus: Tanacetum

Identification
- Tansy is not native to the United Kingdom, it comes from Europe and is cultivated for medicinal use.
- In midsummer, Tansy produces a flat bunch of yellow, button-like flower heads. These consist of disc florets that look like a daisy without petals.
- Tansy is in the Asteraceae family, so has characteristics of a flower made up of many smaller inflorescences.
- It has bracts outside the lower head.
- It is pungently aromatic when crushed.

Materia medica
For many years, Tansy was used as a medicinal herb and before its toxicity was discovered. It was an important women’s herb in traditional medicine. Its use was advised for preventing miscarriages, as a digestive and for gout.

NB: recent studies have found that the whole plant is toxic, especially the essential oil (Thujone). Therefore, internal use is contraindicated.
Yarrow (Achillea Millefolium)

**Family:** Asteraceae  
**Genus:** Achillea  
**Parts used:** flowers and leaves

**Identification**  
- Identifying features of the Asteraceae family include a flower made up of many smaller inflorescences.  
- The leaves are dark green, feathery and look like veins.  
- Yarrow is part of the Doctrine of Signatures, as it is a key herb for stemming bleeding.

NB: do not confuse with the Umbrelliferae family. Yarrow's flower stems are staggered off the main stalk and not from one central point.

**Materia Medica**  
- A leading hedgerow medicine, Yarrow is a first aid treatment for wounds and nosebleeds. It is also used as a fever herb.  
- It is a circulatory system remedy, helps staunch bleeding and moves stagnant blood and prevents blood clots (in bruises and blood blisters, for example aural hematomas in dogs). It tones blood vessels (especially small ones) and lowers high blood pressure.  
- Yarrow is a key fever herb, acting as a relaxing diaphoretic when taken at the beginning of a fever.

St John’s Wort (Hypericum Perforatum)

**Family:** Hypericaceae  
**Genus:** Hypericum  
**Parts used:** flowering tops (picked on a sunny day)

**Identification**  
- Mid-sized perennials that grow commonly on road verges and rough grassland.  
- The leaves have small oil glands that look like perforations (this is the reason it has the name ‘perfoliatum’). They are opposing, oblong leaves without stalks.  
- The flowers are yellow and have five petals with black dots. The common name comes from its traditional flowering and harvesting on, or around, St John's day (24 June).

**Materia Medica**  
St John’s Wort is mostly known as a treatment for depression (for example peripheral neuropathy, anxiety, depression and obsessive-compulsive disorders in animals). It strengthens the nervous system (the main active constituent, hypericin, is a monoamine oxidase inhibitor). St John’s Wort is also an antiseptic wound herb. It reduces pain, is used in liver disease and has antiviral properties.

NB: may cause photosensitization of the skin in some patients.

Red Clover (Trifolium Pratense)

**Family:** Fabacea  
**Genus:** Trifolium  
**Parts used:** flower heads and leaves

**Identification**  
- Red Clover has characteristics of the Fabaceae family. The pink to purple flowers have a ‘banner, wings and keel’ appearance.
The leaves are three parted (trifolium).
This family (pea and bean) is nourishing to both people and soil. It is an important nitrogen-fixing forage crop and is often used for food.
Red Clover’s medicinally active constituents are steroidal analogues (including phytoestrogens).

**Materia Medica**

- **Blood cleanser – an alterative.** Helps the eliminatory and detoxification organs to rid the body of toxins. It is good for chronic diseases, especially skin complaints.
- **Red Clover contains phytoestrogens and is used to treat menopausal symptoms, such as hot flushes.**
- **It has an anti-inflammatory action and is used to treat bronchitis and coughs.**
- **Nutritive – as it contains many beneficial vitamins and minerals.**
- **Red Clover has been used in the treatment of cancer and is one of the main herbs in the Hoxsey formula.**

NB: pregnant women should not take Mugwort as it is known to contain Thujone, a toxic oil.

**Hedge Woundwort (Stachys Sylvatica)**

**Family:** Lamiaceae

**Genus:** Stachys

**Identification**

- Often found growing at road junctions and crossings. Its traditional name was ‘traveller’s herb’.
- **Mugwort is a tall plant, up to 2-3 meters high, with tiny silvery flower spikes.**
- **Leaves are pinnate, dark green above and silver underneath.** It is closely related to *A. absinthinum*, Wormwood.
- **It is an ancient herb of healing, magic and divination.** Before hops, Mugwort was used in Europe to make ale.

**Materia Medica**

- **Calms the nervous system – relieves stress and nervous tension.** Can be useful in mild depression as it lifts the spirits.
- **Mugwort is traditionally a women’s herb, used for regulating menstruation and aiding childbirth.** Nowadays it is not used for these purposes.
- **It has the capacity to influence dreams – Mugwort tea before bed can ward off nightmares, or it can cause lucid dreams.**

NB: do not use in patients using blood-thinning medications.

**Mugwort (Artemisia Vulgaris)**

**Family:** Asteraceae

**Genus:** Artemisia

**Parts used:** flowering tops and leaves

**Identification**

- Found in woodlands, hedgerows and shady places.
- **A perennial that grows to 1 meter and flowers in July and August (summer).**
- The flower is a purple, two-lipped trumpet.
- **Leaves are toothed and opposite and the stalks are square.**

**Materia Medica**

- **The entire herb is styptic, therefore it can be applied externally to wounds to stop blood flow.**
- **Hedge Woundwort is said to be diuretic, emmenagogic and tonic.**
Self-Heal (*Prunella Vulgaris*)

**Family:** Lamiaceae  
**Genus:** Prunella  
**Parts used:** flowers and leaves  

**Identification**  
- Self-Heal is a common, creeping lawn weed.  
- It has a square stem and opposite, downy leaves.  
- It has the common features of the Mint family and is aromatic.  
- The corolla of the delicate violet flowers are said to look like an open mouth and swollen glands when viewed close up (according to the Doctrine of Signatures).  
- Self-heal is used in Traditional Chinese Medicine and was popular for centuries in Europe as a wound herb and for throat problems.

**Materia Medica**  
- As the name Self-Heal indicates, it has a wide range of medicinal actions. It has a long history of western folk use. One name it acquired was ‘touch and heal’; indicating its value as a first aid for cuts and wounds.  
- It was found to staunch bleeding and to help knit wounds together. Taken internally as a tea, it treated fevers, diarrhoea and internal bleeding.  
- A Self-Heal tea was used as a mouthwash and gargle to treat sore throats and a wide range of mouth problems. Recent studies have shown it to be effective for herpes.  
- Antiseptic, anti-inflammatory and antibacterial properties.  
- Self-Heal has marked antioxidant activity – it is said to have strong immune stimulating effects, to calm inflammation and allergic responses.  
- In Traditional Chinese Medicine, Self-Heal is used for ascending Liver fire and Liver Qi Deficiency.

Canadian Golden Rod (*Solidago Canadensis*)

**Family:** Asteraceae  
**Genus:** Solidago  
**Parts used:** flowering tops and leaves  

**Identification**  
- Canadian Goldenrod is an erect perennial plant with small yellow flowers.  
- It is an invasive weed in the United Kingdom.  
- This is a similar species to *Solidago virgaurea*, which is commonly used as a medicinal herb to treat catarrh and kidney stones.

**Materia Medica**  
- Canadian Goldenrod was used by a number of North American tribes to treat children’s disorders, such as fevers that start during sleep, as well as the inability to speak or laugh.  
- It was also used for influenza, fever, diarrhoea, sleeplessness and excessive crying.  
- A decoction of Canadian Goldenrod and wild tarragon was used by the Thompson Indians as a wash for sores and cuts in horses.

Plantain (*Plantago Major*)

**Family:** Plantaginaceae  
**Genus:** Plantago  
**Parts used:** leaves  

**Identification**  
- Plantain is regarded principally as a weed.  
- It is a perennial plant with a rosette of
ribbed leaves and wind-pollinated flowers on erect stalks.

**Materia Medica**

- The plantains, now considered just weeds, were celebrated as magical herbs in pre-Christian times and were one of the nine sacred herbs of the Anglo-Saxons.
- They have followed European settlers around the world and were called ‘white man’s footprint’.
- Plantain has anti-inflammatory, astringent, emollient, demulcent and vulnerary actions.
- It is a very good first aid remedy for insect stings and quickly relieves pain and inflammation in bites, cuts and ulcers (as a vulnerary).
- A leaf can be chewed and then applied as a poultice directly to the wounded area. Ribwort plantain is preferred for this use as its leaves are smoother than greater plantain (*P. major*). Ribwort plantain is identified in the same way, however, the leaves are thin and ribbed.
- Plantain has a soothing effect on the mucus membranes of the digestive tract and can be used for stomach ulcers and irritable bowel disorders.

**Study shows how Primates learn about Herbal Self-Medication**

A 2012 study reveals how information about therapeutic plants spreads within primate communities – it’s much the same way traditional herbal information is disseminated among humans.

Primates’ use of therapeutic plants has been studied since the 1980s. It was inspired by a field researcher’s observation in Gombe National Park in Tanzania. This was in 1972, when a chimpanzee named Hugo was seen picking *Aspilia rudis* leaves. They’re not a part of chimpanzees’ regular diet as the leaves are rough and sharp. However, Hugo not only deliberately selected *Aspilia rudis*, but carefully folded the leaves concertina style, held them in his mouth momentarily before swallowing, then grimaced.

Further research showed *Aspilia rudis* leaves were used by local herbalists for stomach complaints and had both antibacterial and antiparasitic qualities. Back in 1972, it was not accepted by the mainstream scientific community that animals could self-medicate. Various studies and observations have since proven this to be wrong.

**Latest findings**

African and French zoologists and ethnobotanists studied a group of 41-44 wild chimpanzees in Uganda and 11-13 wild western gorillas in the Central African Republic.

The researchers identified the ‘unusual and bioactive foods’ (UBF) located in the areas surrounding the primates’ habitats. UBF are defined as foods with biological...
or medicinal properties that, although infrequently consumed, are eaten by more than one animal in a group.

The researchers listed 36 UBF for the chimps and 24 for the gorillas. The UBF species sought by chimpanzees were plentiful in their surroundings but, at the gorillas’ site, some UBF were rare. This finding led researchers to propose gorillas were searching further for these plant species for possible self-medication, and not for nutritional, purposes.

It was observed that the highly social chimps took cues from the fittest adults, learning about UBF species by watching their older, successful counterparts. For gorillas however, knowledge is acquired by observing related, immature gorillas.

The researchers suggest that, as it’s harder for chimpanzee to detoxify harmful compounds than it is for gorillas, ingestion of UBF species is likely to be a riskier proposition for chimps. This led to the proposition that chimps are mainly motivated to seek UBF for self-medicating. By learning from the most successful and healthiest adults, risks are decreased.

The researchers conclude their “results show that differences in sociality and physiology between the two species may influence mechanisms that discriminate between plants for nutrition and plants with potential therapeutic dietary components... Self-medication may have appeared in our ancestors in association with high social tolerance and lack of herbivorous gut specialization.”

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Research Updates

Saliva as a topical ointment and plant eating in young dogs


Licking: use of the medicine cabinet in the mouth

As an adaptation to the potential risk of infection, animals of several species readily lick their wounds. The coating of saliva contains a number of antibacterial and wound-healing substances including lysozyme, lactoferrin, leucocytes, lactoperoxidase and immunoglobins, along with epidermal growth factors. Saliva is a readily available, all-purpose medicinal ointment. As an indication of the effectiveness of this treatment, dogs’ saliva was found to be bactericidal to both *Escherichia coli* and *Streptococcus canis*, common wound contaminants. Sows are observed to generously lick the nipples just before piglets start to suckle, applying a salivary wash that is bactericidal for common disease-causing pathogens.

Plant eating by dogs

Plant material has been found in 2–4% of scats and stomach content samples of wolves and cougars, revealing that they regularly consume non-digestible plants. A broad ranging web-based survey of thousands of dog owners was posted to look for evidence that plant eating in dogs evolved as a means of intestinal parasite control, rather than reflecting a dietary deficiency or a way of inducing vomiting in sick dogs, as commonly believed. It was found that only 9% of the plant-eating dogs regularly appeared ill prior to eating plants and only 22% of dogs regularly vomited afterwards and the great majority appeared normal. An important finding was that dogs under one year of age ate plants much more frequently than the older dogs and were even less likely to appear ill beforehand or vomit afterwards. In nature, the young are most vulnerable to intestinal parasites, having not developed a more mature immunity to the parasites and being more vulnerable to the loss of blood they can cause.

A comparison of plant eating by dogs up to one and 3–13 years of age.

(a) The younger dogs eat plants more frequently.

(b) Not only do younger dogs appear
ill beforehand less frequently, but they rarely vomit afterwards. These differences reflect an apparent innate developmental adaptation to the young being more vulnerable to intestinal parasites by eating parasite-purging plants more frequently (Sueda, K, Hart, B & Cliff, K 2008). 

**Veterinary Applications of Echinacea**


Most domestic animals, including pets, livestock and fish, require treatment for viral and microbial diseases at some point in their lives. The causative organisms are, for example, avian influenza viruses, animal herpes viruses, various respiratory viruses, bacteria and many fungal and parasitic infections. Some should be responsive to Echinacea treatment, either as a direct antiviral, antimicrobial, or as an anti-inflammatory agent. Some organisms, especially bacteria such as Salmonella and Campylobacter species, are important sources of contaminated foods. There is a need to evaluate herbal preparations as replacements for at least some of the antibiotics that farmed animals often receive.

Certain herbs, including Echinacea, have a modern tradition of veterinary applications in North America and Europe. The treatments were concluded to be safe and free of significant side effects, although there are relatively few reports of basic studies analogous to those for human diseases, or even controlled trials in animals. The conclusion is supported by studies in mice and rats in which toxic effects were not observed.

A study in chicks infected with the protozoan parasite Coccidia concluded that dietary supplementation with *E. pupurea* root extract significantly decreased lesion scores and improved the health of the animals, in comparison with animals raised on a normal diet. As immune parameters were not measured, it is not clear whether the effect of *E.pupurea* was directed against the parasite itself or on the immune system. Nevertheless, an effective treatment for coccidiosis would be welcome in the poultry industry.

In a study in young pigs, dietary *E. pupurea* was found to offer no protection against the porcine reproductive and respiratory syndrome virus (PRRS virus). It is a member of the arterivirus family (related to coronaviruses) and possesses a membrane, therefore would be expected to be susceptible to direct contact with *E. pupurea*. However, the systemic nature of the infection could render it inaccessible to dietary Echinacea components. Alternatively, the treatment protocol may have been inadequate.

In addition to controlling infections in domestic animals, herbal preparations have been advocated for immune stimulation, growth promotion and performance enhancement. Studies in uninfected horses and fish (Tilapia,) suggest possibilities for Echinacea preparations and, again, safety was not considered a problem for the animals. Fish, like other farmed animals, are potentially vulnerable to viral and microbial infections, especially under conditions of stress, so alternative treatments to synthetic antimicrobials could be useful.
Du HuoJi Sheng Tang for Osteoarthritis

Currently, there is not a cure for osteoarthritis (OA) and available treatments only slow the progression of disease. For the last 20 years, Traditional Chinese Medicine (TCM) has seen significant advancement against OA, such as in improving patients’ clinical findings by inhibiting inflammatory reaction and cartilage degeneration. In vivo and in vitro studies showed Chinese herbs provide multiple comprehensive actions against OA.

Du Huo Ji Sheng Tang (DHJST) has been widely used for treating OA. It is composed of Radix Angelicae pubescentis, Herba taxilli, Radix Acanthopana cisbidentatae, Herba asari, Radix Gentianaemacrophyllae, Cortex cinnamomi and poria. DHJST can improve patients’ clinical symptoms, knee function and quality of life. Researchers investigated its effect on preventing cartilage degeneration from OA in rabbits with anterior cruciate ligament injury and observed its mechanisms. There was significant histological degeneration in the control group compared with the treatment group and normal controls. The study indicated that DHJST exerts a significant therapeutic effect on OA by inhibiting chondrocyte apoptosis and regulating the expression of VEGF and HIF-1α expression in chondrocytes. VEGF contributes to pain and swelling and HIF-1α increases apoptosis in chondrocytes.

Bees Update

Across the Northern hemisphere, managed honey bee, Apis mellifera, colonies are currently affected by abrupt depopulation during winter and many factors are suspected to be involved, either alone or in combination. Parasites and pathogens are considered suspects, in particular the ectoparasitic mite Varroa destructor, associated viruses, plus the microsporidian Nosema ceranae. Long term monitoring of colonies and screening for 11 disease agents and genes involved in bee immunity and physiology were used to identify predictive markers of honeybee colony losses during winter. It was shown that Deformed Wing Virus, N. ceranae, V. destructor and Vitellogenin can be predictive markers for winter colony losses, but their predictive power depends on the season. In particular, the data support that V. destructor is a key player, in line with its specific impact on the health of individual bees and colonies. It has been shown that V. destructor, or its associated microbes, can affect the immune system of parasitized bees. In addition, viral infections linked with V. destructor are generally considered a major cause of bee losses and plays a central role as a mechanical and biological vector of several viruses.

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The Journal of Integrative Veterinary Therapies (JIVT) is the first international veterinary publication addressing evidence based natural medicine for animals.

This is a modern, clinically relevant and peer reviewed journal. JIVT is issued quarterly. JIVT publishes material on all aspects of integrative veterinary therapies including case reports, research articles, research updates, book reviews, commentary and other relevant information. The Journal of Integrative Veterinary Therapies welcomes contributions.

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