



THE POWER OF INTEGRATION

Jacqui Snell has been a veterinarian for nearly 30 years and practises conventional and complementary medicine. She used tools from both kits to treat Skye.

INTRODUCTION

Integrating complementary medicine with conventional veterinary practice offers clients and their pets additional ways to improve health and wellbeing. This is especially rewarding when conventional medicine has failed to improve a patient's quality of life.

Veterinary botanical medicine embraces a holistic diagnostic approach that incorporates the Western diagnosis. (A herbal medical stance is generally based on herbal medicines that have been used in an organised therapeutic approach developed in the East or in the West. The Western approach is based on bridging science with the tradition of herbal medicine.) The treatment principles are based on the concept of improving health by enhancing physiological function – including supporting organ function – and at the same time addressing the underlying pathophysiology of the condition. This can be achieved by appreciating the multi-constituent composition of herbs. Herbal medicines are individualised for each patient and formulated by taking into account the signs of the patient and appropriate treatment strategies that address the salient features of the case.

The aim of the herbal integrative approach is to alleviate signs and optimise

general wellness. This is undertaken within the framework of both conventional and herbal treatment modalities, addressing the potential expected outcomes, expected risks and benefits, side effects and costs of each option. All clients are presented with and sign an informed consent.

ABSTRACT AND BACKGROUND

Skye, an eight-year-old speyed female West Highland White Terrier, presented with a year-long history of treatment for granulomatous meningoencephalitis (GME) with prednisone. Additionally, Skye suffered from a number of other ailments, such as degenerative joint disease (DJD), skin disease and gastro-intestinal disease.

This case report demonstrates the integration of herbal medicine (and other complementary therapies) into the treatment protocol, which facilitated the reduction of prednisone, resolution of clinical signs and improvement of the quality of life of this patient.

GME is a common idiopathic autoimmune inflammatory disorder of the central nervous system (CNS) in canine patients (Dewey, 2008). GME is considered an autoimmune CNS disorder, and immunosuppression is considered the best management method for patients (Jung et al., 2013). The traditional

IT IS IMPORTANT THAT HERBAL MEDICINE IS PRACTICED BY QUALIFIED PRACTITIONERS TO PROVIDE MEDICAL OVERSIGHT, MITIGATE THE RISK OF HERB-DRUG INTERACTIONS AND SIDE EFFECTS AND PROVIDE A PROFESSIONAL SERVICE TO REPLACE THE AD HOC USE MANY CLIENTS UNDERTAKE FOR THEIR PETS.

mainstay of therapy has been the use of corticosteroids, in particular prednisone used at immunosuppressive doses (2mg/kg/day) tapered over the following months to achieve the lowest effective dose (Platt, 2002). It is uncommon for corticosteroid therapy to be terminated (O'Neill et al., 2005). However, response to therapy with glucocorticoids varies, and relapse of clinical signs often occurs during the tapering of therapy (Dewey, 2008). Issues with prednisone therapy concern adverse effects that include polyuria/polydipsia/polyphagia, hepatotoxicity, weight gain, iatrogenic Cushing's disease and depression, which are frequently seen during long-term prednisone therapy (Jung et al., 2013).

Skye presented following 12 months of prednisone management. She had been diagnosed with GME in March 2016 at Massey University's Veterinary Teaching Hospital, where cerebral spinal fluid cytology supported an immune-mediated inflammatory process consistent with GME. Skye's signs associated with GME documented on the report included hyperaesthesia, aggression, ataxia, apparent blindness (loss of the menace response) and neck pain. Neuroanatomical localisation was multifocal, with cerebrum and cerebellar involvement given the high-stepping ataxia and the altered mentation with blindness. The response to dexamethasone and prednisone had been good, and the signs had improved.

The history also included DJD of the right elbow and shoulder, skin disease, dietary intolerances and associated gastrointestinal signs of borborygmus and diarrhoea.

PHYSICAL EXAMINATION AND BIOCHEMISTRY

Skye presented for examination in June 2017, as the owner was concerned about symptom recurrence after an attempt had been made to wean her off prednisone. The owner observed that Skye was depressed and quiet.

Cervical neck pain (C1-C3) and hyperaesthesia were present. Skye's pupillary responses were normal and there was no evidence of ataxia. There was general discomfort on palpation of the abdomen, the liver margins were palpable beyond the 13th rib and the abdomen presented with a pot-bellied appearance. Dermatitis, excessive dandruff, excoriation and seborrhea were evident over the skin and coat. Pain was present on palpation of the right shoulder and elbow supporting the diagnosis of DJD. A biochemistry panel performed two days prior to examination indicated alkaline phosphatase (ALP) 213U/L (120-150U/L), with no other significant abnormalities.

TREATMENT AND DIET

Treatment prior to presentation in June 2017 was prednisone in conjunction with nutraceutical support, including omega-3 fatty acids, magnesium and proanthocyanidins. She had also been receiving injections of pentosan polysulfate for her DJD. The owner had been dosing with additional supplements, including spirulina, green-lipped mussel extract, chondroitin, withania, alpha lipoic acid, acetyl-L-carnitine, licorice and ubiquinol.

Skye's diet consisted of NUTRIPE, Ziwi Peak, cooked vegetables, ACANA, raw turkey necks, raw veal and raw chicken.

DIAGNOSIS

At Massey University's Veterinary Teaching Hospital, a hypothetical antemortem diagnosis was made on assessment of clinical signs and cerebrospinal fluid analysis. A definitive diagnosis would be made on histopathological examination (Dewey, 2008). GME, infectious and fungal (toxoplasmosis, neospora, cryptococcosis), immune-mediated inflammatory encephalitis or neoplastic causes were the main differentials.

WESTERN VETERINARY HERBAL MEDICAL PERSPECTIVE

The Western veterinary herbal medical approach considers predisposing and perpetuating factors in order to establish treatment goals. It is important to address all possible contributing factors, such as identifying infectious agents (past or present), heavy metals, adverse reactions to chemotherapeutics or chemical toxins. Other predisposing causes are stress, inadequate diet, over-supplementation and inability to absorb and assimilate nutrients. Increased gastrointestinal permeability and dysbiosis could be considered to be perpetuating the concerns regarding digestive function, immunity and general vitality. The ongoing chronic inflammation (inflammatory cascade and oxidative stress) is considered a perpetuating factor for GME, despite prednisone use. An important observation was that the signs of GME became apparent four weeks post-vaccination, indicating that vaccination could potentially be considered as a predisposing trigger (O'Neill et al., 2005).

TREATMENT GOALS

Skye's owner requested the employment of herbal medicine to alleviate Skye's GME signs, relieve her discomfort from DJD, eliminate her digestive disturbances, resolve her dermatitis and potentially wean her off the prednisone permanently. Utilising Western veterinary herbal medical principles, the herbal actions employed aim to address the treatment goals. The following herbs were selected for Skye's treatment protocol.

Astragalus membranaceus

(astragalus): Immune-enhancing effects, antioxidant, diuretic and cardiotoxic properties (Auyeung et al., 2016; Wynn and Fougere, 2006).

Bupleurum falcatum (bupleurum):

Immune-modulating, anti-inflammatory, analgesic, antipyretic, hepatoprotective, mild sedative and eliminative properties (Lin et al., 2016; Park et al., 2015; Wynn and Fougere, 2006).

Scutellaria baicalensis (Baical

skullcap): Anti-inflammatory, anti-allergy, antibacterial, mild sedative, anti-anxiety (Chen et al., 2017; Orzechowska et al., 2014; ; Wynn and Fougere, 2006; Zhang et al., 2018).

Arctium lappa (burdock):

Mild laxative, antioxidant, anti-inflammatory, eliminative properties (Kwon et al., 2016; Li et al., 2016; Wynn and Fougere, 2006).

Harpagophytum procumbens

(devil's claw): Anti-inflammatory, antirheumatic and analgesic properties, including the potential for neuropathic pain; it also supports the gastrointestinal tract and digestive disorders (Conrozier et al., 2014; Fiebich et al., 2012; Wynn and Fougere, 2006).

Glycyrrhiza glabra (licorice):

Anti-inflammatory, mucoprotective, antitussive and mild laxative support (Al-Dujaili et al., 2011; Bone, 2003; Hussain et al., 2018). Licorice increases the half-life of plasma prednisone concentrations by inhibiting its

metabolism, and may therefore potentiate the pharmacologic effects of prednisone. (Bone, 2003)

Silybum marianum (milk thistle):

Hepatoprotective, hepatorestorative and antioxidant properties (Bahmani et al., 2015; Milić et al., 2013; Wynn and Fougere, 2006).

POTENTIAL CONTRAINDICATIONS OR COMPLICATING FACTORS

Although herbal medicine is generally very safe to use, there are potential contraindications, adverse effects and drug reactions. Therefore a sound knowledge base and correct application are imperative to mitigate these risks. Be aware of the following:

- » Bupleurum can cause mild sedation; care is required if other CNS depressants are used due to synergistic sedative effects (Wynn and Fougere, 2006).
- » Licorice has been known to cause hypertension, sodium and water retention and hypokalaemia, through the mineralocorticoid effect of glycyrrhizin (Bone, 2003).

OTHER ADVICE AND MEDICATIONS GIVEN

- » Nutraceuticals. Continue with alpha lipoic acid, lecithin, magnesium and omega-3 fatty acids; add vitamin B complex and discontinue the other supplements.
- » SGF1000 was incorporated into the treatment regime in September 2017. SGF1000 is an intravenous preparation containing specific peptides that activate stem cells in the subject treated. Once activated, the stem cells move rapidly throughout the body, drawn by a chemotactic response to areas of inflammation and tissue damage. This produces a very strong and long-acting anti-inflammatory action, promotes replacement of damaged tissue with original type tissue and results in minimal scar tissue. It also has a potent

immunological supportive action. SGF1000 was sourced from StemVet NZ in Tauranga.

- » Dietary exclusions. The aim is to eliminate antigens that can contribute to food sensitivities, as they can exacerbate intestinal hyperpermeability and disturb the intestinal immunological function (Anonymous, 2017).
- » In addition to the herbal prescription, it is imperative that an improvement in the diet and other lifestyle factors, such as exercise and emotional issues, are taken into consideration. These were discussed with Skye's owner.

OUTCOME, DISCUSSION AND CONCLUSION

In the subsequent 12 months with the above treatment protocol, Skye's coat became shiny, and the seborrhea, excoriation and dandruff resolved. Skye remained on prednisone for the first 10 months (the dose alternated between 1mg eod, 1mg sid and occasional 5mg sid, depending on the severity of neck pain and her general demeanour). The borygymus and diarrhoea also resolved, and Skye's biochemistry levels were within the normal parameters (ALP 128U/L (20-150U/L). Pentosan polysulfate injections were discontinued in June 2017 as the DJD was asymptomatic.

In September 2017 the owner stated that, "Skye is bright and happy. Overall I think it's safe to say she has improved, with the combination of herbs, lowering the prednisone and the SGF1000, but as always we take GME one day at a time". As of June 2018, Skye is no longer on prednisone, her vitality and general wellbeing have improved and she has had no recurrence of her various ailments. The owner stated, "You wouldn't know that she was diagnosed with GME."

One study reported that the median survival time of 15 GME dogs with sole prednisone therapy was 41 days (Muñana and Luttgen, 1998). GME generally has a poor prognosis. Most studies offer the generalisations that dogs with multifocal disease typically have a short survival (eg,

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up to six weeks after diagnosis), and dogs with focal disease usually have a longer survival (eg, three to six months). There are single case reports of dogs responding for longer periods (O'Neill et al., 2005).

Looking at the significant improvement in Skye's overall health, there is a reduction in the inflammatory processes with the CNS, GIT, restoration of epithelial function, promotion of elimination and moderation of intrinsic and extrinsic stressors.

This case demonstrates that a strategic integrative approach making use of VBM, SGF1000 and nutraceuticals can improve animal health, increase vitality, and improve quality of life. Skye was able to return to a healthy state, although the owner is aware recurrence is possible.

A sound knowledge of complementary veterinary medical interventions in conjunction with conventional medicine can enhance patient quality of life generally, as well as in circumstances where drug use and side effects are expected. It is important that herbal medicine is practised by qualified practitioners to provide medical oversight, mitigate the risks of herb-drug interactions and side effects and provide a professional service to replace the ad hoc use many clients undertake for their pets.

Having treated many cases successfully with the integration of veterinary botanical medicine, I am confident that this approach is safe, effective and well tolerated. Additionally, I have found that integrating complementary therapies into veterinary practice not only enhances animal health and wellbeing, it also increases client satisfaction and has improved my career fulfilment immensely. 🐾

REFERENCES:

- Al-Dujaili EA, Kenyon CJ, Nicol MR, Mason JI.** Liquorice and glycyrrhetic acid increase DHEA and deoxycorticosterone levels in vivo and in vitro by inhibiting adrenal SULT2A1 activity. *Molecular and Cellular Endocrinology* 336(1-2), 102–9, 2011
- Anonymous.** *Applied Herbal Therapeutics of the Immune System and Infectious Diseases*, Graduate Diploma Western Herbal Medicine course notes, College Integrative Veterinary Therapies, 2017-18
- Auyeung KK, Han QB, Ko JK.** *Astragalus membranaceus*: A review of its protection against inflammation and gastrointestinal cancers. *The American Journal of Chinese Medicine* 44(1), 1–22, 2016
- Bahmani M, Shirzad H, Rafieian S, Rafieian-Kopaei M.** *Silybum marianum*: Beyond hepatoprotection. *Journal of Evidence-Based Complementary Alternative Medicine* 20(4), 292–301, 2015
- Bone, K.** *A Clinical Guide to Blending Liquid Herbs*. Churchill Livingstone, London, England, 2003.
- Chen C, Zhang C, Cai L, Xie H, Hu W, Wang T, Lu D, Chen H.** Baicalin suppresses IL-1 β -induced expression of inflammatory cytokines via blocking NF- κ B in human osteoarthritis chondrocytes and shows protective effect in mice osteoarthritis models. *International Immunopharmacology* 52, 218–22, 2017
- Conrozier T, Mathieu P, Bonjean M, Marc JF, Renevier JL, Balblanc JC.** A complex of three natural anti-inflammatory agents provides relief of osteoarthritis pain. *Alternative Therapies in Health and Medicine* 20 Suppl. 1, 32–7, 2014
- Dewey CW.** Encephalopathies: Disorders of the brain. In: Dewey CW (eds). *A Practical Guide to Canine and Feline Neurology*. 2nd Edtn. Pp 190–1. Wiley-Blackwell, Iowa, US, 2008
- Fiebich BL, Muñoz E, Rose T, Weiss G, McGregor GP.** Molecular targets of the anti-inflammatory *Harpagophytum procumbens* (devil's claw): Inhibition of TNF α and COX-2 gene expression by preventing activation of AP-1. *Phytotherapy Research* 26(6), 806–11, 2012
- Hussain H, Green IR, Shamraiz U, Saleem M, Badshah A, Abbas G, Rehman NU, Irshad M.** Therapeutic potential of glycyrrhetic acids: A patent review (2010–2017). *Expert Opinion on Therapeutic Patents* 28(5), 383–98, 2018
- Jung DI, Lee HC, Ha J, Jung HW, Jeon JH, Moon JH, Lee JH, Kim NH, Sur JH, Kang BT, Cho KW.** Unsuccessful cyclosporine plus prednisolone therapy for autoimmune

meningoencephalitis in three dogs. *The Journal of Veterinary Medical Science* 75(12), 1661–5, 2013

Kwon K, Koong HS, Kang KH. Effect of burdock extracts upon inflammatory mediator production. *Technology and Health Care* 24(3), 459–69, 2016

Li W, Zhang Z, Zhang K, Xue Z, Li Y, Zhang Z, Zhang L, Gu C, Zhang Q, Hao J, Da Y, Yao Z, Kong Y, Zhang R. Arctigenin suppress Th17 cells and ameliorates experimental autoimmune encephalomyelitis through AMPK and PPAR- γ /ROR- γ t signaling. *Molecular Neurobiology* 53(8), 5356–66, 2016

Lin X, Wu S, Wang Q, Shi Y, Liu G, Zhi J, Wang F. Saikosaponin-D reduces H2O2-induced PC12 cell apoptosis by removing ROS and blocking MAPK-dependent oxidative damage. *Cellular and Molecular Neurobiology* 36(8), 365–75, 2016

Milić N, Milosević N, Suvajdzic L, Zarkov M, Abenavoli L. New therapeutic potentials of milk thistle (*Silybum marianum*). *Natural Products Communication* 8(12), 1801–10, 2013

Muñana KR, Luttgen PJ. Prognostic factors for dogs with granulomatous meningoencephalomyelitis: 42 cases (1982–1996). *Journal of the American Veterinary Medical Association* 212(12), 1902–6, 1998

O'Neill EJ, Merrett D, Jones B. Granulomatous meningoencephalomyelitis in dogs: A review. *Irish Veterinary Journal*, 58(2), 86–92, 2005

Orzechowska B, Chaber R, Wiśniewska A, Pajtasz-Piasecka E, Jatczak B, Siemiencic I, Gulanowski B, Chybicka A, Blach-Olszewska Z. Baicalin from the extract of *Scutellaria baicalensis* affects the innate immunity and apoptosis in leukocytes of children with acute lymphocytic leukemia. *International Immunopharmacology* 23(2), 558–67, 2014

Park WH, Kang S, Piao Y, Pak CJ, Oh MS, Kim J, Kang MS, Pak YK. Ethanol extract of *Bupleurum falcatum* and saikosaponins inhibit neuroinflammation via inhibition of NF- κ B. *Journal of Ethnopharmacology* 174, 37–44, 2015

Platt SR. Recommendations for corticosteroid use in neurological diseases Davenport DJ, Lester GD (eds) In: *20th Annual ACVIM Forum*. Pp 370–2. American College of Veterinary Internal Medicine, Dallas, US, 2002

Wynn SG, Fougere BJ. *Veterinary Herbal Medicine*. Mosby, St Louis, Missouri, 2006.

Zhang QH, Tan L, Gou Q, Zhou LD, Wang CZ, Yuan CS. 6,8-di-C-glycosyl flavones with β -furanosylarabinose from *Scutellaria baicalensis* and their anti-inflammatory activities. *Natural Product Research* Apr 23:1–8. doi: 10.1080/14786419.2018.1466126, 2018