CASE REPORT

Treatment of Feline Syncope with Western Herbal Medicine

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Abstract
A ten-year-old neutered male Domestic Shorthair cat was referred for herbal therapy for facial twitching and unexplained syncope. A combination Western herbal formula was used to address presenting signs and potential underlying causes. The frequency of twitching and syncope gradually decreased over time, and the patient remains syncope-free for over six months at the time of this writing. Most importantly, the herbal medicine was able to reduce the cost of medical care and improved the quality of life for both patient and owner. This case suggests a possible benefit of Western herbal medicine in the treatment of syncope of unknown etiology.

History
In January 2024, Leo, a ten-year-old neutered male Domestic Shorthair cat, was presented to a specialist center for neurological evaluation of facial twitching and repeated fainting. A full physical examination including thoracic auscultation, blood pressure and neurological and musculoskeletal evaluations as well as complete blood cell count, serum biochemistry, urinalysis and radiography were performed, but results were unremarkable. The patient was subsequently sent to the cardiology department for further evaluation. Echocardiography, resting electrocardiography (ECG) and 24-hour ECG monitoring, however, also failed to identify the cause of fainting episodes. Magnetic resonance imaging and/or surgical implantation of a continuous ECG monitor were recommended but were declined by the owner due to financial constraint. Empirical treatment with atenolol (1 mg/kg PO SID) was tried but did not affect the frequency of syncope. The patient was subsequently referred for complementary and alternative therapy.

Holistic Assessment (March 2024)
Leo was a lean cat (5.3 kg; body condition score of 3.5/9) who had been fed Science Diet® adult cat kibble and wet food for at least five years. He received a feline core vaccine every three years and was negative for feline leukemia virus and feline immunodeficiency virus. Flea and heartworm preventives were not used, as he was an exclusively indoor cat. No other pets lived in the same household. Holistically, he was a "Wood" type cat, who was adventurous with a high prey drive. This type of cat is always vigilant and rarely relaxes, leading to tendency to develop muscle cramps and Liver Qi stagnation (i.e., dysregulated hormone and neurotransmitter metabolism and turnover

often manifesting as nervous tension and sleep disorder with or without actual hepatopathy), which benefit from sour-tasting, moving and relaxant herbs (Beinfield & Korngold 1991). Pulse diagnosis was not possible because it was a teleconsultation, but his tongue was purplish red with a slight white coating. He preferred to stay on cooler surfaces. His coat was dry with white fine dandruffs but was not pruritic. His stools could be soft, depending on the type of food he ate. The urination frequency and drinking behavior were unchanged. He was nocturnal and tended to wake up in the middle of the night for food, toileting and exploration.

Mild bacterial otitis externa was the only medical condition reported before the onset of syncope. The owner noticed facial twitching about two years ago. It could be unilateral or bilateral, occurring at least once or twice a week. It was left untreated because the cat did not seem to be bothered. The first episode of syncope was reported about eight months earlier (July 2023). The owner found Leo unconscious on the floor and rushed to an emergency center. By the time they arrived at the hospital, however, he was already conscious, and injury or any other abnormality was not found by physical examination except that he was unusually quiet. He was completely flaccid during the episode but did not lose bladder or bowel control. A similar episode happened at least seven times between July 2023 and March 2024. Seizure had been ruled out based on the lack of postictal signs. The owner could not recognize any pattern between facial twitching and fainting and had not witnessed actual fainting. Leo did not have access to the owner's medications and supplements. His appetite and daily activity were largely unaffected, although he had lost weight (0.5 kg) over the last half year.

Treatment

The goal of herbal therapy was to correct imbalance by addressing the presenting signs (facial twitching, weight loss, dry coat and unstable gut) and possible causes of syncope (most likely cardiogenic and possibly situational, neurogenic and psychological). Dietary modification was also used to improve gastrointestinal and coat conditions, help weight gain and rule out metabolic causes of non-syncopal collapse. The owner was aware that the best treatment approach was to identify and treat the underlying cause, and informed consent was obtained before the treatment.

Western Herbal Therapy

The first herbal formula focused on detoxification and neuroendocrine balancing while also addressing gastrointestinal signs and facial twitching. It was energetically cooling to suit the cat's predisposition. Herbal selection and rationale are summarized in the table below. All herbs were in a liquid form and sourced from Mediherb (Integria, QLD, Australia). As a precaution, herbs that are known to have hypotensive actions were not included at this stage.

German chamomile flower (1:2)	*Matricaria chamomilla*	Neutral, slightly bitter	Spasmolytic, anxiolytic, nervine relaxant, anti-diarrheal, anti-inflammatory, analgesic, antimicrobial	20%
Bupleurum root (1:2)	*Bupleurum falcatum*	Cool, bitter	Moves stagnant Liver Qi, adaptogen, renal & liver tonic, anti-inflammatory, analgesic, mild sedative, alterative (detoxification), neuroprotective	30%
Rehmannia root (1:2)	*Rehmannia glutinosa*	Cool, bitter	Blood tonic, adrenal restorative, adaptogen, anti-inflammatory, antioxidant, renal protectant, immune-enhancer	30%
Bilberry fresh fruit (3:1)	*Vaccinium myrtillus*	Cool, bitter	Vasoprotective, support circulation, antioxidant, anti-inflammatory, coronary tonic, nutritive, astringent (anti-diarrheal)	20%

Instruction: Shake well and start from a few drops and increase gradually to 0.5 mL (10 drops) BID.

Dietary Therapy

The diet was transitioned to species-appropriate air-dried and tinned raw commercial diets with novel protein (venison). Algae oil (a non-fish source of DHA and EPA), vitamin E, vitamin B complex, taurine, ubiquinol and probiotics were also recommended within budget.

Other Complementary Therapy

Acupressure at BL15 (the heart association point), ear cleaning with green tea, installation of an interactive pet camera and daily brushing were also recommended.

Treatment Outcome

April 2024

The herbal formula was increased to a full dose over a period of one week and continued for four weeks. Leo liked the new food, and dietary transition was successful. Stools were softer at first, but they became firmer, smaller and less odorous over time. The amount of food was increased by 20%, because his body weight was unchanged. Facial twitching was less frequent, decreasing to once in seven to ten days. Syncope was not observed during these first five weeks of treatment. Since the formula seemed suitable, the dose was doubled and continued for four more weeks.

May 2024

Leo continued to improve. Facial twitching was observed only once in the last four weeks, and his coat was shiny (the owner also started brushing and DHA/EPA). However, Leo was quiet one evening when the owner came home. The referring vet suspected another fainting episode but again did not find any sign of pain, injury or arrhythmia. The systolic blood pressure was normal (136 mmHg, average of three), and he gained weight slightly (5.6 kg; body condition score 4/9). Leo was back to his normal self by the next morning.

At this point, ginkgo was added to his herbal formula to further enhance cerebral perfusion, and hawthorn was introduced to support the cardiac function. Since these vasodilator herbs have potential to reduce blood pressure, they were provided in a separate bottle and increased gradually. Bilberry was removed from the original formula, because it has similar actions to ginkgo.

Ginkgo leaf (2:1)	*Ginkgo biloba*	Bitter, astringent	Antioxidant, anti-inflammatory, circulatory stimulant, vasoprotective, neuroprotective, vasodilator, tissue perfusion enhancer, coronary tonic	50%
Hawthorn berry & leaf (1:2)	*Crataegus monogyna*	Sour, slightly sweet, slightly warm/neutral	Cardiotonic, antioxidant, circulation, anti-arrhythmic, cardioprotective, anti-ischemic	25% each

Instruction: Start from a few drops and increase gradually to 0.25 mL (5 drops) BID.

June 2024

The two formulas were continued for five weeks. He did not have a syncopal episode, and facial twitching was observed once but was very mild. The owner also started taurine and probiotic supplements. The owner noticed Leo was sleeping through the night often in the belly-up position. Since he seemed to be comfortable and relaxed, the same diet and herbal regimens were continued. The final prescription was: 20% bupleurum, 20% chamomile, 15% ginkgo, 15% hawthorn and 30% rehmannia (1 mL BID). At the time of this writing (December 2024), he has been free from syncope for over six months.

Discussion

Syncope is defined as a transient loss of consciousness resulting from reduced oxygen and nutrient delivery to the brain. A brief period of unconsciousness is followed by spontaneous, complete recovery (Ettinger, Feldman & Côté 2017). It is important to differentiate syncope from other collapsing episodes, such as epileptic seizures, vestibular dysfunction, neuromuscular disease and exercise-induced collapse. Although no one has witnessed fainting in the present case, the referring veterinarian, cardiologist and neurologist unequivocally supported the diagnosis of syncope based on thorough discussion with the owner and clinical findings.

Feline syncope is most frequently associated with cardiac disease (Ferasin 2009; Ferasin et al. 2002; Harvey et al. 2005; Hsueh et al. 2020; Malik, Church & Eade 1998). Rare, situational syncope after defecation and vomiting has been also described in cats (Hirao et al. 2024; Whitley & Stepien 2001). Vasovagal syncope seen in humans and overexcitable Boxer puppies appears very rare in cats. Theoretically, however, any condition that results in transient brain hypoperfusion can cause syncope. Identifying the primary cause is the first step to initiating appropriate treatment. For example, if bradycardia or atrioventricular block was identified, pacemaker implantation is a treatment of choice. Syncope associated with ventricular or supraventricular tachycardia can be managed by anti-arrhythmic medications such as atenolol (Ettinger, Feldman & Côté 2017). Unfortunately, in the present case, the cause remains unknown, because facial twitching and syncope were not reproducible during 24 hours of Holter monitoring, and a β-blocker trial was unsuccessful. The insertable loop ECG recorder was the only option left to rule out cardiogenic etiology.

To the best of my knowledge, herbal management of syncope has not been reported in the literature (PubMed; accessed December 2024). In traditional Chinese medicine (TCM), syncope is often described as Sinking Qi, Heart Yang deficiency and Heart Qi deficiency (Liu, C, Tseng & Yang 2005; Xie & Preast 2010), which are seen in thin-built, weak and colder patients and often associated with arrhythmogenic disorders and autonomic dysregulation. External and Internal Excess Heat is another TCM pathology, where sudden Heat causes vasodilation followed by transient hypotension (i.e., heat stroke). None of them seemed to explain Leo's syncopal episodes. Therefore, a traditional Western herbal approach was applied to correct the practitioner-perceived imbalance and presenting signs.

German chamomile was selected to relax Leo's high drive for hunting and facial twitching, as it is spasmolytic, anxiolytic and relaxant (Wynn & Fougère 2007). Similar effects are expected from lavender and valerian, but chamomile has an added benefit of anti-inflammatory and soothing effects on the digestive system (Mehmood et al. 2015). Bupleurum is a cooling,

anti-inflammatory herb that invigorates stagnant Liver Qi (Wynn & Marsden 2003); it aids elimination of waste products and excess hormones and neurotransmitters by supporting the hepatic metabolism and detoxification systems. It also has analgesic, mild sedative and neuroprotective actions (Wynn & Fougère 2007), which are helpful if syncope is related to pain or neurogenic. Oregon grape is another option that can be considered; it is a "blood cleanser" that helps to eliminate waste products especially from the skin, and it is also anti-diarrheal owing to its relatively high berberine content. Rehmannia was included as a cooling adaptogen to alleviate psychological and physical fatigue a hypervigilant cat might be experiencing (Zhang, Li & Jia 2008). It is also a renal tonic that improves the blood volume and prevents renal fibrosis (Liu, ZH et al. 2024), another added benefit for any cats entering the senior age group. The antioxidant anthocyanin from bilberry is known for its cardioprotective effects, and bilberry has been shown to strengthen the capillary integrity and support systemic circulation (Vanekova & Rollinger 2022), which may help maintain the blood flow to the brain. Gingko is another circulatory enhancing, vasoprotective herb, which improves tissue perfusion especially in the brain. This herb was added later in the treatment when the cat was more stable, because, as a vasodilator, its effect on syncope is unpredictable. Finally, cardiotonic hawthorn was added to the herbal regimen to address the last possible cause of syncope. Hawthorn was also increased gradually, as it is also hypotensive. Feline syncope is most often associated with arrhythmia, and hawthorn may have several advantages in the treatment of syncope especially in occult arrhythmic cats with no echocardiographic evidence of hypertrophic cardiomyopathy. First, it is a positive inotrope and negative chronotrope, meaning that it can increase cardiac output and therefore cerebral perfusion. Second, it is antiarrhythmic and may slow down or reverse myocardial fibrosis, which can serve as a subtle substrate for undetected arrhythmia. Third, hawthorn protects the heart from ischemic reperfusion injury, which can happen in every syncopal episode. It is also antioxidant and anti-inflammatory (Wang, Xiong & Feng 2013). It should be noted that the use of hawthorn for feline hypertrophic cardiomyopathy is controversial (Wynn & Fougère 2007), because its positive inotropic and negative chronotropic effects can theoretically exaggerate dynamic left ventricular outflow tract obstruction which is often seen with advanced hypertrophic cardiomyopathy.

A single-protein elimination diet greatly improved the gastrointestinal health and overall health of the patient. Leo may have had an undetected food allergy or intolerance. Or simply, it could be that the ultra-processed high-carbohydrate diet was not suitable for him. However, the role of diet and gastrointestinal health in syncope is still unknown. In a recent study in children with vasovagal syncope, the abundance of Ruminococcaceae in the gut microbiome was correlated with the frequency of syncope and also associated with systolic and diastolic blood pressure (Bai et al. 2019). More recently, it was reported that the gut microbiota was significantly different between human patients with unexplained syncope and those with cardiogenic syncope (Longo et al. 2024). Although a direct causal relationship is yet to be determined, it is an interesting area of research for the future. In this regard, echinacea and goldenseal, along with probiotics, are useful to restore the microbiome balance and support healthy immunity in the gastrointestinal tract.

In conclusion, a slow but favorable response to the herbal combination therapy and dietary transition suggests that syncope in the present case had several underlying etiologies and that symptomatic herbal therapy has a potential role in the treatment of syncope of undetermined etiology.

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