

# How to Use Traditional Chinese Veterinary Medicine for the Treatment of Seizures

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### Abbreviations

EA	Electroacupuncture
KBr	Potassium bromide
TCM	Traditional Chinese Medicine
TCVM	Traditional Chinese Veterinary Medicine
WM	Western Medicine

### Abstract

Evidence demonstrates that acupuncture and herbal medicine are useful and effective for the treatment of seizures. In the perspective of Traditional Chinese Veterinary Medicine (TCVM), seizures in dogs and cats can be classified into 6 patterns: Obstruction by Wind-Phlegm, Internal Profusion of Phlegm-Fire, Stagnation of Blood, Liver Blood Deficiency, Liver/Kidney Yin Deficiency, and Yin Deficiency with Blood Deficiency. This article focuses on how to differentiate and treat these patterns using herbal medicine and acupuncture. An overview of clinical trials is provided, and case examples are also included.

### Introduction

Seizures are a common medical disorder in small animal practice. One study indicated that 80% of canine seizure patients were diagnosed as having idiopathic epilepsy (1). Specific diagnostic tests for epilepsy are lacking; therefore, diagnosis largely relies on the exclusion of other potential causes of seizures (2, 3). Pets with idiopathic epilepsy usually require long-term or life-long treatment and close follow-up.

The use of Traditional Chinese Medicine (TCM), including acupuncture and herbs, for the treatment of seizures and epilepsy can be traced back to the third century BCE (4, 5). Numerous studies on treating seizure disorders with TCM have been reported (6, 7). Acupuncture and/or herbal medicine can be the sole therapy or can be integrated with conventional anticonvulsant drugs to improve seizure control or to reduce drug dosages and side effects. However, the use of specific Traditional Chinese Veterinary Medicine (TCVM) treatments for seizures in dogs and cats is quite recent. This paper includes information on selecting Chinese herbal formulas, acupuncture points, and techniques for the treatment of different patterns of seizures and epilepsy in dogs and cats. Clinical case studies are also presented.

### Etiology and Pathology

From the conventional perspective, seizures are caused by an electrical storm in the brain or a paroxysmal disturbance of the electrical activity of the brain (8, 9). From a TCVM perspective, seizures are Internal Wind, which is directly caused by Liver Yang Rising. Seizures in Chinese medicine are called *Chou-Feng*, which

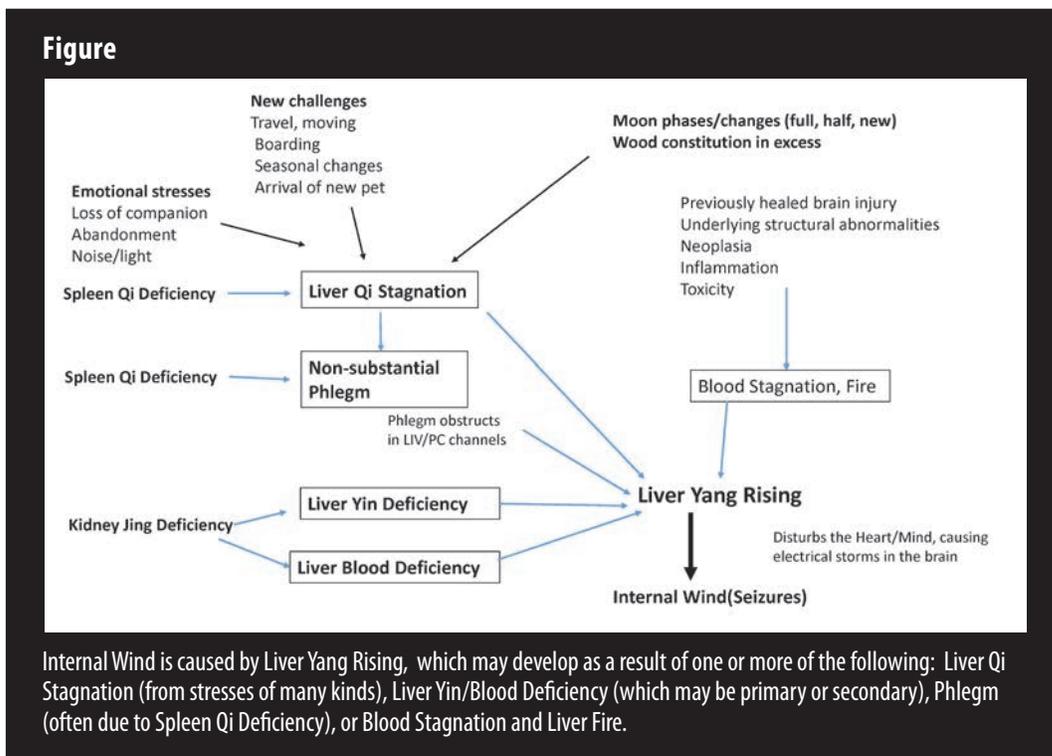
translates in English as “winds of convulsion.” Liver Yang Rising generates Heat, which flares up and disturbs the brain and *Shen* (Mind), leading to Internal Wind (seizures). Liver Yang Rising can be caused by Liver Yin Deficiency, Liver Blood Deficiency, Phlegm, Blood Stagnation, or Liver Fire. Liver Qi Stagnation can trigger Liver Yang Rising as well. The detailed etiology of Internal Wind is illustrated in the **Figure**.

### Studies on TCM/TCVM Treatment of Seizures

The acupoints most often chosen to treat seizures in humans include CV 15, GV 20, LU 11, HT 7, BL 15, SI 3, CV 14, SP 1, BL 62, KI 1, CV 12, GV 24, PC 5, PC 8, GV 26, BL 63, KI 6, TH 10, and GV 14. These commonly used acupoints are all located on the upper body, the distal extremities, or the abdomen. Evidence has shown that acupuncture suppresses epileptic seizures through regulation of several neurotransmitters/modulators and their receptors, including excitatory (eg, glutamate) and inhibitory (eg, GABA) amino acids; neuropeptides such as cholecystokinin, somatostatin, enkephalin, and dynorphin; and nitric oxide (10). Two human clinical randomized controlled trials comparing acupuncture and phenytoin reported 75% or greater reduction in seizure frequency after dry needle acupuncture. Three other human randomized controlled trials, comparing catgut implantation at acupoints with valproate administration, also reported 75% or greater reduction in seizure frequency in the acupoint implantation groups (11). In another study, 120 epilepsy patients were randomly assigned to either a control group or an observation group, with 60 patients per group. The control group received Western medicine (WM) for treatment, and the observation group received acupuncture and moxibustion. Comparisons between groups were made on the basis of clinical efficacy and occurrence of adverse reactions. The observation group had a much higher total effective rate (96.67% efficacy v. 75.00% efficacy in the control group), and the dif-

ference was statistically significant ( $P < .05$ ). The observation group also had fewer adverse reactions; of the 60 patients in each group, only 5 (8.33%) in the observation group reported adverse events, while 21 (35%) in the control group did ( $P < .05$ ). The study concluded that treatment with acupuncture and moxibustion shows efficacy and high safety in human epilepsy patients and is worthy of clinical promotion and application (12).

In a veterinary clinical trial with 15 dogs diagnosed as having idiopathic epilepsy, the investigators recorded EEGs and seizure frequency and severity 15 weeks before and after gold bead implantation into acupoints. After acupoint implantation, there was an overall significant reduction in seizure frequency (12 of 15 dogs) and severity (11 of 15 dogs). Seizure frequency was reduced by 50% or more in 9 of 15 dogs (13). Electroacupuncture (EA) normally is not recommended in seizure patients; however, 1 study found results suggesting an antiepileptic effect derived from EA at point GV 26. The most likely mechanism for this effect is increased production of the inhibitory neurotransmitter GABA, observed as an increase in the expression of both glutamic acid decarboxylase (GAD67), which catalyzes the formation of GABA, and the glutamate transporter EAAC1, as well as potential synergy between the neuromodulator effects of EA and pentobarbital (14). Another study found that acupuncture at ST 36 can reduce the frequency and duration of seizures, beginning on the seventh day of treatment (15).



Herbal therapy for epilepsy has had a rich tradition in China for thousands of years. The first known document regarding epilepsy appeared in the Yellow Emperor's classic of internal medicine, the *Huang Di Nei Ching*, written by a group of physicians between the years 770 and 221 BCE. One review of Chinese herbal medicines used to treat epilepsy identified the 23 most frequently used botanicals/herbs and the 2 most popular formulas (*Dian Xian Ning* tablets and *Zhen Xian* pills) used by traditional Chinese medical practitioners in China. The potential mechanisms of their antiepileptic/anticonvulsant activities were discussed. The review also summarized alkaloids, flavonoids, terpenoids, saponins, and coumarins as the main active compounds responsible for antiepileptic activities (16). One study investigated the clinical efficacy and safety of modified *Chai Bei Zhi Xian* Decoction (柴贝止癇汤) in the adjuvant treatment of refractory epilepsy with Phlegm Qi Stagnation pattern in a total of 70 patients. After 4, 8, and 12 weeks of treatment, the frequency of epileptic seizures, epilepsy scores, and epilepsy-accompanying symptom scores in the treatment group were improved with statistical significance compared to that of the control group ( $P < .01$  or  $P < .05$ ) (17).

Another paper systematically reviewed the research from the past 10 years on both TCM and the combination of TCM and WM for the prevention and therapy of epilepsy. The results indicated that TCM had a notable curative effect on epilepsy, with the mechanisms of action closely related to neuroprotection, neurotransmitter or ion channel changes, and relevant gene regulation. The combination of TCM and WM can enhance efficacy and reduce toxicity in the treatment of epilepsy (18). A clinical study looked at using the self-developed TCM compound granules *Mie Xian Ling* and *Mie Xian Ning* to treat children with epilepsy. Fifty clinical patients were observed systematically. Of these, 32 were considered completely controlled, 16 were adequately controlled, and in 2 patients the formulas were deemed ineffective, resulting in improvement in 96% of patients. The control group, treated with phenobarbital and phenytoin, experienced an improvement in 66.7% of patients ( $P < .005$ ). Follow-up confirmed that the efficacy of the TCM treatment was stable and long-lasting, with no toxic side effects (19).

As dogs have become popular pets in China over the past 2 decades, the authors expect that in the near future there will be more studies and reports on TCVM in the management of seizures in this species.

## TCVM Pattern Differentiation and Treatment

Internal Wind seizure patterns can be divided into Excess and Deficiency patterns. The Excess patterns are Wind-Phlegm, Phlegm-Fire, and Stagnation of Blood; the Deficiency patterns include Liver Yin Deficiency, Liver Blood Deficiency, and Liver Yin + Blood Deficiency. Excess and Deficiency patterns may mingle together and make seizures more complicated. The differentiation and selection of acupuncture points and herbals for these 6 TCVM patterns are listed in the **Table**.

### Acupuncture Treatment

Since seizure activities themselves are directly caused by Liver Yang Rising, acupuncture points to soothe and calm the Liver Yang can be used for any of the patterns. These acupoints include GV 20, GB 20, *Nao Shu*, BL 17, BL 18, SP 10, and LIV 3 (20). The following acupoints are indicated for each of the other patterns:

- Wind-Phlegm pattern: BL 20, BL 21, ST 40, and GV 1
- Phlegm-Fire pattern: GV 14, BL 20, LIV 13, LIV 2, and *Wei Jian*
- Blood Stagnation: *An Shen*, GV 17, LI 4, GB 41, and BL 40
- Liver Yin Deficiency: BL 23, LIV 8, SP 6, SP 9, and LIV 14
- Liver Blood Deficiency: CV 15, HT 7, LIV 8, SP 9, and ST 36
- Liver Yin + Blood Deficiency: BL 23, SP 6, SP 9, LIV 13, and LIV 14

Dry needling and/or aqua-acupuncture can be performed once per month initially for 3 to 6 sessions. When seizures appear completely controlled, acupuncture can be used every 6 to 12 months for maintenance. Caution should be used with EA in any seizure case (17, 18).

### Herbal Treatment

Detailed information on how to select herbs can be found in the **Table**.

If seizures are mild, the TCVM treatment, including acupuncture and herbal medicine, can be the sole treatment protocol. If seizures are more severe, it may be necessary to use both WM and TCVM treatments. If the animal is 8 years old or younger and is seizure-free for 3 months or more, the dosage of Western drugs can be reduced by 25% monthly over the next 3-month period, after which time the Western drugs may be discontinued if the animal continues to remain seizure-free. If the patient is receiving 2 drugs, it is very important to wean off 1 drug at a time, typically over 3 to 6 months. It is unacceptably risky to discontinue drugs too rapidly in dogs that are

known to have episodes of status epilepticus or cluster seizures, as seizures may worsen and cause adverse consequences for the dog and caretaker (21, 22).

### Other Considerations

It is important to avoid feeding meats that are considered more Yang (such as beef and lamb) and seafood (23). Yang meats tend to generate Heat, which enhances

Liver Yang Rising and potentially leads to Internal Wind (seizures). Seafood tends to generate Phlegm, which may also cause Internal Wind.

It is also important to avoid chemicals and drugs which could make the patient more susceptible to seizures. These include certain flea and tick products in the isoxazoline class which may lower the seizure threshold (24).

**Table. TCVM for the Most Common Patterns of Seizures (epilepsy)**

Pattern Type	Clinical Signs	Herbal Formulas (20, 21)	Acupuncture Points
Obstruction by Wind-Phlegm	<ul style="list-style-type: none"> <li>• Sudden onset of seizure without any pre-ictal signs/warning</li> <li>• Loss of consciousness or convulsions</li> <li>• Foaming at the mouth or screaming</li> <li>• Possible incontinence of urine and stool</li> <li>• Sporadic, temporary disorientation without seizure</li> <li>• Tongue: pale or purple with white greasy coating</li> <li>• Pulse: wiry and slippery</li> </ul>	<i>Di Tan Tang*</i>	BL 17, BL 18, BL 20, BL 21, GV 20, GV 1, GB 20, LIV 3, <i>Nao Shu</i> , SP 10, and ST 40
Internal Profusion of Phlegm-Fire	<ul style="list-style-type: none"> <li>• Wood type personality (agitated, irritable)</li> <li>• Sudden onset of seizure without any pre-ictal signs/warning</li> <li>• Loss of consciousness or convulsions</li> <li>• Foaming at the mouth or screaming</li> <li>• Sporadic constipation or cough with yellow mucus</li> <li>• Tongue: red or purple with greasy coating</li> <li>• Pulse: slippery</li> </ul>	<i>Ding Xian Wan*</i> + <i>Long Dan Xie Gan*</i>	BL 17, BL 18, BL 20, GB 20, GV 20, GV 14, <i>Nao Shu</i> , LIV 2, LIV 3, LIV 13, SP 10, and <i>Wei Jian</i>
Stagnation of Blood	<ul style="list-style-type: none"> <li>• History of trauma to the head</li> <li>• Sudden onset of seizure without warning</li> <li>• Loss of consciousness or convulsions</li> <li>• Foaming at the mouth or screaming</li> <li>• Possible incontinence of urine and stool</li> <li>• Sporadic, temporary disorder of consciousness</li> <li>• Temporary disorientation without seizure</li> <li>• Tongue: pale or purple with white greasy coating</li> <li>• Pulse: wiry and slippery</li> </ul>	<i>Stasis in Mansion of Mind*</i> + <i>Di Tan Tang*</i>	<i>An Shen</i> , BL 17, BL 18, BL 40, GB 20, GB 41, GV 20, GV 17, <i>Nao Shu</i> , LI 4, LIV 3, and SP 10
Liver Blood Deficiency	<ul style="list-style-type: none"> <li>• Chronic seizures</li> <li>• Anemia, emaciation</li> <li>• Dry skin or burned hair</li> <li>• Weakness in all 4 limbs</li> <li>• Cool ears and nose (and dry)</li> <li>• Tongue: pale, dry tongue</li> <li>• Pulse: weak and thin</li> </ul>	<i>Bu Xue Xi Feng*</i>	BL 17, BL 18, CV 15, GB 20, GV 20, HT 7, SP 10, LIV 3, LIV 8, <i>Nao Shu</i> , SP 9, and ST 36
Liver/Kidney Yin Deficiency	<ul style="list-style-type: none"> <li>• Dry nose and mouth</li> <li>• Chronic seizures</li> <li>• Seizure occurs at night or late afternoon</li> <li>• Tongue: red</li> <li>• Pulse: weak and thin</li> </ul>	<i>Yang Yin Xi Feng*</i>	BL 17, BL 18, BL 23, GB 20, GV 20, LIV 3, LIV 8, LIV 14, <i>Nao Shu</i> , SP 6, SP 9, and SP 10
Yin Deficiency and Blood Deficiency	<ul style="list-style-type: none"> <li>• Seizure, epilepsy, convulsions</li> <li>• Dry and flaky skin</li> <li>• Tongue: red or pale and dry</li> <li>• Pulse: deep, thin and weak</li> </ul>	<i>Tian Ma Plus II*</i>	BL 17, BL 18, BL 23, GB 20, GV 20, LIV 3, LIV 13, LIV 14, <i>Nao Shu</i> , SP 6, SP 9, and SP 10

\*General Dosage: Dogs and cats: 0.5 gram per 4.5 kg body weight twice daily

## Case Studies

### Case 1

A 10-year-old, 31-kg, spayed female Rhodesian Ridgeback dog presented for grand mal seizures that started 1 year previously. The frequency of seizures had gradually increased from every 3 months to every 2 weeks. The most recent incident prior to the time of presentation included a cluster of 3 seizures over 36 hours. The time of occurrence was variable in the beginning, but at the time of presentation, seizures consistently began at 4 am. No WM had been used for seizures.

The only abnormality on screening blood tests was severe hypoglycemia (21mg/dL) preceding and shortly after the first seizure episodes. Insulin to glucose ratios were normal. The dog also had a persistently high normal T4 level initially. All of these abnormalities had been rechecked subsequently and were well within normal range at the time of presentation. She appeared very healthy on Western physical examination (except for the history of seizures).

On the TCVM physical examination, the patient was a typical Fire constitution (outgoing, active, happy, and playful; had no phobias and showed no behavioral dominance). She had Back-*Shu* point sensitivity from BL 17 to BL 19. She was also sensitive to palpation at LIV 14. There was dark coloration of the hair around the eyes with evidence of recent graying of the haircoat in that area, which the owner believed coincided with the initial occurrence of the seizures. She had a dry haircoat with dandruff. Her tongue was pale and dry, and the pulse was weak in general, especially on the left side as compared to the right.

The dog's TCVM diagnosis was Liver Blood Deficiency. This is evidenced as seizures with sensitivity at BL 17 (Back-*Shu* point for Blood), BL 18 (Back-*Shu* point for Liver), BL 19 (Back-*Shu* point for Gall Bladder), and LIV 14 (Front-*Mu* point for Liver) (20). Blood Deficiency was diagnosed on the basis of dry skin, dandruff, pale and dry tongue, and weaker pulse on the left side. Change of color of the haircoat around the eyes may also have indicated Liver Blood Deficiency, as the eye is the window of the Liver.

Acupuncture treatment was done at GV 20, GB 20, *Da Feng Men*, BL 15, BL 17, BL 18, BL 19, SP 10, SP 9, and LIV 3. Dry needling was conducted for about 20 minutes each session, 1 session per month for 3 sessions.

Herbal treatment consisted of *Di Tan Tang* (0.5 g capsules, 5 capsules PO, BID, for 3 mo) and *Bu Xue Xi Feng* (0.5 g capsules, 5 capsules PO, BID, for 3 mo).

The dog responded well to the TCVM treatment. Her seizures had completely resolved after 3 acupuncture sessions (each session 1 month apart) and 3 months of herbal medication. She then received acupuncture once every 3 to 12 months and *Tian Ma Plus II* (3 g, PO, BID) for the rest of her seizure-free life until she passed away at the age of 13 years.

### Case 2

A 5-year-old, 27-kg, castrated male mixed breed dog presented for uncontrolled seizures.

Clusters of seizures began 10 days after receiving a vaccination 7 months previously. The cluster seizures had resolved with administration of phenobarbital and KBr, (doses unavailable), but the dog continued to have single seizures every 15 to 30 days. One week before presentation for TCVM therapy, the dog had 5 seizures with severe disorientation within 1 hour, starting early in the morning. These seizures were strong, each lasting about 5 to 6 minutes. Despite having been given increased doses of phenobarbital and KBr, the patient still had cluster seizures daily for the next week. In addition, he suffered from occasional diarrhea and was slightly overweight.

TCVM examination showed the dog was very sweet, laid-back, and food motivated. His ears and body were hot, and he showed cool-seeking behavior. He panted excessively, becoming worse at night. His skin and paws were dry. His tongue was red with white foam and a greasy, white, thick coating. His pulse was thin, fast, and weaker on the left side.

The TCVM diagnosis was Internal Wind due to Liver Yin Deficiency.

Acupuncture treatment was done at GB 20, BL 10, BL 12, GV 14, LIV 3, BL 18, BL 19, BL 20, BL 21, BL 23, SP 6, KID 3, and ST 40. Dry needle acupuncture was conducted for 20 minutes each session, once every 2 weeks.

Herbal treatment consisted of *Di Tan Tang* (0.5 g capsules, 5 capsules PO, BID, for 3 mo) and *Tian Ma Gou Teng* (0.5 g capsules, 7 capsules PO, BID, for 3 mo).

The dog responded well to the TCVM treatment. He only had 1 or 2 seizure episodes per week for the first month, and only 1 seizure episode in the second month following treatment. He then required only 1 session of acupuncture every 3 to 12 months and *Tian Ma Plus II* (3.5 g, PO, BID) for maintenance. He has not had any seizures over the past 6 years (up to the time of submission of this paper).

## Conclusion

The combination of TCVM and WM can be an effective therapeutic approach to control seizures and epilepsy. WM is effective for initial control of severe seizures and in identification of the cause of the disease. TCVM can be effectively used for the treatment of milder cases and to help control seizures in those patients that fail to respond to WM.

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