

Acupuncture treatment of hind limb weakness in a diabetic dog with kidney yin and qi deficiency[†]

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ABSTRACT: Canine diabetes mellitus (DM) is a chronic endocrine disorder characterized by persistent hyperglycemia and metabolic imbalance, frequently leading to secondary complications such as neuropathic weakness. Abrielle, an eleven-year-old female Siberian Husky, presented to the small animal clinic with hind limb weakness that had persisted for three months. The dog also showed clinical signs of polydipsia, polyuria, and weight loss, despite an increased appetite. The owner reported that the dog's daily diet consisted mainly of white rice with very little protein. Laboratory examination revealed hyperglycemia (423 mg/dL), elevated fructosamine levels (340 μ mol/L), and glucose-positive dark brown urine. Based on these findings, the dog was diagnosed with insulin-dependent diabetes mellitus. Treatment with insulin was prescribed twice daily, and acupuncture therapy was recommended to support recovery and address hind limb weakness. Abrielle underwent acupuncture twice a week using electroacupuncture, dry needles, and aqua acupuncture. After four sessions, noticeable improvement in mobility was observed, and after three months, the dog's body weight increased from 38.5 lbs to 48.5 lbs, with a more active and friendly demeanor.

Keywords:

acupuncture, diabetes mellitus, hind limb weakness, dog

■ INTRODUCTION

Diabetes mellitus (DM) is a prevalent endocrine disorder in dogs and is characterized by chronic hyperglycemia due to insulin deficiency. Affected dogs show signs of hyperglycemia and glycosuria, reflecting disturbed carbohydrate metabolism (Feldman *et al.* 2015, Aiello *et al.* 1998). The condition develops spontaneously in middle-aged to older dogs, with females being affected twice as often as males. Certain breeds show a higher predisposition due to genetic susceptibilities (Gilor & Niessen 2020).

The pathogenesis of canine diabetes mellitus is multifactorial. The disease typically results from progressive destruction of pancreatic β -cells due to immune-mediated processes or chronic pancreatitis. Chronic pancreatitis leads to the loss of pancreatic tissues, causing fibrosis, nodular remodeling, and functional insufficiency. The pancreas becomes firm and multinodular, with areas of hemorrhage and necrosis. Environmental factors such as stress, obesity, and prolonged administration of corticosteroids or progestogens can worsen insulin resistance and clinical outcomes (Nelson 2023).

The diagnosis of canine DM relies on demonstrating persistent fasting hyperglycemia and glycosuria (Feldman *et al.* 2015, Aiello *et al.* 1998). Despite established protocols in western veterinary medicine, long-term control remains challenging. Many dogs experience glycemic fluctuations, insulin resistance, or complications such as cataracts and infections, which reduce their quality of life.

Studies have explored adjunctive approaches, including dietary modifications and antioxidant therapy, to improve outcomes in dogs with diabetes (Gilor & Niessen 2020, Niessen *et al.* 2021). However, there remains a gap in integrating Traditional Chinese Veterinary Medicine (TCVM) principles with Western medical management. TCVM focuses on restoring energy balance, which may complement insulin therapy and mitigate imbalances associated with hyperglycemia. Few studies have documented its effects on the quality of life and life expectancy of diabetic dogs.

This study aimed to evaluate the clinical management of canine diabetes mellitus from Western and TCVM perspectives, emphasizing their complementary roles in maintaining metabolic stability and enhancing quality of life. Integrating these approaches provides a more holistic approach for managing canine diabetes mellitus.

■ CASE

Case Presentation: A female dog, Abrielle, presented with polydipsia, polyuria, and weight loss, despite maintaining a normal appetite. Her body temperature was 103.1 °F, at the upper normal limit for dogs. Cardiopulmonary auscultation revealed no abnormal sounds, but mild dental disease and slight dehydration (capillary refill time >3 s) were noted.

Received: 18-04-2025 | **Revised:** 20-05-2025 | **Accepted:** 30-05-2025

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Physical examination showed no palpable abnormalities, with a body condition score of 5/9, blood pressure of 126/94 mmHg, and heart rate of 104 bpm.

A blood glucose level of 423 mg/dL indicated severe hyperglycemia, exceeding 75–125 mg/dL. Fructosamine was elevated at 340 μ mol/L (reference: 225–320 μ mol/L) (Tables S1 and S2), confirming chronic hyperglycemia and indicating diabetes mellitus rather than stress-induced hyperglycemia (Feldman *et al.* 2015). Neurological signs included hind limb weakness and difficulty in walking. No abnormalities were observed on the radiogram (Figure S3).

From the Traditional Chinese Veterinary Medicine (TCVM) perspective: Abrielle—previously active with a “fire” constitution—appeared less energetic, preferred cool areas, and showed a dry coat, deep red dry tongue, and weak, thready pulse. She also had urinary incontinence and tenderness at BL-23, BL-26, and Shen Shu. The TCVM diagnosis was Kidney Yin and Qi Deficiency.

Treatment Protocol: Treatment aimed to tonify Kidney Yin and Qi through acupuncture at An Shen (B12 aquapuncture), Bai Hui, LIV-13, SP-3/21, CV-4/6, KID-7/10, GB-34, SP-6, Liu Feng, and Shen Shu, with electroacupuncture (15 Hz, 8 min) connecting BL-22 to BL-23, BL-24 to BL-26, BL-54 to BL-40, and ST-36 to KID-7/10. Therapy occurred every 3–4 days initially, then weekly or biweekly for maintenance. Treatment aims to restore metabolic balance and enhance the quality of life of abrielle.

■ RESULTS AND DISCUSSION

In Traditional Chinese Veterinary Medicine (TCVM), diabetes mellitus corresponds to the “Xiao Ke” syndrome, where Xiao refers to “wasting” and Ke denotes “thirst.” Clinically, Xiao Ke manifests as polyuria (PU) and polydipsia (PD), symptoms consistent with excessive internal heat and Yin deficiency. From a TCVM perspective, Yin deficiency is the primary pattern associated with diabetes, as internal heat consumes body fluids, leading to thirst and increased urination, as compensatory mechanisms to restore balance.

Yin deficiency can arise from several etiologies, including overconsumption of sweet or hot foods, emotional stress leading to Liver Qi stagnation, aging resulting in Kidney Jing depletion, or lack of physical activity causing Qi stagnation and phlegm accumulation (Mangan 2023). In Abrielle’s case, the Kidney Yin deficiency likely originated from prolonged consumption of low-quality dry food and white rice, both considered energetically “hot” in TCVM, combined with Jakarta’s hot climate. Prolonged internal heat causes food stagnation and dryness, depleting body fluids (Yin) and progressively weakening the kidney system. Age-related decline in Kidney Jing further contributed to this deficiency, resulting in secondary Qi depletion, particularly affecting the hind limbs, leading to weakness and difficulty in walking.

The treatment strategy focused on nourishing Yin and tonifying Qi to restore balance and vitality. Acupuncture was selected as the main modality for regulating meridian flow,

enhancing circulation, and modulating neural and hormonal activity. Local point selection stimulates nerve response and microcirculation in the affected limbs, while systemic points support organ balance and energy restoration. According to TCVM practice, acupuncture sessions twice weekly for 2–3 months are recommended for stable improvement in limb strength and glycemic control.

A combination of acupuncture techniques, including dry needling, electroacupuncture, and aquapuncture, was applied to maximize therapeutic efficacy. Dry needling provides mechanical stimulation to activate acupoints, whereas electroacupuncture facilitates pain relief, improved circulation, and neuromuscular recovery (Cantwell 2010, Harrison & Churgin 2022). The synergistic use of these methods is consistent with modern integrative approaches in veterinary acupuncture, which have been shown to enhance neurochemical responses, reduce inflammation, and promote tissue repair, thereby improving the overall condition and quality of life of affected animals.

■ CONCLUSION

After three months, the dog showed stable glucose levels and improved mobility, indicating the effectiveness of acupuncture in enhancing quality of life.

■ ASSOCIATED CONTENT

Supporting Information

[†]The hematology, blood biochemistry, urinalysis and radiography examination were submitted in PDF form as supporting information.

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