



Case Report

Treatment of Canine Spontaneous Pneumothorax by Traditional Chinese Veterinary Medicine: A Case Report

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Abstract

Spontaneous pneumothorax is a common clinical condition in small animals. It is frequently found in medium and large breed dogs (e.g., Siberian Eskimo and Golden Retriever), and overweight dogs also have a much higher incidence of spontaneous pneumothorax than other dogs. We present a case report of spontaneous pneumothorax that was treated by Chinese herbs according to the theory of Traditional Chinese Veterinary Medicine, which recovered after a month of treatment. In this case report, we will introduce the treatment of canine spontaneous pneumothorax by Traditional Chinese Veterinary Medicine and provide a reference for veterinarians in the treatment of similar diseases.

Keywords: Dog; Spontaneous pneumothorax; Traditional Chinese Veterinary Medicine; Treatment

Introduction

Dyspnea, shortness of breath, lethargy, coughing, loss of appetite, remaining sedentary, and other clinical signs such as cyanosis of the visible mucosa, hypoxemia, and respiratory acidosis may occur in affected dogs in the presence of spontaneous pneumothorax, according to a clinical study. In severe cases, it can result in acute respiratory failure and death [1]. In this case, the dog suffered from spontaneous pneumothorax had been treated for more than four months without effectiveness. Therefore, the patient was treated with Chinese herbs according to the guideline of Traditional Chinese Veterinary Medicine (TCVM), which get

fare good outcome. The treatment process and experience are summarized here, which is expected as the reference for other veterinarians in their practice.

Patient information and history

The patient was a 4-year-old intact male labrador with body weight of 29 kg, visited on August 3rd, 2020. the owner complained that the dog developed panting symptoms at the end of March 2020, and the symptoms were not significantly relieved even treated after nearly 4 months of western medicine. So, the dog was referred for TCVM treatment. The dog was fed commercial dog food on a regular time, and his appetite was normal at the start of the illness but decreased a few days before the visit. The stool was soft, and the urine was normal.

Physical examination

The dog was thin with a body condition scoring (BCS) of 3/9 and poor mental state. His clinical signs were shortness of breath, which were slightly relieved after a brief period of silence. The rhinoscope was slightly dry, and when breathing, the nostrils were open and flapping. After artificially induced coughing, white sputum was coughed up. The tongue was cyanotic (Figure 1) and a fine stringlike pulse.

When pressed or tapped on both sides of the chest wall with a hand, the dog appeared to avoid and refuse to press. His temperature was 39.3°C. Heart rate was 120 beats/min.

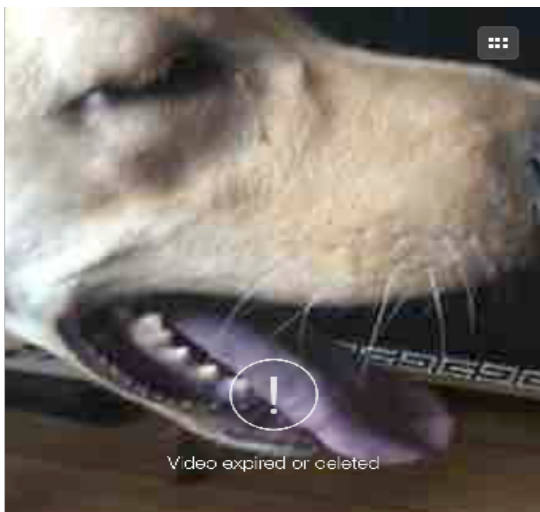


Figure 1: Tongue color before treatment.

TCVM diagnosis

According to the course of disease was four months, the affected dog had been in poor health and had a history of spontaneous pneumothorax, as well as cyanotic tongue. The patient was diagnosed as Qi insufficiency and Blood Stasis.

Treatment and outcome

Treatment principle was to resolving sputum and relieving asthma, supplement of Qi, and Promoting Blood circulation. The following drugs were used: Xingren (*Almond*) 30g (extract 3g) was used to relieving asthma. Juhong (*Red tangerine peel*) 18g (extract 1.5g), Banxia (*Pinelliae Rhizoma*) 18g (extract 1.5g), Chenpi (*Pericarpium Citri Reticulatae*) 18g (extract 3g) and Jiegeng (*Platycodon grandiflorus*) 12 g (extract 3g) were used to resolve sputum. Danshen (*Salvia miltiorrhiza*) 20 g (extract 4g), Danggui (*Angelica sinensis*) 10 g (extract 4g) were used to promote blood circulation. Fuling (*Poria cocos*) 10g (extract 1g), Baizhu (*Atractylodes macrocephala*) 10g (extract 3g), Renshen (*Ginseng*) 10g (extract 2.5g), Zhigancao (*Honey-fried licorice*

root) 3g (extract 1g) were used to tonify the Qi. All of the extract were provided by Tianjiang Pharmaceutical Co., Ltd.. The medicine was taken orally twice a day, according to the extract 0.1 g/kg. After a month of treatment, the dogs recovered completely, with a pink tongue color and good mental (Figure 2).



Figure 2: Tongue color after treatment.

Discussion

Spontaneous pneumothorax is caused by disease-induced lung injury and falls under the category of “pulmonary lesion” [2,3]. According to the Traditional Chinese Medicine theory, the symptoms of pulmonary disorders are primarily “pulmonary distension, coughing and upward movement of Qi, irritability and wheezing, and floating pulse.” Pulmonary distension is caused primarily by gas obstruction in the chest, resulting in a variety of symptoms in affected dogs, including shortness of breath.

In this case, the affected dog was diagnosed as Qi Deficiency and Blood Stasis that caused spontaneous pneumothorax, so the treatment should be based on Qi regulation and Blood circulation [4]. It is believed that spontaneous pneumothorax is a series of symptoms caused by the rupture of pulmonary blisters without mechanical trauma, which can also be secondary to lung abscess, emphysema, bacterial pneumonia and paragonimiasis, etc., resulting in pulmonary artery thromboembolism, pulmonary blisters, and pulmonary rupture, then spontaneous pneumothorax occurs in western medicine [5]. Conservative treatment from exterior pattern was commonly used in western medicine but with poor outcome.

In this case, due to the delayed treatment at the early stage, the dog suffered from a large depletion of Lung Qi, and the production of Qi from Spleen was not good enough because of Spleen deficiency, which makes it difficult for Blood to circulate

within vessels [6]. Spleen is the origination of Qi, therefore, the treatment in the case was to tonify Spleen by using Fuling (Poria cocos), Baizhu (*Atractylodes macrocephala*), Renshen (Ginseng), Zhigancao (Honey-fried licorice root), which then promoted the production of Qi. Chenpi (*Pericarpium Citri Reticulatae*), which has the effect of regulating Qi and strengthening the Spleen, was used to regulate movement of Qi. Danshen (*Salvia miltiorrhiza*) and Danggui (*Angelica sinensis*) were used to tonify the circulation of Blood. The accompanying symptoms of asthma was relieved by Xingren (Almond), The production of sputum is due to the deficiency of Spleen, and could be eliminated by Juhong (*Exocarpium Citri rubrum*), Banxia (*Rhizoma Pinelliae Preparatum*) and Jiegeng (*Radix Platycodonis*).

To Summary, spontaneous pneumothorax in large breed of dogs is usually caused by deficiency of Qi, which results in Blood stasis in TCVM. Therefore, the treatment of this kind of disease is to tonify Qi, promote movement of Blood, and accompanying symptoms, such as asthma and cough, should also be taken care during the treatment, which would bring a good outcome.

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