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Therapeutic Approach by Traditional Veterinary Medicine in a Case with Canine Myleomalacia: Case Report

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Abstract : A 4-year-old castrated male Cocker spaniel was referred with chief complaint of pelvic limbs paralysis and trembling. This dog was diagnosed as a case of myelomalacia complicated with intervertebral disc disease (IVDD) by radiography and magnetic resonance imaging (MRI). This patient was treated by injection-AP with apitoxin, herbal medicine and moxibustion. The acupoints such as GV02-1, GV04, GV11, GV12, GV13, GV14, BL11, BL18, BL23, BL25, BL28, GB21, HT07, KI03, LI04, LU07, SI03, SI06, ST36, ST38, ST39, ST40, ST41, GB30, GB31, GB34, Liv03, SP06 and trigger points(T1~T4 and T9~L1) were used for treatment. At the session 1, the dog could not stand and move the limbs. However, gradual improvement of clinical signs was observed after 7, 14 and 21 session of treatment. Although the clinical signs related to pelvic paralysis were not completely abolished with TVM methods, this case showed the marked improvement of clinical signs after 21 sessions of treatment. In conclusion, the present patient was a case with canine myelomalacia complicated with IVDD which showed not so complete but somewhat improvement by TVM method.

Key word **:** Canine, myelomalacia, apitoxin, herbal medicine

Introduction

Canine myelopathy is a degenerative disease of unknown etiology affecting the thoracolumbar spinal cord most severely. Especially, acute and severe spinal cord injury may result in progressive ascending and descending infarction, and hemorrhagic necrosis of the spinal cord parenchyma. Most affected animals initially have clinical signs, indicative of a transverse myelopathy between T3 and L3, and necrosis of the spinal cord progressing caudally. Lower motor neuron (LMN) signs may be seen in the pelvic limbs and anus. As progressive hemorrhagic myelomalacia (PHM) progresses cranially, LMN signs can be observed in the pelvic limbs and anus. Diagnosis of myelopathy is based on the nature of clinical signs, magnetic resonance imaging (MRI) and histopathological examination. Most cases of PHM are fatal, because of respiratory paralysis. However, no effective treatment has been developed in Western medicine, to date (3,10,14,16).

Various therapeutic regimens of traditional veterinary medicine (TVM) including needle-acupuncture (AP), injection-AP, electro-AP, laser-AP, moxibustion and herbal medicine have shown excellent therapeutic effects in various human and animal diseases (1,2,4,5,6,7,13). Recent studies have also found that bee-venom (apitoxin) therapy showed anti-inflammatory effects on pain-releasing diseases such as laminitis (15,17). Although canine myelomalacia has been reported and well documented in the literature, therapeutic approach has not been published, to date (3,8,11,12,14).

Therefore, in this case report, we describe therapeutic approach using TVM in dogs with myleomalacia complicated with IVDD.

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Case

History and diagnostic studies

A 4-year-old castrated male Cocker spaniel was referred with chief complaints of pelvic limb paralysis and trembling (Fig 1). According to medical history of this case, the dog had started to show signs of pelvic limbs paralysis from the 4 days before presentation. The clinical signs were gradually worsening with time. The dog was treated with methyl-prednisolone (Methysol®, 30 mg/kg, IV, four times per day, Kun Wha Pharm. Co., Korea) before presentation at local veterinary clinic for 2 days. However, no improvement of clinical signs was observed. Instead, the patient was gradually dyspneic with time. Sensory levels for pain and temperature were not present from the T2 to the tail, and LMN signs and deficit of deep pain perception of the pelvic limbs were detected in neurological examination. Dysuria and dyschezia were also

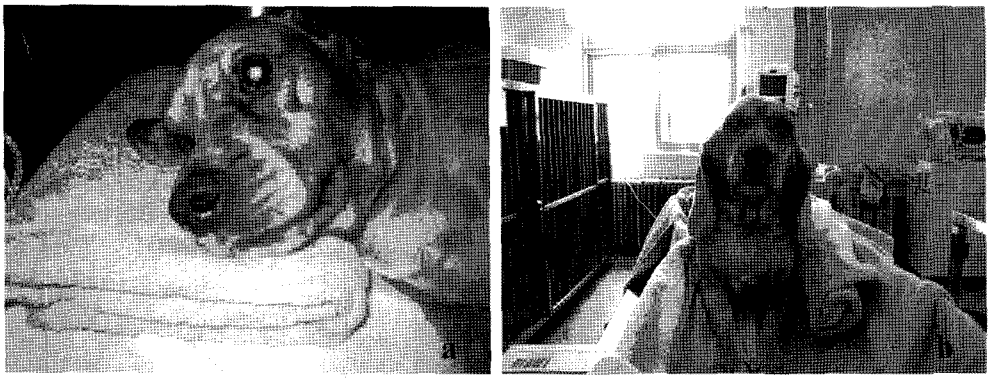

Fig 1. The case with intervertebral disc disease (IVDD) and mylemalacia(a: before treatment, b: after treatment).

observed in this patient.

Calcifications of intervertebral discs at T1-2, T2-3, T11-12, T12-13 and L4-5, and narrowing of intervertebral disc space at T11-12, T12-13 and T13-L1 were detected on the radiography. MRI study revealed ventral compression of moderate degree of spinal cord with dehydration of the discs at T11-12, T12-13 and T13-L1. Furthermore, hyperintensity on T2-weight images and isointensity on T1-weight images were observed at the level of T9-L1 spinal cord parenchyma (Fig 2 and 3). Although analysis of cerebrospinal fluid was not examined, the patient was diagnosed as myelomalacia complicated with IVDD, based on clinical findings and diagnostic imaging studies.

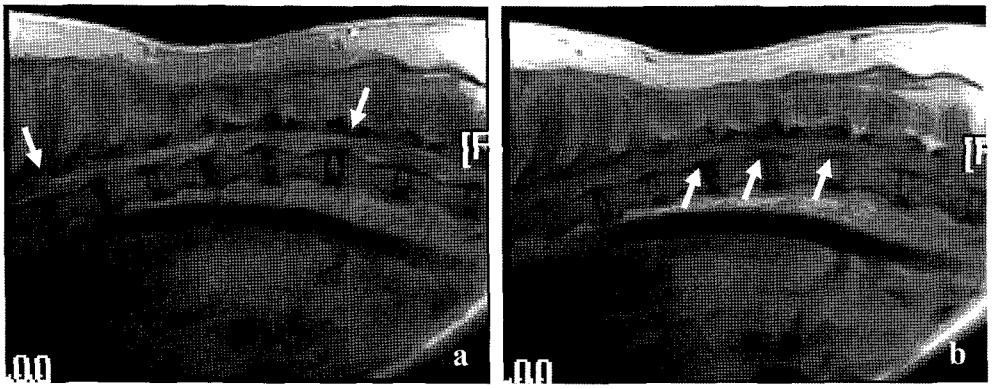

Fig 2. Magnetic resonance imaging (MRI) findings of a dog with myelomalacia and intervertebral disc disease (IVDD, a: high intensity signal change of affected cord at T9-L1 on T2-weight image, b: pressed spinal cord at T11-L1 on T1-weight image).

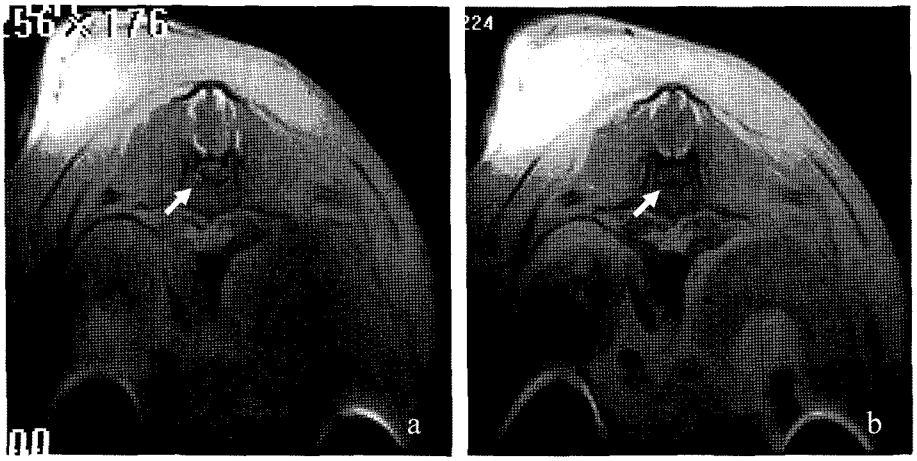

Fig 3. Magnetic resonance imaging (MRI) findings of a dog with intervertebral disc disease (IVDD) at T13-L1 (a: T2-weight image, b: T1-weight image).

Treatment

The dog was received with modified moxibustion therapy on back of patient (burning an alcohol sponge on the wet towel, once/day) during 14 days. After 3 day of treatment, the patient was also received with herbal medicine (Koda Pharmaceutical Co., Taiwan). Shiee Fuu Jwu In Tang (血府逐瘀湯: 1 g), Zheng Gu Zi Jin Dan (正骨紫金丹: 1 g), Shiuh Duann (續斷: 0.2 g), Du Zhong (杜仲: 0.2 g), Mo Yao (沒藥: 0.2 g), Ru Xiang (乳香: 0.2 g) and Pyrite (自然銅: 0.2 g) were orally medicated TID for 32 days. After 7 days of treatment, the patient was received with moxibustion therapy (ceramic seoam moxa, KORYO HAND ACUPUNCTURE Co., Korea, once/2 days) and injection-acupuncture with bee-venom (Guju and Apimez Pamrmacological Co., Korea, 400 μg/0.4 ml, once/2 days) diluted with 2% lidocaine hydrochloride (Huons Co,. Korea, 0.4 ml) and normal saline 4.6 ml at the acupoints such as Yao Bai Hui (GV02-1), Ming Men (GV04), Shen Dao (GV11), Shen Zhu (GV12), Tao Dao (GV13), Da Zhui (GV14), Da Zhu (BL11), Gan Shu (BL18), Shen Shu (BL23), Da Chang Shu (BL25), Pang Guang Shu (BL28), Jian Jing (GB21), Shen Men (HT07), Tai Xi (KI03), He Gu (LI04), Lie Que (LU07), Hou Xi (SI03), Yang Lao (SI06), Zu San Li (ST36), Tiao Kou (ST38), Xia Ja Xu (ST39), Feng Long (ST40), Jie Xi (ST41), Huan Tiao (GB30), Feng Shi (GB31), Yang Ling Quan (GB34), Tai Chong (Liv03), Sang Yin Jiao (SP06) and trigger points (T1~T4 and T9~L1) for 28 days (Fig 4 and 5).

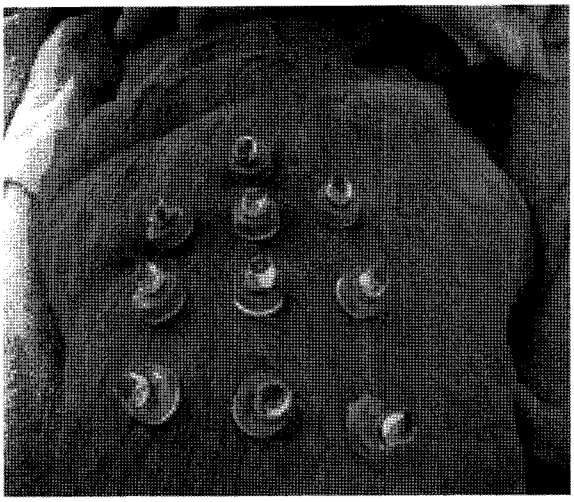

Fig 5. Moxibustion treatment used in the present patient.

Outcome

At session 1, the dog was recumbent and could not move. The dog started to use his forelimbs after the session 7 of treatment. The dog could stand in a brief of time with his upper limbs after the session 14 of treatment. Furthermore, the dog could stand with his forelimbs. The reflex of anus and tail were started to revive after the session 21 of treatment (Fig 1). However, the clinical signs related to the pelvic limb paralysis were not improved at all, after the session 21 of treatment. The authors stopped treatment, released the dog, and recommended the owner to use gocart for the dog. The hind limbs of patient were still paralytic after two months of initial visit.

Discussion

Myelomalacia is softening of the spinal cord and rapidly progress after injury of the spinal nerve. Lee *et al.*(8) described acute hemorrhagic myelomalacia in an English cocker span-

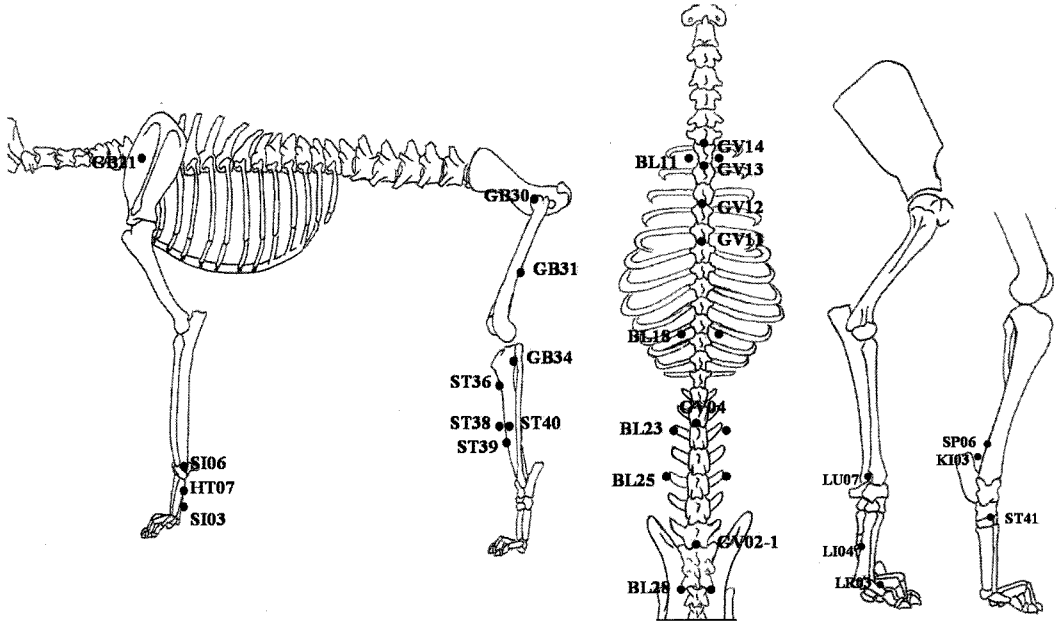

Fig 4. The acupoints used in this study.

iel based on MRI study. In a retrospective study of 42 patients with compressive myelomalacia, myelomalcia was classified into early, intermediate and late stages based on the finding by MRI study (12). Seong *et al.* (14) reported that the prognosis of the canine myelomalacia was not favourable. The present case was considered to be early stage based on the findings of MRI examination.

No effective treatment for canine myelomalacia has been reported in Western medicine to date. Therefore, in this study, the authors attempted to treat canine myelomalacia with TVM methods including injection-AP with apitoxin, moxibustion and administration of herbal medicine. Gradual impro- vement of clinical signs was observed after 7, 14 and 21 sessions of treatment. Although the clinical signs related to pelvic paralysis were not completely abolished with TVM methods, this case showed the marked improvement of clinical signs after 21 sessions of treatment.

Apitoxin contains multiple peptides which are various pharmacological properties. Recent studies found that apitoxin had anti-inflammatory, pain-releasing and anti-cancer properties (15,17). Gradual and partial improvement of clinical symptoms in this case might be due to synergistic effects of anti-pain of apitoxin (15), anti-neuromalacia of Shiee Fuu Jwu In Tang, pain-releasing of Shiuh Duann, removal of accu- mulated and activation of blood by Zheng Gu Zi Jin Dan and Mo Yao, and muscular strengthening by Du Zhong and Ru Xiang (9). More controlled case study with increasing number of affected dogs is warranted to reveal the effectiveness of TVM in dogs with myelomalacia.

In conclusion, the present patient was a case with canine myelomalacia complicated with IVDD which showed not so complete but somewhat improvement by TVM method.

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척수연화증 개에서 전통 수의학적 방법을 이용한 치료 시도: 증례 보고

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요 약 : 4년령의 중성화한 수컷 코커 스파니엘이 후지 마비와 진전 때문에 내원 하였다. 본 환축은 X-ray와 MRI를 이용하여 추간판탈출증이 합병된 척수연화증으로 진단되었다. 환축의 치료를 위하여 봉독 약침, 뜸 및 한약제의 투여를 이용하였다. 사용 혈위는 GV02-1, GV04, GV11, GV12, GV13, GV14, BL11, BL18, BL23, BL25, BL28, GB21, HT07, KI03, LI04, LU07, SI03, SI06, ST36, ST38, ST39, ST40, ST41, GB30, GB31, GB34, LIV03, SP06 및 압통점(T1~T4 and T9~L1) 이었다. 그 결과, 1차 치료 시 환축은 기립이 불가능하였으며, 사지를 움직이지 못하였다. 그러나 7차, 14차 및 21차 치료 시 점차적인 임상증상의 개선이 관찰되었다. 비록 한방수의학적 방법으로 임상 증상이 완치된 것은 아니지만, 21차 치료 후 임상증상이 일부 호전된 증례이었다.

주요어 : 개, 척수연화증, 봉독, 한약제