

Acupuncture Treatment in a Case with Equine Laminitis

Duck-Hwan Kim¹, Jianzhu Liu, Seok Hwa Choi*, Phillip MacManus**, Paoraic Jennings**, Karl Darcy**, Fiona Burke**, Nola Leorald*** and Phil A. M. Rogers****

College of Veterinary Medicine, Chungnam National University, Daejeon 305-764, Korea
*College of Veterinary Medicine, Chungbuk National University, Cheongju 361-763, Korea
**Glenina Vet. Clinic, Co Galway, Ireland
***Faculty of Veterinary medicine, University College Dublin, Dublin, Ireland
***Tegasc Grange Research Centre, Dunsany, Co. Meath, Ireland

(Accepted: February 8, 2006)

Abstract: One male Arabian horse, 13-year-old reared in Galway, Ireland, was diagnosed as laminitis. Hemo-acupuncture at TH01, SI01 and ST45 was used. Injection acupuncture with dexamethasone was also applied at the same acupoints after hemo-acupuncture twice a week. Bee-venom was injected into GV01 at session 2. After session 3, the patient showed almost normal walking.

Key words: Injection-acupuncture, bee-venom, dexamethasone, equine, laminitis.

Introduction

Laminitis can be occurred by dietary, post-parturient and allergic causes in horse and cow. The horse with laminitis shows severe lameness accompanied by heat and pain of the hoof crown. Phenylbutazone, methionine and dietary therapy to decrease of sodium can be used for the treatment. In addition, cold pack, bleeding from the sole and antibiotics can be applied for symptomatic therapy (1,2,5,8-10,12,13,15,20).

Hemo-acupuncture (Hemo-AP), point-bleeding, is an AP method used to treat human and animal diseases (18,20). It is used mainly to treat heatstroke, pneumonia and laminitis (20).

Bee venom (apitoxin) was effective for various inflammatory diseases and pain control in humans (4,14,16,17,19). Choi *et al.*(6,7) reported good results by apitoxin in pre-weaning diarrhoea in piglets and in sows with postpartum hypogalactia, respectively. However, there were only a few reports about therapeutic effect by hemo-AP for equine laminitis was described till now (18).

Accordingly, the authors report a case of equine laminitis which showed favorable therapeutic response by AP treatment.

History

The patient was one male Arabian horse, 13-year-old reared in Galway, Ireland. The symptom was started from 1 week ago. The patient was treated with antibiotics and corticosteroids for 1 week in local veterinary clinic, however, symptoms were not improved.

¹Corresponding author. E-mail: dhkim@cnu.ac.kr

Clinical findings

The patient disliked to walk and stood idle, slight swelling and heat of the hoof joints were found in 4 legs. The horse was diagnosed as laminitis (Fig 1). In addition, this patient was diagnosed as excess condition by diagnostic method of traditional oriental medicine (21).

Acupuncture treatment

Hemo-AP at TH01(on the forelimb at a point 1 mm lateral to the midline, proximal to coronary band), SI01 (proximal to the craniolateral aspect of coronary band of the forelimb) and ST45 (1 mm lateral to the midline of the pelvic limb, proximal to the coronary band) was done (Fig 2). Injection-AP with dexamethasone (Boeringer Ingelheim Ltd., UK, I ml diluted with same volume (1:1)) was also applied at the same acupoints after hemo-AP twice a week. Bee-venom (apitoxin®, Guju Pharmacological Co., Korea, 200 µg) diluted with 2% lidocaine hydrochloride (Huons, Korea) (1:1) was injected into GV01 at session 2 (Fig 2). After session 3, we stopped AP treatment in this patient.

Outcome

Swelling and heat of the joint was decreased. The patient started to walk a little bit at session 2. The patient showed almost normal walking without lameness at session 3 (Fig 3). Favorable therapeutic response was evaluated by disappearance of swelling, heat and lameness.

Discussion

Drug therapy including phenylbutazone, methionine, anti-

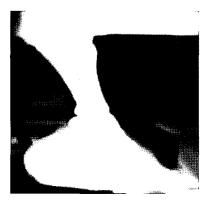


Fig 1. X-ray finding of a horse with laminitis.

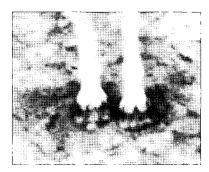


Fig 2. Hemo-acupuncture at TH01 and SI01 used in a horse with laminitis.



Fig 3. Walking appearance in a horse with laminitis after acupuncture treatment.

histamine and antibiotics, and symptomatic therapy such as cold pack and bleeding from the sole can also be used for treatment of laminitis (2,5,13,15).

It was well known that AP treatment had good therapeutic results especially in diseases of musculoskeletal systems of human and animal (15). As for AP treatment for equine laminitis, Schoen (17) recommend needle-AP at PC09, TH01

and SI01 for treatment of acute laminitis. In addition, hemo-AP at TH01, Xiongtang and Mijiaogan was advocated for the treatment in acute laminitis in traditional Chinese medicine (17).

In this case, the authors used hemo-AP and injection-AP with dexamethasone at TH1, ST45 and SI01, and concurrently injection-AP with apitoxin at GV01. Although clinical improvement could not be achieved by conventional therapy for one week treatment at all, however, markedly favorable therapeutic response was obtained after AP treatment in this case. This finding was similar to the results of other researches that injection-AP was more useful than those by other-AP treatments (12). The used acupoints of this patient in hemo-Ap were a little bit different from other researchers, however, elemination method using with hemo-AP might play a helpful role in treatment of this patient because this horse was demonstrated as excess condition by diagnostic method of traditional oriental medicine.

Apitoxin therapy was applied in patient with laminitis. Apitoxin has several kinds of peptides including mellitin and apamin etc., nonpeptide components, enzymes and active amines (2,11,12,14). Its main component, mellitin increases the cortisol level (11) and catecholamine release from the adrenal medulla which mediates the anti-inflammatory effect of apitoxin (11,12) Baek et al. (3) recently demonstrated that apitoxin-AP (apipuncture) could relieve inflammatory pain in collagen-induced arthritis by means of mediation with alpha 2-adrenergic receptor in rats. Apipuncture has been used for treatment of various human inflammatory diseases and pain control (11,13,16). However, there was only a few reports by apipuncture in veterinary medicine up to now. Because apipunture was concurrently applied with other AP methods including hemo-AP in this case in the present study, precise treatment mechanism was unclear. Further research using apipunture should be performed not only in various equine inflammatory diseases but also in many other diseases of large animal clinical practice in future.

Conclusion

The presen was were a case of equine laminitis which showed favourable therapeutic response by AP treatment.

References

- Ackerman N, Garner HE, Coffman JR, Clement JW. Angiographic appearance of the normal equine foot and alterations in chronic laminitis. J Am Vet Med Assoc 1975; 166: 58-62.
- Allen D Jr, Clark ES, Moore JN, Prasse KW. Evaluation of equine digital Starling forces and hemodynamics during early laminitis. Am J Vet Res 1990; 51(12): 1930-1934.
- 3. Baek YH, Huh JE, Lee JD, Choi DY, Park DS. Antinociceptive effect and the mechanism of bee venom acupuncture (Apipuncture) on inflammatory pain in the rat model of collagen-induced arthritis: Mediation by alpha(2)-

- Adrenoceptors. Brain Res. 2006; [Epub ahead of print].
- 4. Chea WS. Wonderful integration of Dong's acupoint. 1st ed.. Seoul: Ilzungsa 1997: 251-380.
- 5. Chen J, Luo C. Chen H. Primary hyperalgesia to mechanical and heat stimuli following subcutaneous bee venom injection into plantar surface hind paw in the conscious rat: a comparative study with formalin test. Pain 1999; 83: 67-76.
- Choi SH, Cho SK, Kang SS, Bae CS, Bai YH, Lee SH, Pak SC. Effect of apitherapy in piglets with preweaning diarrhea. Am J Chin Med. 2003; 31: 321-326.
- Choi SH, Kang SS, Bae CS, Cho SK, Pak SC. Effect of bee venom treatment in sows with oligogalactic syndrome postpartum. Am J Chin Med 2003; 31: 149-155.
- Coffman JR, Johnson JH, Fishburn FJ. Management of chronic laminitis in the horse. J Am Vet Med Assoc 1969; 155: 45-49.
- Coffman JR. Refractory laminitis. Vet Clin North Am 1973;
 291-300.
- Garner HE, Coffman JR, Hahn AW, Ackerman N, Johnson JH. Equine laminitis and associated hypertension: a review. J Am Vet Med Assoc 1975; 166: 56-57.
- Kim MH. Bee venom therapy and bee acupuncture therapy. Seoul: Korean Education and Planning Co. 1992: 67-182.
- Kwon YB, Lee HJ, Han HJ, Mar WC, Kang SK, Yoon OB Beitz JH. The water-soluble fraction of bee venom produces antinoceptive and antiinflammatory effects on rheumatoid arthritis in rats. Life Science 2002; 71: 191-204.
- 13. Kyaw-Tanner M, Pollitt CC. Equine laminitis: increased

- transcription of matrix metalloproteinase-2 (MMP-2) occurs during the developmental phase. Equine Vet J 2004; 36: 221-225.
- Lee, JD, Kim SY, Kim TW, Lee SH, Yang HI, Lee DI, Lee YH. Anti-inflammatory effect of bee venom on type II collagen induced arthritis. Am J Chin Med 2004; 32: 361-367.
- 15. Moore RM, Eades SC, Stokes AM. Evidence for vascular and enzymatic events in the pathophysiology of acute laminitis: which pathway is responsible for initiation of this process in horses? Equine Vet J 2004; 36: 204-209.
- 16. Roh DH, Kwon, YB, Kim, HW, Ham TW, Yoon SY, Kang SY, Han HJ, Beitz AJ, Lee JH. Acupoint stimulation with diluted bee venom (apipuncture) alleviates thermal hyperalgesia in a rodent neuropathic model: involvement of spinal alpha 2-adrenoceptors. J Pain 2004; 5: 297-303.
- Schoen AM. Veterinary acupuncture: Ancient art to modern medicine, 1st ed. Mosby. 1994: 465-553.
- Sumikura H, Andersen OK, Drewes AM, Arendt-Nielsen L. A comparison of hyperalgesia and neurogenic inflammation induced by melittin and capsaicin in humans. Neurosci Lett 2003; 337(3): 147-150.
- van Eps AW, Pollitt CC. Equine laminitis: Cryotherapy reduces the severity of the acute lesion. Equine Vet J 2004; 36: 255-260.
- White SS. Acupuncture of horse in China. In: Schoen AM. Veterinary acupuncture: Ancient art to modern medicine, 1st ed. Mosby. 1994: 581-614.

말 제엽염의 침 치료 1례

김덕환¹·유건주·최석화*·Phillip MacManus**·Paoraic Jennings**·Karl Darcy** ·Fiona Burke**·Nola Leorald***·Phil A. M. Rogers****

> 충남대학교 수의과대학, *충북대학교 수의과대학 **Glenina 동물병원, Galway, Ireland, ***Dublin 수의과대학, Ireland ***Tegasc Grange Research Centre, Ireland

요 약: 아일랜드 갈웨이주에서 사육중인 13살, 수컷, 아랍종말이 제엽염으로 진단되었다. TH01, SI01 및 ST45에 혈침 및 덱사메타손 수침(2회/주)을 각각 실시하였다. 또한 2회째 봉독(아피톡신: 200 μg을 동량의 리도카인에 혼합)을 GV01에 수침하였다. 3회 침치료 후 말은 정상 보행이 가능하였다.

주요어 : 수침, 봉독, 텍사메타손, 말, 제엽염