

Injection-Acupuncture Combined by Conventional Treatment in Canine Demodicosis : Case Report

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Abstract : Therapeutic effect by injection-AP with antibiotics plus conventional treatment was investigated to establish a new treatment method for canine demodicosis. Three patients diagnosed into canine demodicosis were used in the present study. Injection-AP with enrofloxacin (5 mg/kg, twice a week) was made into the acupoints such as Fei Shu (BL13), Wei Zhong (BL40), Da Zhui (GV14), Zu San Li (ST36), He Gu (LI04), Qu Chi (LI11) and Sang Yin jiao (SP06) for 5 weeks. Further, they were additionally received with conventional treatments including injection of ivermectin (0.5 mg/kg, twice a week, SC) and 0.05% amitraz rinse (twice a week) for 5 weeks. The clinical symptoms (pruritus, excoriation, erythema and alopecia) were much improved by injection-AP therapy plus conventional treatment, compared by those of pre-treatment. Case 1 became to normal after 4 weeks, Case 2 became to mild after 5 weeks and Case 3 became to normal after 5 weeks. Total WBC revealed decreasing tendency with treatment in all cases, however, N/L ratios didn't show regular pattern of change with treatment. Notable changes were not histopathologically found in skin lesions of Case 1 and Case 3 except Case 2 with mild change after 5 weeks treatment, compared by those of pre-treatment, respectively. In conclusion, the present patients were cases with canine demodicosis which revealed favorable therapeutic response by injection-AP with antibiotics plus conventional treatment.

Key word : Injection-acupuncture, canine, demodicosis.

Introduction

Dermatological diseases including demodicosis, scabies, pyoderma, dermatitis, eczema and atopy etc. are commonly occurred in small animal (7,11,17). It is well known that canine demodicosis is an inflammatory parasitic skin disease characterized by an excessive proliferation of an exoparasite, *Demodex folliculorum* var *canis* (*D. canis*) within the hair follicle and sebaceous gland. *D. canis* can be also found high rate in healthy dogs. In addition, it is supposed that its proliferation is closely related to decrease of host immune response. Contact infection at birth, immune insufficiency and genetic predisposition are suggested to the cause of demodicosis. Furthermore, this disease is frequently occurred in 2-3 months old and is commonly found in short-haired breed, Boxer, Dachshund and Beagle etc.(11,17).

As for the treatment for canine demodicosis, application of parasitocidal drug such as amitraz in scaly type, and washing with boric acid, sufficient drainage, application of amitraz and administration of antibiotics in pyoderma type are commonly used for treatment of demodicosis (1,2,3,9,12).

On the other hand, in traditional oriental medicine (TOM), needle-acupuncture (AP), injection-AP, laser-AP and moxibus-

tion etc. display favorable therapeutic effects on treatment of various human and animal diseases (5,6,19,20). It was reported that AP treatments for dermatological disease were applied and those results were good in small animals with canine demodicosis, feline allergic dermatitis and canine acral lick granuloma, respectively. As for injection-AP for treatment of canine dermatological diseases, only therapeutic effect by injection-AP with cyanocobalamin was investigated to now (15).

On the other hand, some case reports and the trend of occurrence were reported in canine demodicosis in our country (7,8). As for treatment of canine demodicosis, however, efficacy of ivermectin in combination treatment with amitraz (12) was only described in our country. The approach by TOM for treatment of canine demodicosis was not made at all to the present.

Accordingly, the authors report here, therapeutic effect by injection-AP with antibiotics plus conventional treatments on canine demodicosis.

Cases

Case history

Based on results of acetate tape preparation, skin scraping and bacterial isolation, three patients diagnosed into canine demodicosis were used in the present study. Case 1 was a 4-year-old male bull terrier dog (13 kg, B.W.) occurred from 1

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month ago. Case 2 was a 6-year-old female mongrel dog (4.7 kg, B.W.) occurred from 4 month ago. Case 3 was a 6-year-old female mongrel dog (4.2 kg, B.W.) occurred from 7 month ago.

Microbiological examination findings

The isolated bacteria concomitant with those patients were all *Staphylococcus spp.* and the most sensitive antibiotics were enrofloxacin, based on bacterial isolation and antibiotics sensitivity test.

Treatment findings

Injection-acupuncture with enrofloxacin (Baytril®, Bayer Co., Korea, 5 mg/kg, twice a week) was made into the acupoints such as Fei Shu (BL13), Wei Zhong (BL40), Da Zhui (GV14), Zu San Li (ST36), He Gu (LI04), Qu Chi (LI11) and Sang Yin jiao (SP06) for 5 weeks (Fig 1). Further, they were additionally received with conventional treatments including injection of ivermectin (Tithermectin, Dae Dong Pharm. CO., Korea, 0.5 mg/kg, twice a week, SC) and bathed with 0.05% amitraz solution (GREENTIX, GREEN CROSS VETER-

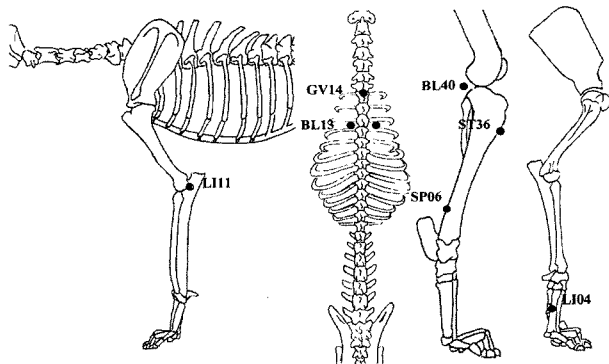


Fig 1. The acupoints used in the present study.

INARY PRODUCTS CO., Korea) twice per week for 5 weeks.

The changes of clinical symptoms (pruritus, excoriation, erythema and alopecia) with each treatment were assessed by using clinical scores (normal : 0, mild : 1, mild to moderate: 2, moderate : 3, moderate to severe : 4 and severe : 5) during experimental periods, respectively. The clinical symptoms were much improved by injection-AP therapy plus conventional treatment, compared by those of pre-treatment. The clinical scores were decreased by treatment in all cases (Table 1). Case 1 became to normal on 4 weeks, Case 2 became to mild on 5 weeks and Case 3 became to normal on 5 weeks (Fig 2).

Blood examination findings

Total WBC counts and neutrophil per lymphocyte (N/L) ratios were examined by auto hematology analyzer (MS9-5 Vet, MELET SCHLOESING Laboratories, France). Total WBC revealed decreasing tendency with treatment in all cases, however, N/L ratios didn't show regular pattern with treatment (Table 2).

Histopathological findings

D. Canis and keratinous debris in hair follicle, and severe infiltration of inflammatory cells including mostly macrophage or neutrophil in the dermis and epidermis were commonly observed in pre-treatment in all cases. However, infiltration of inflammatory cells were mild and notable pathological changes with treatment were not found in dermis and epidermis of case 1 and case 3, compared by those of pre-treatment, respectively. However, pyogranuloma due to follicular rupture, revealing a stage of extensive cellular response was observed after five weeks in case 2 (Fig 3).

Discussion

Dermatological disease is a commonly encountered disease in canine and feline clinical practice. Kim (7) reported that

Table 1. The changes of clinical scores with treatment in cases with canine demodicosis

Cases	Days after treatment (weeks) of skin disease					
	0	1	2	3	4	5
Case 1	15	12	9	4	0	0
Case 2	14	10	9	5	3	1
Case 3	15	9	6	4	2	0

Table 2. The changes of total WBC and neutrophil/lymphocyte (N/L) ratios with treatment in cases with canine demodicosis

Cases		Days after treatment (weeks) of skin disease					
		0	1	2	3	4	5
Case 1	WBC($\times 10^3/\mu\text{l}$)	25.0	28.9	21.2	18.7	15.3	14.2
	N/L ratio	0.4	1.9	0.8	3.0	0.7	1.5
Case 2	WBC($\times 10^3/\mu\text{l}$)	13.5	12.1	13.7	13.5	11.6	11.5
	N/L ratio	0.4	0.8	0.8	1.1	1.0	2.1
Case 3	WBC($\times 10^3/\mu\text{l}$)	15.3	12.7	12.0	12.0	13.5	11.8
	N/L ratio	0.7	1.1	1.2	0.9	0.9	1.7

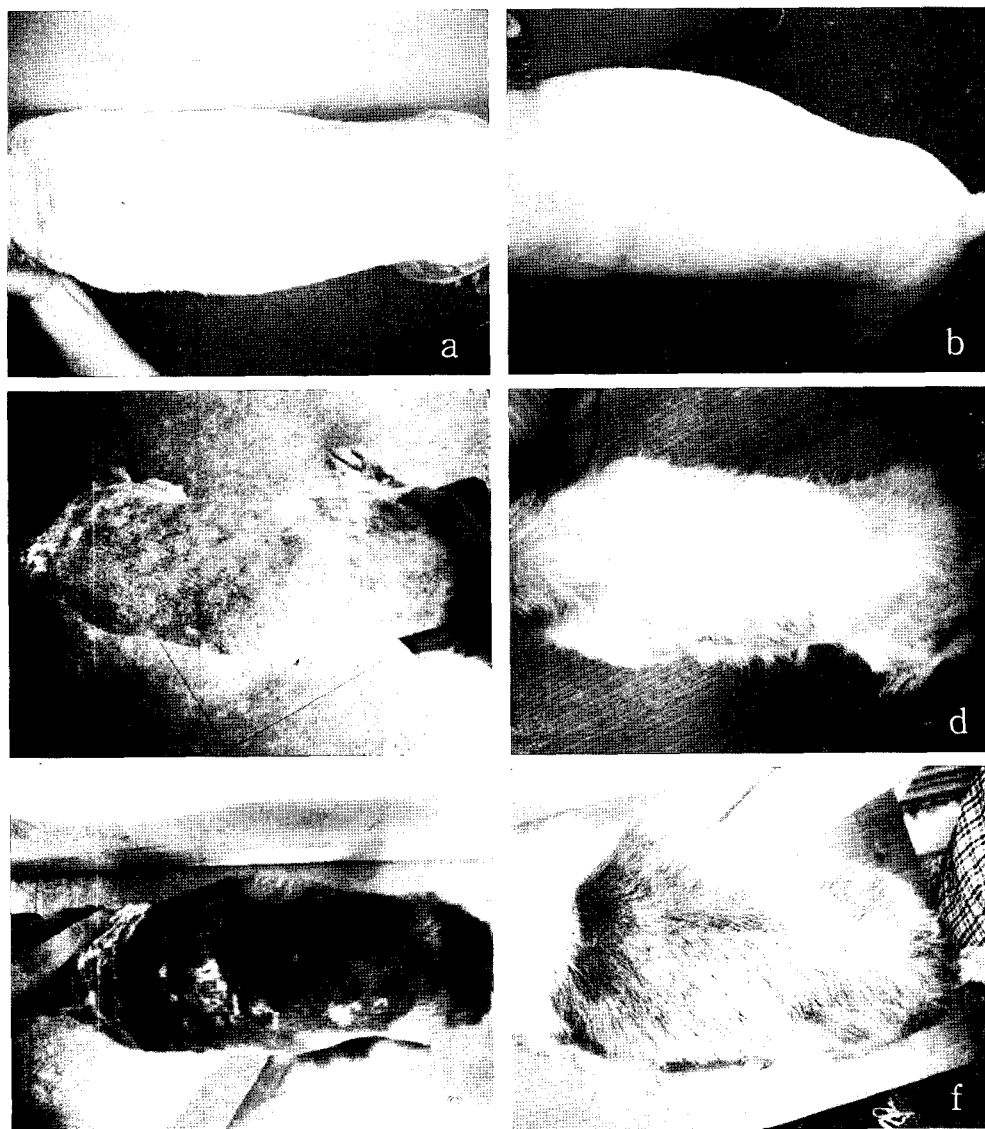


Fig 2. The change of clinical symptoms (a: before treatment in case 1, b: after treatment in case 1, c: before treatment in case 2, d: after treatment in case 2, e: before treatment in case 3, f: after treatment in case 3)

canine patients with skin disease were 9.4% (402/4293) and those with demodicosis was 17.9% (72) out of them at Chonnam areas in Korea by ten-year retrospective study. In addition, he pointed out that approximately 75% of the patients with demodicosis were purebred and short-haired breeds revealed high incidence, and about 63% of them were less than one year old.

In Western medicine, it is known that canine demodicosis is occurred by proliferation of *D. canis* related by decrease of host immune system (2,4,17). However, in TOM external causes such as wind, heat, summer heat, cold, dry and damp are related with occurrence of disease and especially wind, heat and damp out of them frequently cause pyoderma, pododermatitis, moist dermatitis, eczema and external otitis in small animals. In addition, immune-mediated skin diseases including demodicosis is considered to be related with inter-

nal imbalance in TOM (15,17).

Considering about treatment for dermatological disease, it is difficult and needs for long term treatment to get complete cure in human as well as animals. As for treatment of canine demodicosis, amitraz rinse (0.025-0.06%, every 7-14 days), and oral administration of ivermectin (300 $\mu\text{g}/\text{kg}/\text{day}$), mibemycin (2 mg/kg) and moxidectin (400 $\mu\text{g}/\text{kg}$) are recommended as treatment protocol for canine demodicosis in Western medicine (4,10,13,14).

On the other hand, Schoen (15) described that bilateral AP treatment at He Gu (LI-04), Qu Chi (LI-11), Fei Shu (BL-13), Shen Shu (BL-23), Wei Zhong (BL-40) and Zu San Li (ST-36) demonstrated good therapeutic effect in canine generalized demodetic mange unresponsive to treatment with amitraz. In addition, he reported that injection-AP with vitamin B12 (cyanocobalamin) at BL-13, BL-23, LI-04, LI-11,

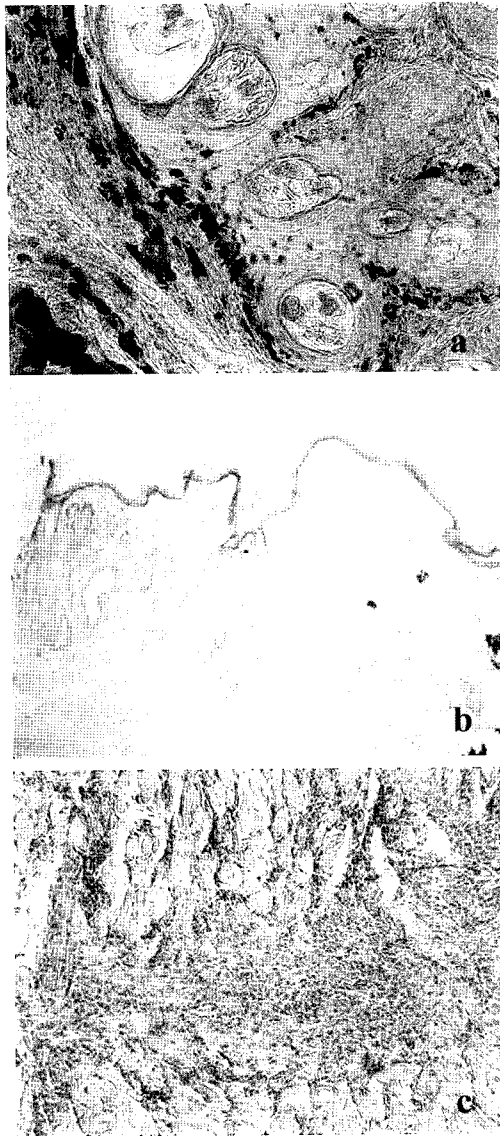


Fig 3. Histopathological findings of the skin with treatment (a: pre-treatment in case 3; affected follicles filled with demodectic mites and keratinous debris are observed, H&E, $\times 400$, b: after-treatment in case 3; notable pathological changes are not found, H&E, $\times 100$, c: after-treatment in case 2: pyogranuloma due to follicular rupture is seen. H&E, $\times 200$).

SP-6 and ST-36 for 6 weekly treatments showed cease of excessive licking in feline allergic dermatitis, and AP at LI-04, LI-05, LI-11, SI-5, Da Zhu (BL-11), Ge Shu (BL-17), Da Zhui (GV-14), and Yang Lin Quan (SP-09) for 6 months revealed good result in canine acral lick granuloma (15).

Although antibiotics are generally injected into subcutaneously or intramuscularly in Western medicine, the authors used injection-AP with antibiotics to similar acupoints plus conventional treatments including amitraz rinse and administration of ivermectin in the present study. As a result, all of three cases with canine demodicosis showed favourable therapeutic responses within 4 to 5 weeks. Treatment periods in

the present cases were thought to be a little bit earlier than result in other reports (12,18). This is thought to be caused by injection-AP with antibiotics in addition to conventional treatment.

In addition, histopathological findings of the skin lesion backed up the improvement of clinical symptoms. It was thought that this result was caused by synergistic effect of conventional treatment and injection-AP. The therapeutic effects by injection-AP were demonstrated in treatment of various diseases (6,15). Especially, it is known that injection-AP has some merits such as stimulation of the acupoints before absorption of injected materials and exhibition of pharmacological activity after absorption of materials injected (16).

The authors investigated on therapeutic effect by conventional treatment plus injection-AP with antibiotics in the present study, however, more precise researches about the therapeutic effects by injection-AP only, injection-AP with other materials such as ivermectin and cyanocobalamin, and administration of herbal medicine for treatment of canine demodicosis should be performed in future.

In conclusion, the present patients were cases with canine demodicosis which revealed favourable therapeutic response by injection-AP with antibiotics plus conventional treatments.

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개 모낭충증에 있어서 약침과 기존 치료의 병용 : 증례 보고

전형규 · 한지원 · 오현욱 · 이현화 · 박배근 · 박성준 · 조성환 · 김덕환¹

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요 약 : 개 모낭충증의 새로운 치료법을 확립하기 위하여 항생제의 약침과 일반 치료의 병행을 이용한 치료 효과를 조사 하였다. 본 연구에서는 모낭충으로 진단된 개 3두를 이용하였다. Enrofloxacin의 약침을 폐수(BL13), 위중(BL40), 대추(GV14), 족삼리(ST36), 함곡(LI04), 곡지(LI11) 및 삼음교(SP06)의 혈위에 각각 5주간 실시하였다. 또한 일반 치료법인 ivermectin과 0.05% amitraz 약욕을 5주간 추가로 실시하였다. 소양증, 찰과상, 홍반 및 탈모와 같은 임상증상은 약침과 일반치료에 의해서 치료 전에 비하여 현저하게 완화되었다. Case 1은 4주 후에 완치되었고, case 2는 5주 후에 증상이 약간 잔존하였으며, 그리고 case 3은 5주 후에 완치되었다. 혈중 백혈구 수는 치료와 더불어 모든 케이스에서 감소하는 경향을 보였으나, 호중구/림프구 비율은 일정한 경향을 나타내지 않았다. 5주째 병리조직 검사 소견상에서 case 1과 case 3은 뚜렷한 병리조직학적 변화가 관찰되지 않았으나, case 2는 경도의 변화가 관찰되었다. 결론적으로 개 모낭충에 이환된 본 환자들은 항생제 약침과 일반 치료법의 병행으로 양호한 치료반응을 나타낸 증례이었다.

주요어 : 약침, 개, 모낭충증