

<증례보고>

Clomipramine treatment of acral lick dermatitis in a dog

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Abstract : An 11-year-old, toy poodle dog was presented with dermatologic lesions and mammary gland tumor (MGT) evaluation. A solitary, lobulated MGT (size 2.5 × 3.5 cm) was affecting the 5th left mammary gland. Firm, oval plaque skin lesions were present on the left dorsal carpal area. The skin lesions were alopecic and salivary staining. The dog had historical separation anxiety and excessive licking of skin lesions were observed. Based on the clinical and histopathologic examinations, MGT was diagnosed with mammary complex adenoma and the skin lesions were diagnosed with acral lick dermatitis. Behavior modification treatment using oral clomipramine was effective.

Keywords : acral lick dermatitis, behavior disorder, canine, clomipramine

Acral lick dermatitis (ALD) is a common canine skin disease caused by compulsive licking of dorsal distal extremity [8, 10]. The skin lesions are characterized by firm, oval plaque which is accompanied with saliva pigmented border [1]. ALD usually occurs in conjunction with secondary bacterial infection [10]. German shepherd dog, Great dane, Doberman pinscher, Labrador retriever, and Irish setter are reported as ALD predisposed breeds [8]. Various etiologies which resulted in self-trauma by excessive licking cause ALD, such as fear and/or anxiety-based behavior disorder, allergy, demodicosis, pyoderma, previous trauma, joint disease and neoplasia [1, 8, 11]. Although the characteristic features of ALD, several diseases could mimic ALD [1, 8]. Precise behavior history, location of the lesions, ruling out other underlying disease and histopathology would be helpful for the diagnosis of ALT.

This first case report described characteristic clinical and histopathologic features of ALD in our country. Behavior modification using oral clomipramine and music therapy was quiet successful in this dog.

An 11-year-old, intact female, toy poodle dog was presented with dermatologic problems and mammary gland tumor (MGT) evaluation. The owner stated that there was no previous history of trauma and the dog experienced separation anxiety when left alone. The MGT was gradually increased during 4 years and the size was 2.5 × 3.5 cm when presented. Clinical examination showed mild systemic erythema and abdominal comedone. A salivary staining, alopecic plaque-like lesions were present on the dorsal part of the left forelimb (carpal area) (Fig. 1A). The dog licked the lesions continuously during examination periods. The lesions were

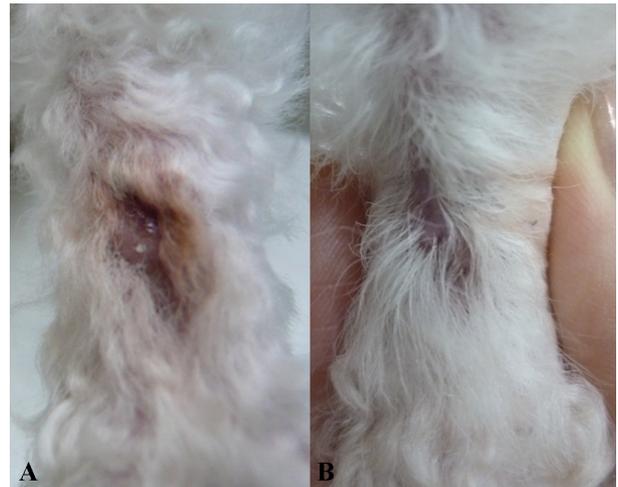


Fig. 1. Acral lick dermatitis on the dorsal aspect of the left carpal area. (A) Well-demarcated focal alopecic lesion was demonstrated. The oval plaque like lesions was accompanied by hyperpigmented border. (B) The raised lesion was resolved with hair re-growth, 2 months after the behavior modification treatment.

well-circumscribed and firm. A solitary mammary gland mass (size 2.5 × 3.5 cm) was detected around left 5th nipple. No regional lymph nodes were involved. Complete blood cell count revealed thrombocytosis ($619 \times 10^3/\mu\text{L}$; references, $200\sim 500 \times 10^3/\mu\text{L}$) and slightly elevated lactate dehydrogenase (LDH, 147 U/L; references, $0\sim 130 \text{ U/L}$) value was detected on serum biochemistry. Thoracic and abdominal radiographs were unremarkable. A delicate radiograph of distal extremity was performed to rule out underlying joint dis-

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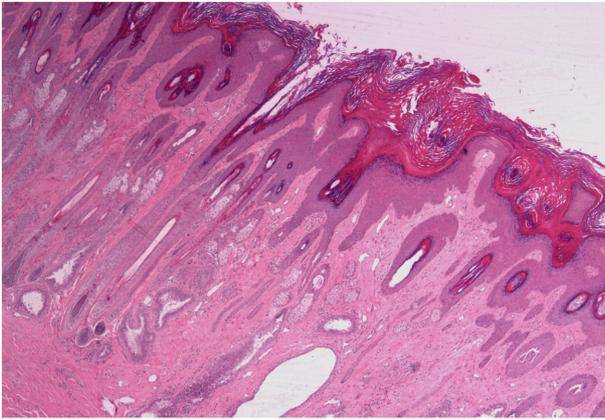


Fig. 2. Histopathologic examination of the acral lick dermatitis in a toy poodle dog. Low power photomicrographs of the oval plaque skin lesions. Irregular acanthosis of epidermis, compact hyperkeratosis and parakeratosis was demonstrated. Vertical streaking fibrosis and folliculitis was accompanied with dilation of apocrine gland (H&E, $\times 40$).

ease and no abnormality were noted. Fine needle aspiration of the MGT showed sheets of epithelial cells, mild anisocytosis, high nuclear-to-cytoplasmic ratio and fine nuclear chromatin. Biopsy was performed for definite diagnosis and mammary complex adenoma was diagnosed by histopathologic examination.

For the skin lesions, acral lick dermatitis was suspected in the light of history and clinical examination. Other differential diagnosis included demodicosis, dermatophyte kerion, fungal or bacterial granuloma and neoplasia. Further dermatologic examinations of the skin lesions were performed. Skin scraping tests were unremarkable. Bacterial and fungal cultures were all negative. For definite diagnosis, skin biopsy using a 6-mm biopsy punch (KAI Sterile Dermal Biopsy Punch; Kai industries, Japan) was collected from the plaque-like alopecic skin lesions. Irregular hyperplasia of the epidermis, compact hyperkeratosis and parakeratosis was marked. Superficial dermal fibrosis (vertical streaking) and folliculitis was accompanied with dilation of apocrine gland (Fig. 2).

Based on the history, clinical/dermatologic examinations and histopathological findings, the dog was diagnosed with mammary complex adenoma and acral lick granuloma. The owner refused further treatments for MGT. Treatment was initiated for dermatologic problems. No underlying causes were identified except separation anxiety and the skin lesions developed without accompanying secondary infection. Oral clomipramine (2 mg/kg, PO, BID; Myung-In Pharm, Korea) was prescribed alone for behavior modification and the music therapy with solo piano classical music was initiated to help with relaxation. For the first month of the treatment, the licking frequency was decreased and the skin lesions resolved 2 months later (Fig. 1B). The dog remained stable and had no evidence of clomipramine-related side effects five months after admission.

In human medicine, integral relations between behavior/emotional components and dermatologic condition have been considered for effective management of 30% dermatologic problems [7, 11]. The clinical incidence of behavior dermatosis in veterinary medicine is not well understood, but certain dermatologic conditions have better prognosis when controlling behavior problems [11, 12]. ALD is a useful animal model of obsessive-compulsive disorder in humans and controlling this disease with anxiolytics and/or antidepressants were effective [5, 6]. However, behavior-modification drugs only control the ALD symptoms about 21–63% [3, 6]. Recent reports described ALD-like lesions which were involved with nonbehavior-causes, such as a peripheral nerve tumor, sciatic nerve inflammation, neoplasia (lymphoma, mast cell tumor), foreign body (surgical pin), deep pyoderma, leishmaniasis, and sporothricosis [1, 2]. Thus, several diagnostic examinations using radiographs, cytology, bacterial and fungal culture, and histopathology are crucial before definite diagnosis. Response to the medication is also important and if the clinical signs are not improved after the dog ceases the licking behavior, underlying causes should be re-evaluated.

Traditionally, control of the ALD is composed of drugs for treating secondary infections and behavior modification [8]. Among antidepressants, fluoxetine and clomipramine have been the most effective results to controlling ALD, while anxiolytic drugs have been less helpful [3, 6, 9, 12]. Clomipramine belongs to the class of tricyclic antidepressants and transient lethargy, vomiting, diarrhea and mild anticholinergic effects could be potential side effects [11]. In conjunction with oral medication, music therapy using classical music was used to help relaxation of this dog. The exact correlation of music with anxious has uncertain in veterinary medicine; music therapy has been used to controlling anxiety of human [4]. The dog was well responded to the behavior modification therapy and licking behavior was resolved one month after the treatment. Clinical signs were improved 2 months later and no recurrence was noted during 5 months follow-up period.

In conclusion, this case described relatively common dermatologic problem, ALD in an old toy poodle dog. Location of the lesions, history, clinical and histopathologic features was characteristic in this dog and treatment response to the behavior modification was effective. To our knowledge, this was the first case report describing ALD in a dog in our country.

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