Eosinophilic granulomas in two dogs

Jae-Hoon Kim¹, Ji-Youl Jung¹, Sang-Chul Kang¹, Young-Rak Lee², Jin-Yong Lee³,
Eui-Kyung Hwang⁴, Gye-Hyeong Woo⁵, Jae-Hoon Kim¹,*

¹College of Veterinary Medicine and Veterinary Medical Research Institute, Jeju National University, Jeju 690-756, Korea
²Gangnam Animal Medical Center, Busan 612-010, Korea
³Cats and Dogs Animal Clinic, Seoul 121-250, Korea
⁴College of Life Science and Natural Resources, Sangji University, Wonju 220-702, Korea
⁵Department of Clinical Laboratory Science, Semyung University, Jecheon 390-711, Korea

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Abstract: Eosinophilic granuloma is a common hypersensitive inflammatory skin disease in cats, and rare in dogs and horses. The skin biopsies of 5 years old female Cocker spaniel and 2 years old female mixed dog had the clinical signs of skin nodules with alopecia were submitted for diagnosis. Solitary skin nodules and papillary nodules were presented on the left external ear and back of Cocker spaniel and on the external ear of mixed dog, respectively. Histopathologically, epidemis of skin showed mild to severe hyperplasia with multifocal ulceration. Small to large irregular, brightly eosinophilic foci with degenerating eosinophils and homogeneous degenerated collagens were existed in the dermis of both ear and back skin. Typical ‘flame figures’, a mixture of degenerated collagen and degranulated eosinophils, were observed in both cases. Based on the histopathologic findings and special staining characters, 2 cases were diagnosed as canine eosinophilic granuloma. This is the first report for the eosinophilic granuloma of dogs in Korea.

Keywords: dog, eosinophilic granuloma, flame figure, nodule, skin

Introduction

Eosinophilic granuloma complex (EGC) is an inflammatory skin disease that has been reported in cats, dogs, and horses [2, 6, 7]. EGC is not a specific disease but simply several cutaneous reactions, and most commonly seen in cats. Feline eosinophilic granulomas (EG, also called linear granuloma and collagenolytic granuloma) occur on the caudal thighs, face, oral cavity, and occasionally on the footpad [2, 6]. Cutaneous lesions are typically well-circumscribed, raised, firm, alopecic, erythematous plaques with a characteristic linear configuration [2].

Canine EG is characterized by lesions resembling feline EG [2, 7]. They are most common in the oral cavity and less frequent in haired skin such as inner thighs, ventral abdomen, flanks, and prepuce [2, 7]. This disease most commonly presents as single to multiple ulcerated lesions, in oral cavity, often on the lateral or ventral surfaces of the tongue or on the soft palate [2, 3, 8]. The cutaneous form is characterized by multiple papules, nodules, and plaques. Oral EG occur almost exclusively in male Siberian huskies and male Cavalier King Charles spaniels, whereas cutaneous lesions have no recognized breed predilection [3, 7, 8]. Canine EG probably are of multifactorial allergic etiology. Both clinical and histopathologic features suggest a hypersensitivity reaction.

In this paper, we report two cases of EG in female dogs. To the author’s knowledge, this is the first case reported in Korea.

Cases

The skin biopsies of 5 years old female Cocker spaniel (Case 1) and 2 years old female mixed dog (Case 2)
were submitted to the Veterinary Pathology Laboratory of Jeju National University because of skin nodules with alopecia. Solitary skin nodules and papillary nodules were presented on the left external ear and back of Cocker spaniel and on the external ear of mixed dog, respectively. Tissues biopsy samples were fixed in 10% neutral buffered formalin, processed in a routine method, and stained with hematoxylin and eosin (H&E) for light microscopic examination. Special staining such as Masson’s trichrome and Luna’s staining also performed on paraffin embedded tissue sections.

Grossly, the nodule of the back skin was solitary, round to oval shape, raised, alopecic, and firm. On cut surface, the dermal nodule was well-circumscribed with normal cutaneous tissues (Fig. 1A). And raised, papillary masses were occupied in the external ear canal (Fig. 1B).

Histopathologically, epidermis of skin showed severe papillary hyperplasia with prominent rete ridges down growth (Fig. 2). Keratinized squamous epithelium was covered with dense crust, and multifocal intercellular edema and spongiosis were seen. Multifocal ulceration was noted in case 1. Small pustules composed of eosinophils were sometimes occupied in epidermis. Many necrotic areas were presented in the center of dermal lesion. Small to large irregular, brightly eosinophilic foci with degenerating eosinophils and homogeneous degenerated collagens were existed in the dermis both ear and back skin (Fig. 3). Typical ‘flame figures’ had many foci of collagen degeneration with peripheral, small, radiating projections surrounded by eosinophils, lymphocytes, macrophage, and the degenerated inflammatory cells (Fig. 4A). According to Masson’s trichrome method, some collagen fibers within flame figures spaces appeared normal, while others appeared to be partially or wholly degenerate (normal collagen-blue, degenerated collagen-red) (Fig. 4B). Collagen fibers were coated by degranulating eosinophils using Luna’s staining (Fig. 4C). Many eosinophils and mononuclear cells also infiltrated around blood vessels and adnexa structures.

**Discussion**

Based on the gross findings, histopathologic features, and special staining methods, these cases were diagnosed as EG in dogs. The EGC in the cat actually consists of three controversially similar diseases [2]. Classically, three lesions such as the indolent ulcer, the eosinophilic...