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Clinical Manifestations Enticed in Clinical Cases of Canine Pyoderma

Bansari Shah*, Neha Rao, P.V. Parikh, D.M. Patel and D.S. Nauriyal

Department of Veterinary Medicine,

College of Veterinary Science and AH, Anand Agricultural University, Anand - 388001

Corresponding Author: drbansarishahvet@gmail.com

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Abstract

Canine pyoderma is one of the most common causes of dermatitis with worldwide occurrence in small animal practice. The condition is diagnosed on the basis of clinical manifestations, isolation and identification of causative organisms by bacteriological cultural examination. A study was conducted on 130 dogs diagnosed with canine pyoderma presented at the Veterinary Clinical Complex (VCC), Veterinary College, Anand. These included cases of surface pyoderma (15), superficial pyoderma (50), deep pyoderma (32) and secondary pyoderma (33). The common clinical manifestations observed were exudation of pus, pruritus, erythema, pustules, papules, crusts, epidermal collarettes and alopecia. Canine pyoderma found secondary to other dermatological afflictions illustrated manifestations associated with the underlying cause. Hence, the condition should be differentially diagnosed and treated accordingly.

Key words: Canine pyoderma, pyogenic infection, secondary infection, clinical manifestations

Introduction

In small animal clinics, dermatological disorders constitute a majority of cases and are estimated to range between 12 and 75 % as the chief or concurrent owner complaint (Scott and Paradis, 1990; Feijo *et al.*, 1998). Canine pyoderma is the pyogenic bacterial infection of dog's skin and is one of the most common causes of dermatitis with worldwide occurrence in small animal practice. The normal flora of skin is a mixture of resident and transient organisms which live in symbiosis. Staphylococci are considered to be the primary skin pathogens, although various types of gram-negative organisms have also been isolated. It can also be caused by infections, inflammatory reaction, and/or neoplastic conditions; any condition that results in the accumulation of neutrophilic exudate can be termed as pyoderma.

A good dermatologic history has a pivotal role and can certainly prioritize the differential diagnosis. Canine pyoderma can be differentially diagnosed from other skin ailments like skin parasitism, fungal infections, autoimmune disorders, neoplasia, hypersensitivity as well as endocrinal disorders that also exhibit dermatological manifestations. Therefore, taking into account the increasing association of man with companions, especially dogs, and the severity and frequency of dermatological disorders, the present study on canine pyoderma was conducted.

Materials and Methods

The study was undertaken for a period from July, 2016 to April, 2017 at Department of Veterinary Medicine. Dogs with clinical manifestations of different dermatological afflictions brought to Veterinary Clinical Complex (VCC), College of Veterinary Science & Animal Husbandry, Anand were included in the study. These dogs were examined clinically for the lesions and manifestations pertaining to canine pyoderma, and were subjected to differential diagnosis and thereafter confirmatory diagnosis was made. The types of pyoderma were diagnosed based on the extent, depth and severity of lesions, and were classified on the basis of classification schemes given in standard text books (Ihrke *et al.* 1977; Nesbitt, 1983 and Miller *et al.*, 2013). The prevalence of different types of pyoderma was then worked out based on a total of 130 clinical cases recorded in the hospital during the study period.

Results and Discussion

Dogs harbouring dermatological diseases reveal a wide variety of clinical manifestations and recognizing the primary and/or secondary lesions is the most essential feature of the diagnosis. Moreover, the distribution pattern of relevant symptoms like pruritus, inflammation and exudation etc. are useful in the diagnosis of the condition and planning its therapeutic management.

In the present study, various types of pyoderma diagnosed were Surface pyoderma 15 cases



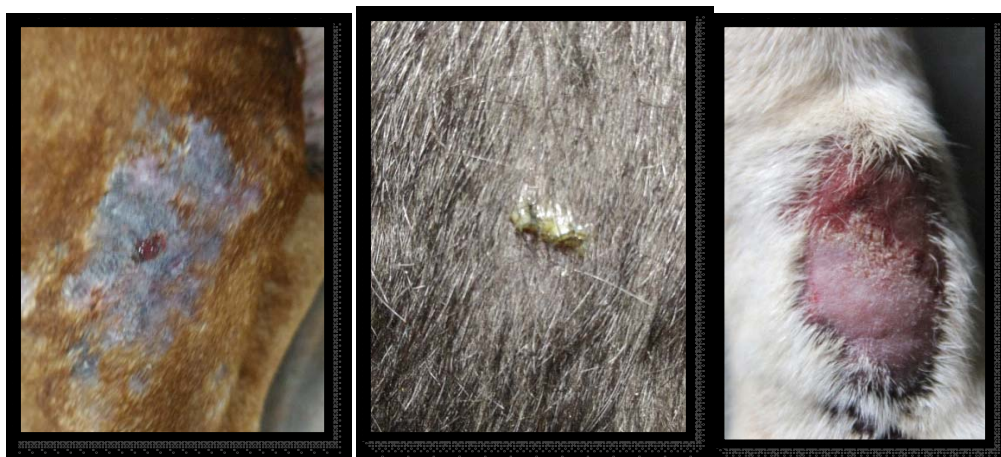
a. Papular eruptions and erythema



b. Multiple erythematous and pustular lesions



Epidermal collarettes - a classical sign manifested in cases of canine pyoderma



Exudation of pus from cases of pyoderma



Different coat qualities enticed in cases of canine pyoderma: Woolly coat (left) and Moth-eaten appearance (right)

[Pyotraumatic dermatitis (0.77%) and acute moist dermatitis (10.76%)]]; Superficial pyoderma 50 cases [intertrigo (4.61%), impetigo (3.07%) and superficial folliculitis (30.77%)], and Deep pyoderma 32 cases [folliculitis/furunculosis (13.07%), muzzle furunculosis (3.07%) and pedal furunculosis (8.46%)]. Moreover, pyoderma was also found secondary to various conditions (n=33) like demodicosis (8.46%), scabies (0.77%), tick infestation (1.53%), flea infestation (1.53%), immune-mediated dermatoses (5.38%), hypothyroidism (4.61%), dermatophytosis (0.77%) and psychogenic dermatoses/acral lick dermatitis (2.30%).

In the present study, the lesions pertaining to acute moist dermatitis had a rapid onset and spread. The lesions were commonly observed on face, neck, tail base and ventral abdomen. There was evident pain on palpation of these lesions. Nesbitt (1983) reported lesions of acute moist dermatitis to be multifocal eroded area with an erythematous moist surface found on dorsal back, lateral thighs and/or shoulder which are in agreement with the findings of present study. Cases of deep pyoderma showed up multiple lesions on rump, dorsum of back, base of tail, limbs (paws) and ventral abdomen. The lesions were found to be moist with collarettes on the periphery of lesions. Alopecia and

erythema was common in acute cases. However, the chronic cases studied under present investigation were found to have characteristic lesions of thickened skin along with hyperpigmentation, hyperkeratosis and scarring. Nesbitt (1983) and Muller and Kirk (1976) have earlier described similar lesions in canine deep pyoderma.

The cases of canine pyoderma illustrated lesions on feet which were suggestive of pedal folliculitis and furunculosis. The lesions like folliculitis in the interdigital space, erythema on the interdigital as well as plantar areas, exudation of pus, matting of hair and inflamed feet were perceptible. Pododermatitis is a multifaceted inflammatory disease complex that affects the feet of dogs characterized by red and oedematous tissue with nodular ulcers and serosanguineous or seropurulent exudates (White, 1989).

The cases of callus pyoderma presented in the investigation had lesions on the elbow joint of fore limbs and on hock joint of hind limbs. The cases were observed to have marked proliferation of callus surface along with presence of blood mixed exudates. Some cases were observed to have erosions and pain on palpation. Nesbitt (1983) suggested the reason for callus pyoderma to be trauma resulting from constant irritation and friction of the skin in these parts. The findings of present investigation concur with the findings of Clarke (2006) and Shipstone (2004).

The cases representing secondary folliculitis to demodicosis exhibited lesions in the form of patches of alopecia accompanied with erythema. The hair coat was found to be rough with presence of scales and slight hyperkeratosis. There was evidence of deep folliculitis with exudation of pus mixed with blood. Earlier, Nesbitt (1983) and Nair (2004) reported similar clinical changes in folliculitis following demodicosis in dogs.

A case of pug, suffering with canine scabies, demonstrated secondary bacterial colonization as a result of excoriations. The lesions exhibited exudation, alopecia, erythema and thickening of skin. Moreover, ectoparasite infestation of ticks and fleas also revealed presence of bacterial colonization. The lesions were seen as erythema, pustules, alopecia, crusts and rough coat.

The cases of canine pyoderma were found to be secondary to hypothyroidism. The lesions were present in the form of bilateral alopecia on the caudo-dorsum, coarse coat, erythema, epidermal collarettes, crusts and exudation of pus. This represented endocrinal involvement in regulation of skin functioning. Similar observations were recorded by Feldman *et al.* (2014).

The cases that were diagnosed to have methicillin-resistance exhibited severe pruritus and erythema and showed poor response to antibiotics conventionally used in the treatment of canine pyoderma. Those cases had a history of recurrence of lesions and over and above that treatment failure and no response to conventionally used antibiotics.

Conclusions

Canine pyoderma is one of the major maladies of canine skin and therefore it should be considered as a matter of concern. Cases presented with canine pyoderma illustrated lesions depending on the type and extent of pyoderma. The classical manifestations in dogs with pyoderma were exudation of pus/purulent exudate, erythema, epidermal collarettes, alopecia, folliculitis, crusts, papules and pustules. Pyoderma is also seen secondary to other dermatological afflictions like ectoparasitic infestations, dermatophytosis, immune-mediated dermatoses, psychogenic dermatitis and hypothyroidism. The condition should be diagnosed differentially and then treated accordingly.

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Conflict of Interest: All authors declare no conflict of interest.

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