Self-healing abdominal follicular macules associated with sebaceous gland hyperplasia in a juvenile borzoi

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Case report

A 5-month-old, intact female borzoi presented with a 3-month history of progressive colour changes in the abdomen and pruritic behaviour around the eyes and mouth. The dog was treated with oral antimicrobials and a commercial shampoo. A clearly demarcated, symmetric reddish pigmentation with alopecia was observed on the ventral abdomen, consisting of slightly

Introduction

Normal skin colour is generally attributed to melanin, haemoglobin, and carotenoid. Changes in skin colour can be associated with various pathogeneses. Coloration of the hair follicular ostia is generally related to disorders of the skin appendages, including sweat glands, and sebaceous glands. These disorders are affected by intrinsic or extrinsic, congenital or acquired, and primary or secondary factors. Herein, we report the case of a juvenile borzoi with abdominal follicular macules associated with sebaceous gland hyperplasia, which spontaneously regressed with maturity.

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Abdominal follicular macules in a juvenile borzoi

Palpable, pale peach-coloured small macules at the hair follicular ostia (Fig. 1a, b). Mildly diffuse erythema with alopecia was also observed in the periocular and perioral areas. No other abnormalities were observed upon physical examination. A punch skin biopsy was performed on the ventral abdominal lesions near the clinically normal skin. A histopathological examination of the lesion revealed well-circumscribed, enlarged sebaceous glands with atrophic hair follicles in the dermis, without any apparent epidermis abnormalities, and apocrine glands (Fig. 2a, b). The sebaceous glands consisted of numerous uniform individual lobules, which appeared slightly larger than normal. There were no obvious morphological abnormalities, such as atypia or mitoses. In addition, the blood vessels in the superficial dermis and around the hyperplastic sebaceous glands were moderately dilated. These findings were not observed in the clinically normal abdominal skin (Fig. 3). Blood test results, including complete blood counts and serum biochemistry profiles, revealed no abnormalities.

Vascular dilation along with benign proliferation of the sebaceous gland was identified; however, a specific diagnosis could not be made. It was suspected that the facial pruritic behaviour and abdominal erythema might have had the same pathogenesis because of the concurrent onset of symptoms. The dog was treated with cephalexin (L-Xahlr granules 500; Towa Corp., Kyoto, Japan; 17 mg/kg twice daily) combined with a 2% chlorhexidine acetate shampoo (Nolvasan surgical scrub; Kirikan Ltd, Tokyo, Japan) to rule out bacterial infections, as well as with a sulphur-salicylic acid shampoo (Medicated sulphur-salicylic acid shampoo; Fujita Pharma, Tokyo, Japan) for follicular flushing and hydroxyzine pamoate (Atarax-P Capsules 25 mg; Pfizer Corp., New York, NY, USA; 0.7 mg/kg twice daily).

**Fig. 1.** Clinical findings of the dog. (b) It consisted of slightly elevated, pale peach-coloured follicular oriented macules.

**Fig. 2.** Histopathological examination of the lesion. (a) Note enlargement of the sebaceous glands with vascular vessels dilation in the superficial dermis and around the sebaceous glands. Haematoxylin and eosin stain, ×40. (b) The lobules were composed of sebocytes without atypia or mitoses in the dermis. Haematoxylin and eosin stain, ×400.
daily) for pruritus, as symptomatic treatments. The pruritic behaviour improved at 3 weeks post-treatment; however, the abdominal colour changes persisted. The lesion was followed-up every 1 month without performing any specific treatments, and the colour changes regressed when the dog was 10 months old (Fig. 4). A second biopsy of the ventral abdominal skin was performed when the dog underwent ovariohysterectomy at the age of 1 year and 4 months. The histopathological examination found no vascular dilation in the superficial dermis, and the pale stained connective tissues with scattered small sebaceous glands in the original lesion areas had been replaced (Fig. 5 a, b). The dog showed no further pigmentary abnormalities in the abdomen or facial pruritus until its death at the age of 13 years.

Discussion

To the best of our knowledge, this is the first report of erythematous colour changes consisting of abdominal follicular macules associated with enlarged sebaceous glands in a dog, which disappeared with maturity. Enlargement of the sebaceous gland can be caused by tumours, nevi, or hyperplasia. Sebaceous gland tumours can be divided into four main types: adenoma, ductal adenoma, epithelioma, and carcinoma\(^\text{11}\). There were no neoplastic features of the sebaceous gland in this case.
Sebaceous hyperplasia usually comprises proliferating sebaceous lobules around one or more central squamous ducts. It generally forms papules or nodules, particularly in elderly dogs. The histopathological findings of our study were compatible with sebaceous hyperplasia; however, the dog did not show any elevated solid masses, and the symptom onset was early in life. Nevus, a rare type of congenital birthmark in both humans and animals, was also considered. Nevus shows well-circumscribed, smooth, hairless plaques composed of sebaceous glands, and the surface slowly becomes irregular and verrucous at puberty in humans. The pigmentation was not progressive and spontaneously regressed in this dog, whereas, in general, the nevus sebaceous does not disappear in humans.

Pubertal endocrine milieu can enhance the function of androgen-sensitive sebaceous glands. A common condition, sebaceous hyperplasia in new-borns, regresses along with physiological androgen production within weeks. Infantile seborrhoeic dermatitis also appears in infancy and disappears in childhood. In general, the symptoms subside at 4–6 months of age in most cases. Thus, in this case, the physiological fluctuation of androgen production could be a reasonable explanation for the pigmentation, because of the enlargement of the sebaceous glands. The dog also had mildly diffuse erythema with alopecia in the perioral and periorcular areas, and the symptoms spontaneously improved with the disappearance of the abdominal lesion. Therefore, these symptoms might have had a related pathogenesis.

The present case showed distinctive colour changes. This was one of the most important findings for proper diagnosis. The pale peach-colour was characterised in the dog. In general, sebaceous gland hyperplasia shows pinkish to orange lesions in dogs. These colours are probably explained by enlargement of the yellowish to whitish sebaceous glands combined with overflow of red blood cells in the vessels along with proliferation of the sebaceous glands. We could not determine whether these vessels were arterial, veinous, or lymphatic vessels because immunohistochemical staining was not performed. We suspected that congestion was a concurrent phenomenon, because of the enlarged sebaceous glands or dilution of the vessels, and resulted in erythematous colour change of the hair follicular ostia in the dog. Further cases and investigations are needed to better understand this pigmentation and its pathogenesis.

Conflict of interest

None of the authors have any conflict of interest.

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