

Black Hair Follicular Dysplasia in a Shih Tzu

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Abstract: Two-month old male Shih Tzu weighing 2.1 kg was presented with alopecia in black-haired areas of the skin. The hair loss had been present since five weeks of age. There was no history of pruritus on any part of the body. No other symptoms had been recognized. Physical examination found no abnormalities other than hair loss. Skin examination showed marked alopecia of black-haired area of the body. The white areas appeared to have hair growth of normal density and texture. Affected pigmented areas showed no evidence of skin lesions. Skin scraping and fungal culture were negative. Microscopic examination of plucked black hairs showed marked pigment clumping in the remnants of the follicles and were mainly in telogen phase. But white hairs were normal in various stages of hair growth. The diagnosis of black hair follicular dysplasia was made based on the history, alopecia of the pigmented areas, the confinement of abnormalities to dark areas, and the normal unpigmented areas.

Key words : black hair follicular dysplasia, Shih Tzu, dog.

Introduction

Black hair follicular dysplasia is an uncommon hereditary disorder resulting in hair loss on black-haired areas of the skin only at an early age. It has been reported in a number of breeds^{5-9,11,12}. Affected animals appear normal at birth, but soon develop a progressive alopecia within three to four weeks of birth^{6,11}. Heritability has been shown in affected mongrels and in bearded collies^{6,11,13}. The reason of the development of the lesions of black hair follicular dysplasia only in pigmented areas is poorly understood⁵. The early onset, color linked alopecia in bicolor or tricolor makes the diagnosis straightforward in most cases. To our best knowledge this is the first case of black hair follicular dysplasia in Shih Tzu breed.

Case Report

Two-month old male Shih Tzu weighing 2.1 kg was presented with alopecia in black-haired areas of the skin. When the first visit for routine vaccination at five weeks of age she appeared normal. The hair loss had been present from the six weeks of age. There was no history of pruritus on any part of the body. No other clinical signs had been recognized. She had been good appetite and water intake. Physical examination found no abnormalities other than hair loss.

Dermatological examination showed marked alopecia of black-haired area of the body just like the clipping. The black areas of right front leg, back, tail and both ears showed alopecia (Fig 1 & 2). The hair growth of white areas appeared to have normal density and texture. Affected pigmented areas showed no evidence of skin lesions such as scale, and crust. Two small erythematous papules of the inner pinna were

examined. Dermatological examinations of the superficial and deep skin scraping showed no ectoparasites and skin cytology revealed small number of cocci (+/-). Fungal culture was negative.

Microscopic examination of plucked black hairs showed marked pigment clumping in tip of hair and telogen phase hairs were examined (Fig 3). Affected hair shafts have many macromelanosomes. But white hairs were normal in various stages of hair growth. The diagnosis of black hair follicular dysplasia was made based on the signalment, history, dermatologic signs and trichogram examination. We suggested the melatonin therapy; however, the owner did not want it.

Discussion

Black hair follicular dysplasia is a rare disorder of early onset that has been recognized in several bi- or tri-colored breeds such as Saluki, Basset Hound, Papillon, American Cocker Spaniel, Schipperke, Cavalier King Charles spaniel, Dachshund, Gordon setter, Pointer, Jack Russell terrier, Beagle, but can also be seen in solid-colored (black) breeds²⁻⁹. In Shih Tzu breed atopy, follicular cyst and sebaceous gland tumor are known to be predisposed dermatologic diseases¹. But there is no published report for the black hair follicular dysplasia in this breed.

Affected dogs are born normal but hair coat changes are noticed in the black hair areas as early as 4 weeks of age¹⁰. Initially, there is loss of luster of the black hair, followed by progressive hair loss until all black hairs are lost. Excessive scaling may occur in the affected areas. The hair loss is permanent. The differences of black hair follicular dysplasia and color dilution alopecia were different manifestations in degree of severity of pigment clumping and age of onset⁵. In black hair follicular dysplasia, alopecia begins within three to four weeks of birth⁶ whereas in color dilution alopecia hair loss

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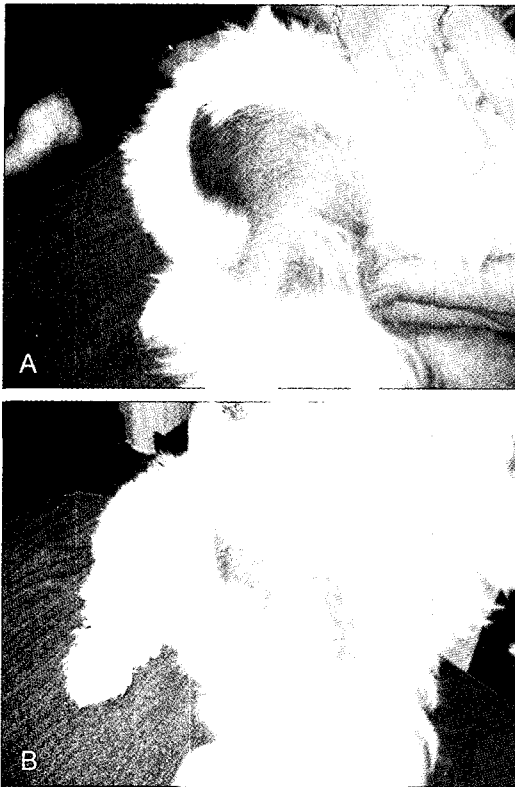


Fig 1. Marked alopecia of the black-haired areas of the hind legs (A) and front leg (B).



Fig 3. Marked melanin clumping on tip of hair and destruction of hair shaft.

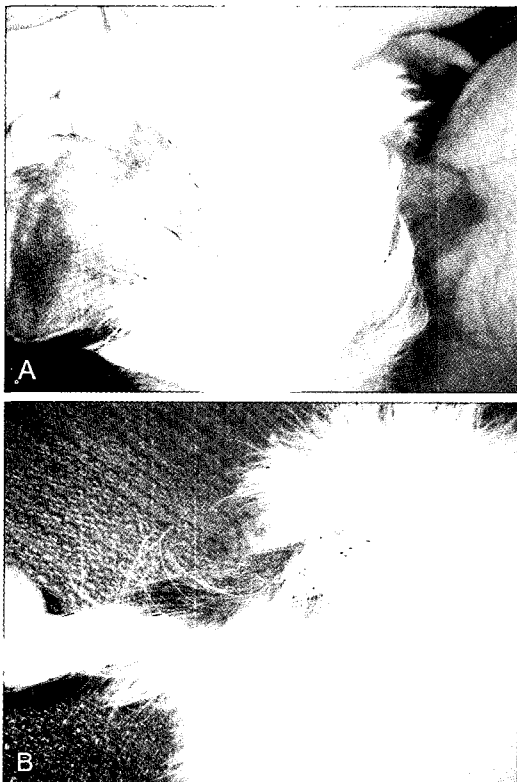


Fig 2. Alopecia of the black-haired areas of both ear(A) and tail(B).

begins later between three months and three years of age¹¹. In present the early onset and color linked alopecia makes the diagnosis straightforward in most cases.

Demodicosis and dermatophytosis should be part of the differential diagnosis in some clinical presentations. Histologic and ultrastructural studies show changes similar to color dilution alopecia, even if less pronounced⁷. Hair pluckings are very useful for rapid diagnosis of these conditions³. Affected hair shafts have many macromelanosomes or melanin clumps, whereas normal hairs have only occasional macromelanosomes. In this case dermatologic examinations were consistent with other report of black hair follicular dysplasia i.e. clumping of melanin on hair shaft in trichogram and early onset of the disease. Unfortunately, the owner denied skin biopsy, so we could not perform the histopathological examination. However, black hair follicular dysplasia can be diagnosed based on clinical features which are familial incidence, early onset of disease, alopecia of black haired area and examination of large clumping of melanin and distortion of hair shaft in this case.

There is no specific treatment for this genodermatosis. However, a therapeutic trial with melatonin may be considered because black hair follicular dysplasia and color dilution alopecia most likely share a similar etiopathogenesis. Because

melatonin appears to have a very low side-effect profile, a therapeutic trial may be warranted at 3 mg/kg of dosage, daily¹⁰. In this case we recommended melatonin therapy, but the owner denied.

The theory that black hair follicular dysplasia may be hereditary has been substantiated by the report of two affected siblings and their subsequent interbreeding. A proportion of the offspring displayed the phenotypical characteristics of the condition thus suggesting a dominant mode of inheritance for the follicular abnormality¹⁴. It is recommended that dogs showing black hair follicular dysplasia should not be bred⁹. To our best knowledge this is believed to be the first reported case of black hair follicular dysplasia in a Shih Tzu breed.

Conclusion

This is believed to be the first reported case of black hair follicular dysplasia in a Shih Tzu breed. It suggests that clinicians may take it into account for the diagnosis of dark area alopecia in bi- or tricolor breed and use examination of hair pluckings, trichogram, and biopsy as a method of screening. Although it is still not clear whether this is an inherited condition or a sporadic congenital defect, affected dogs should preferably not be used for breeding.

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Shih Tzu 견에서 발생한 Black Hair Follicular Dysplasia 일례

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요 약: 2개월령의 체중 2.1 kg인 Shih Tzu 견이 검은색 피모의 탈모로 내원하였다. 탈모는 5주령부터 시작되었으며 소양감의 병력은 없었다. 탈모증상이외의 다른 증상은 관찰되지 않았다. 신체검사서 탈모이외의 증상은 발견되지 않았으며 육안피부검사서 몸통, 다리, 귀, 꼬리부위에서 흑색 피모의 현저한 탈모가 관찰되었다. 반면에 백색피모는 밀도와 감촉은 정상이었다. 박피검사서 기생충은 발견되지 않았으며 진균배양 검사는 음성이었다. 흑색피모의 현미경 검사서 피모줄기에 침윤된 다량의 멜라닌색소로 인해 피모줄기 형태의 변형이 관찰되었다. 그러나 백색피모는 정상이었다. 따라서 발병시기, 흑색피모탈모, 피모의 멜라닌색소침착을 통해 Shih Tzu종에서 발생한 Black Hair Follicular Dysplasia로 진단하고 증례보고하는 바이다

주요어: black hair follicular dysplasia, Shih Tzu, dog.