

Color dilution alopecia in dog – case report**Alopecia por diluição da cor em um cão – relato de caso**

DOI: 10.34188/bjaerv3n3-090

Recebimento dos originais: 20/05/2020

Aceitação para publicação: 20/06/2020

Adjanna Karla Leite Araujo

Mestre em Ciências Veterinárias pela Universidade Estadual do Ceará e pelo Centro de Pesquisa Aggeu Magalhães - FIOCRUZ-PE

Instituição: Fiocruz PE

Endereço: Campus da UFPE - Av. Prof. Moraes Rego, s/n - Cidade Universitária, Recife - PE, 50670-420

E-mail: adjanna_leite@hotmail.com

Adriana Leão de Carvalho Lima Gondim

Pós-graduanda em Patologia Clínica Veterinária pela Faculdade Unyleya

Instituição: Faculdade Unyleya

Endereço: Avenida Governador Agamenon Magalhães, Nº 2764, Salas: 903 e 904, Ed. Empresarial Antônio de Albuquerque Galvão, Bairro: Espinheiro, Cidade: Recife - PE

E-mail: adrianaclg@gmail.com

ABSTRACT

This article aims to report a case of color dilution alopecia in a five-month-old Italian Greyhound dog. The animal presented a history of intense pruritus and progressive hypotrichosis in the tail region and dorsum, leading to an alopecic injury in the tail region, in addition to discretization accentuated hair loss and recurrent folliculitis. In view of the clinical and epidemiological findings, such as age, coat color, skin lesions and absence of other clinical signs, it was decided to perform parasitological examination of skin scraping, with negative result and trichogram, in which the presence of macromelanosomes in the cortical and medullary region of the hair was evidenced, in addition to changes in the structure of the hair shaft, thus characterizing a clinical feature of follicular dysplasia linked to the coat color. As the animal presented uniform gray coat, it was possible to conclude the diagnosis of color dilution alopecia. Symptomatic treatment was then instituted, and the patient presented general improvement of the condition in a period of thirty days, being discharged clinically.

Keywords: dog, alopecia, follicular dysplasia, trichogram.

RESUMO

O presente artigo tem como objetivo relatar um caso de alopecia por diluição da cor em um cão com cinco meses de idade, da raça galgo italiano. O animal apresentava como histórico prurido intenso e hipotricose progressiva em região da cauda e dorso, levando a lesão alopecica na região da cauda, além de disqueratinização, queda de pelo acentuada e foliculite recorrente. Diante dos achados clínicos e epidemiológicos observados, tais como idade, cor da pelagem, lesões cutâneas e ausência de outros sinais clínicos optou-se pela realização de exame parasitológico de raspado cutâneo, tendo como resultado negativo e tricograma, no qual evidenciou-se a presença de macromelanossomas em região cortical e medular do pelo, além de alterações na estrutura da haste pilosa, caracterizando assim um quadro de displasia folicular ligada à cor da pelagem. Como o animal apresentava pelagem uniforme cinza foi possível concluir o diagnóstico de alopecia por diluição da cor. Foi então instituído

tratamento sintomático e o paciente apresentou melhora geral do quadro em um período de trinta dias, recebendo alta clínica.

Palavras-chave: cão, alopecia, displasia follicular, tricograma.

1 INTRODUCTION

The color-related follicular dysplasias are genetically similar, however they present clinically different in dogs. While the follicular dysplasia of black hairs is localized, the color dilution alopecia is diffuse (Ferreira *et al.*, 2009). Color dilution alopecia, also known as color mutant alopecia, is a relatively uncommon hereditary dermatopathy observed in blue or light brown fur dogs, commonly found in breeds like Dobermann, Pinscher, Dachshund, Whippet, Yorkshire Terrier and Chow Chow (Clerot *et al.*, 2004).

Its etiology is not yet fully elucidated, but it is known that genes for coat color play a significant role in the condition (Clerot *et al.*, 2004). According to Ferreira *et al.* (2007), the disorder is believed to be due to a primitive problem in the hair follicle of genetic origin and, according to Medleau and Hnilica (2003) this disorder is associated with an abnormal distribution of melanin of hair.

This dermatopathy is characterized by hair loss in areas of diluted pigmentation and has as main clinical signs alopecia or progressive hypotrichosis in young animals, aged between 4 and 14 months, being rare after 3 years of age (Patel *et al.*, 2008). Lesions are most frequently seen on the torso and can later affect the head and limbs (Ferreira *et al.*, 2007). The hair with altered color of these animals are opaque, fractured, twisted and easily detached to the touch. The skin may show excessive dyskeratinization, folliculitis and secondary bacterial pyoderma, causing itching (Medleau e Hnilica, 2003; Patel *et al.*, 2008).

The disease usually affects only the aesthetic part of the patient, not causing any change in health and quality of life, but pathologies that cause color change or permanent alopecia can lead to pathological processes considered serious (Medleau e Hnilica, 2003; Gondim e Leite, 2020).

The diagnosis of the disease is based on clinical signs, excluding dermatopathies of endocrine, fungal and parasitic origins, such as dermatophytosis and demodicidosis (Medleau e Hnilica, 2003; Ferreira *et al.*, 2007; Patel *et al.*, 2008), Microscopic analysis of the hair, using trichogram, with the presence of macromelanosomes of irregular shapes and sizes distributed unequally along the hair shaft, as well as alterations in its architecture, which may also be based on histopathological examination (Santos *et al.*, 2017).

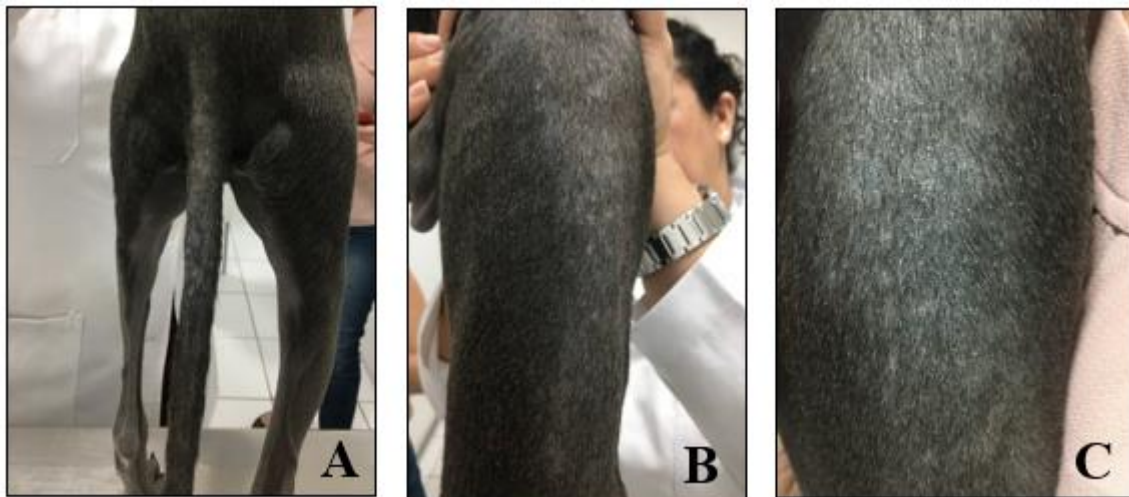
There is still no effective treatment for the condition and secondary clinical symptoms, such as keratinization defects and recurrent pyoderma, should be treated (Medleau e Hnilica, 2003; Kim *et al.*, 2005; Santos *et al.*, 2017; Gondim e Leite, 2020). The use of melatonin in different dosages has been described in the literature but has not shown clinical improvement in most cases (Perego *et al.*, 2009). The prognosis is good, although the loss of hair is irreversible (Medleau e Hnilica, 2003).

For being a disease of rare occurrence in the routine of the veterinary dermatology clinic, the objective of this article is to report a case of color dilution alopecia in Italian Greyhound dog, emphasizing the clinical and therapeutic aspects of the affection.

2 CASUISTICS

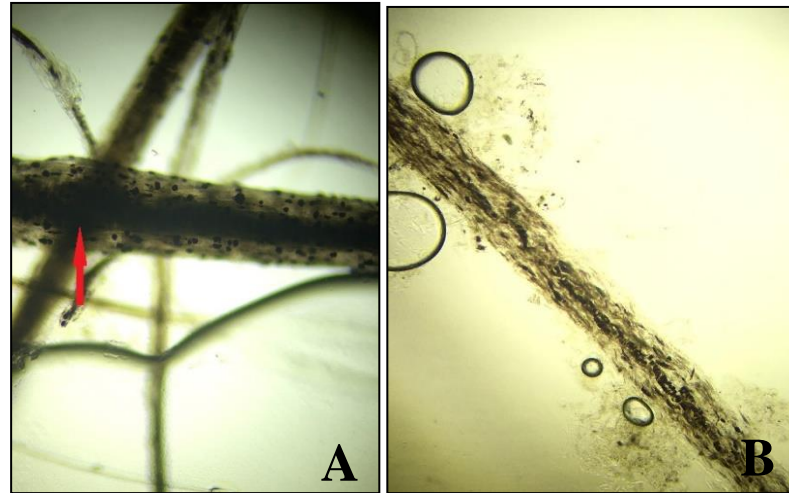
Was attended at Clínica Pelo & Pele -Dermatologia e Alergologia Veterinária®, located in the city of Caruaru, Pernambuco, a 5-month-old male Italian Greyhound dog, presenting as main complaint intense itching and rarefaction of hair. The physical examination showed an intense hair loss, alopecic area in the tail region, pilous rarefaction in the dorsal region, besides folliculitis and moderate dyskeratinization restricted to the affected areas (Fig.1). No ectoparasites observed.

Figure 1. A - Alopecic area in the tail region. B - Dorsal pilous rarefaction. C - Dyskeratinization in dorsal region.



A parasitological examination of skin scrape was then performed, with negative results for mites and a sample of hair from the affected areas was taken for a trichogram. In the latter, the presence of irregularly shaped melanin clusters was observed in the cortical and medullary regions of the fur, called macromelanosomes, in addition to alterations in the architecture of the hair shaft (Fig.2), these findings are characteristic of color-related follicular dysplasias.

Figure 2. A - Melanin clusters irregularly shaped in the cortical and medullary region of the patient's hair (arrow), Objects x 100. B - Hair shaft presenting changes in its architecture, Objects x 100.



Taking into consideration that the patient had uniform gray coat and diffuse alopecia, besides clinical and epidemiological aspects such as the patient's age, the clinical signs presented and the evolution of the disease, concluded that it was color dilution alopecia.

After the diagnosis, treatment was instituted with weekly baths with shampoo composed of salicylic acid (2,3g), sulfur (2.0g), vitamins A (1%), E (1%) and C (4%), in addition to omega 3 and 6 (0,5g) and vehicle q.s.p. 100ml (Sebotrat S, Agener União, Brazil). In addition, the daily replacement of omega 3 and 6 was started by oral route (Pelo e Derme 750mg, Vetnil, Brazil) and it is also prescribed the application, twice a day, of phytosphingosin-based dermocalming mousse (50mg), allantoin (250mg), D-Pantenol (500mg), shea butter (50mg), avocado oil (100mg) and excipients (Mousse dermocalmante, Ibas, Brazil). Monthly administration of ectoparasiticide (Simparic, sarolaner, Zoetis, Brazil) was also indicated.

Thirty days after the start of treatment, the patient returned for reassessment, at which time there was a considerable decrease in itching, dyskeratinization and repilation in the tail region (Fig. 3), although it still presents hair loss and dry coat. A moderate improvement in folliculitis was also observed. Due to the general improvement of the condition, the patient was discharged.

Figure 3. A – Decreased dyskeratinization after treatment. B - Repilation of the tail region after treatment



3 DISCUSSION

The patient in this report is a young dog, with a gray coat, as described in the literature (Patel et al., 2008; Ferreira et al., 2017), but the description of the occurrence of color dilution alopecia in Italian Greyhound dogs was not observed in the literature. At clinical examination, the dog had alopecia and hypotrichosis, as was described in other reports of the same disease (Medleau and Hnilica, 2003; Clerot et al., 2004; Kim et al., 2005; Perego et al., 2009; Ferreira et al., 2017; Santos et al., 2017).

Exposed skin is subject to aggression, which can lead to recurrent folliculitis and secondary pyoderma (Clerot et al., 2004). The dog presented recurrent folliculitis, however in the clinical examination secondary pyoderma was not observed. The diagnosis of the disease is made observing the clinical signs, in the exclusion of other dermatopathies of fungal and parasitic origin and in animals with two years or more, the endocrine diseases, especially hypothyroidism, should be considered (Medleau and Hnilica, 2003; Patel et al., 2008; Ferreira et al., 2017).

The complementary exams cited in the literature are the tricogram and histopathology of the affected area (Medleau and Hnilica, 2003; Ferreira et al., 2017). It should be noted that the result of the histopathological examination of the affected area shows some particular characteristics of the disease, but these may be similar to other follicular dysplasias or to certain endocrinopathies that affect the skin (Rodrigues et al., 2007; Arroyo and Hincapié, 2018). Therefore, clinical examination and thorough anamnesis are essential to determine the success of the diagnosis (Arroyo and Hincapié, 2018). According to Gondim and Leite (2020) it is essential to perform a trichogram to confirm color-

related follicular dysplasias, and histopathological examination can also be performed as a complementary examination.

As the patient was only five months old, he did not present any clinical signs other than those already described and, taking into consideration the practicality and the fact that the tricogram is a non-invasive test, it was preferred to perform it as a complementary test. It was also performed parasitologically of skin scrape, being this negative.

In the trichogram of affected animals, the presence of macromelanosomes of irregular shapes and sizes distributed unevenly along the hair shaft is observed (Santos et al., 2017). The animal coat pattern, the presence of macromelanosomes distributed in the cortical and medullary regions of the hair, in addition to the alterations found in the architecture of the hair shaft in the sample collected from the patient was compatible with the alterations described in the literature, thus making it possible to reach the diagnosis of color dilution alopecia.

There is still no effective treatment for the affection, and secondary diseases such as keratinization defects and recurrent pyoderma (Kim et al., 2005; Gondim e Leite, 2020) should be treated. Thus, only symptomatic treatment and daily supplementation with omega 3 and 6 were chosen, with considerable improvement in itching and flaking, one month after starting treatment. According to Medleau and Hnilica (2003), the loss of hair is irreversible, but in the present report, there was repilation in the tail region of the patient.

Considering the reported case, although it is not frequently diagnosed in small animals clinic, alopecia by color dilution should always be considered as differential diagnosis mainly in young dogs with blue, light brown coat and its variations, that present progressive alopecia, excessive hair fall and opaque or dried coat. The diagnosis should be based on a thorough clinical and dermatological examination, excluding other dermatopathies that cause similar skin lesions. The trichogram was essential for the elucidation of the diagnosis.

REFERENCES

- ARROYO, M.Y.; HINCAPIE, L. Displasiafolicular de la capanegra canina. *Revista Colombiana de Ciencia Animal - RECIA.*, v.10, n.2, p.651, 2018.
- CLEROT, L.L.; OLIVEIRA, R. Alopecia por diluição da cor em fêmea yorkshire terrier – relato de caso. *Arquivos de Ciências Veterinárias e Zoologia UNIPAR.*, v.7, p.23, 2004.
- FERREIRA, R.R.; MACHADO, M.L.S.; AGUIAR, J. et al. Displasias foliculares ligadas a cor da pelagem em cães: displasia folicular dos pelos pretos e alopecia por diluição da cor. *Acta Scientiae Veterinariae.*, v.35, n.1, p.119-124, 2007.
- GONDIM, A.L.C. L.; LEITE, A.K.A. Displasia folicular dos pelos pretos em cães: Revisão. *PUBVET.*, v.14, n.4, p.1-6, 2020.
- KIM, J.; KANG, K.; SOHN, H. et al. Color-dilution alopecia in dogs. *Journal of Veterinary Science.*, v.6, n.3, p.259-261, 2005.
- MEDLEAU, L.; HNILICA, K.A. Dermatologia de pequenos animais atlas colorido e guiaterapêutico. São Paulo: Roca, 2003. 353p.
- PATEL, A.; FORSYTHE, P.; SMITH, S. Small Animal Dermatology. Elsevier: Philadelphia: Elsevier, 2008. 365p.
- PEREGO, R.; PROVERBIO, D.; ROCCABIANCA, P. et al. Color dilution alopecia in a blue Doberman pinscher crossbreed. *The Canadian Veterinary Journal.*, v.50, n.5, p.511-514, 2009.
- SANTOS, L.M.; MESSAS, N.B.; PALUMBO, M.I.P. et al. Identification of SNP c.-22G>A in the melanophilin gene from a dog with color dilution alopecia: case report. *Arquivo Brasileiro de Medicina Veterinária e Zootecnia*, v.69, n.6, p.1503-1507, 2017.