Generalized vitiligo in a pure-bred Rottweiler: case report

Introduction

Vitiligo is an acquired depigmentation disorder caused by the progressive destruction of melanocytes. Canine localised vitiligo (LV) is a relatively common disease that is expressed in young adult dogs, normally as a discoloration of the skin, hair, muzzle, lips, and oral and facial mucosa, although the elbows and nails may also be affected. Generalised vitiligo (GV), on the other hand, has very rarely been reported in dogs. The present study describes for the first time the occurrence of GV in a black and nut-brown pure bred Rottweiler with an eighteen month history of progressive discoloration in the black-haired, but not brown-haired, areas.

Keywords: depigmentation, skin, dog, melanocyte.

Abstract

Vitiligo is an acquired depigmentation disorder caused by the progressive destruction of melanocytes. Canine localised vitiligo (LV) is a relatively common disease that is expressed in young adult dogs, normally as a discoloration of the skin, hair, muzzle, lips, and oral and facial mucosa, although the elbows and nails may also be affected. Generalised vitiligo (GV), on the other hand, has very rarely been reported in dogs. The present study describes for the first time the occurrence of GV in a black and nut-brown pure bred Rottweiler with an eighteen month history of progressive discoloration in the black-haired, but not brown-haired, areas.

Keywords: depigmentation, skin, dog, melanocyte.
UVB therapy was only introduced in 1997 (Westerhof e Krobotova, 1997). The response to treatment varies according to the areas affected: hands and feet show little or no repigmentation (Brazzelli et al., 2007; Lee et al., 2007). Other GV therapies involve topical photochemotherapy with kethilin plus ultraviolet A (KUVA), application of topical macrolide immunomodulators, vitamin D₃ analogues (ex. calcipotriol), glucocorticoids or L-phenylalanine, excimer laser and surgical procedures (Forschner et al., 2007).

In dogs, LV is fairly common amongst the breeds German Shepard, Collie, Rottweiler, Doberman, Giant Schnauzer, Bull Mastiff, Sheepdog and Dachshund. Normally, the disease is expressed in young adult dogs as a discoloration of the skin, hair, muzzle, lips, oral and facial mucosa, although the elbows and nails may also be affected (Scott et al., 2001). In contrast to LV, reports of GV are extremely rare in dogs. The present paper describes for the first time the occurrence of GV in a pure bred Rottweiler.

Material and methods

A 4 year old, bicolour (black and nut-brown) male Rottweiler was referred to the Dermatology Service of the Veterinary Hospital of the Universidade Federal de Minas Gerais, Brazil, with an 18 month history of progressive discoloration in the black-haired areas (Fig. 1A). Clinical and dermatological examination revealed depigmentation of the skin (Fig. 1B and Fig. 1C) and hair in 90% of the areas that had formerly been covered by black hair. Interestingly, however, the brown haired areas were normal (Fig. 1A). Since no other dermatological or systemic abnormalities were detected, skin biopsies from the face, superior lip, and dorsum were performed and the samples were submitted for histopathological analysis.

Results

Examination revealed spots with hypopigmented epidermis (hypomelanosis), focal intradermic invasion of peripheral blood mononuclear cells, and melanin deposits within subepithelial stroma (melanin incontinence). The skin fragments removed from the brown-hared areas were completely normal. No treatment was prescribed for the dog.

Discussion and conclusion

The pure-bred Rottweiler is considered to be predisposed to LV (Ackerman, 2008), although there are no reports in the literature relating to GV-affected animals or to dogs presenting vitiligo in black-haired areas concomitant with healthy brown areas. Since eumelanin generates black to dark-brown pigments while pheomelanin produces yellow to red pigments, it is possible that the destruction of melanocytes may be associated in some manner with the former but not with the latter, although the mechanism involved is not known. In this context, however, it has been reported that 4-tert-butylcatechol (TBC) promotes the destruction of eumelanin in human melanocytes (Yonemoto et al., 1983). TBC, a depigmenting chemical used in the manufacture of carpets, has been implicated in a case of occupational vitiligo developed by a worker in a polyester resin plant (Gellin et al., 1970).

Although vitiligo does not represent a serious health problem per se, GV-affected humans may develop dermatosis in those areas where melanin is absent following exposure to sunlight (Gül et al., 2007). It is possible that this type of dermatosis may also emerge in GV-affected dogs. The subject of this case study has not exhibited other associated diseases. Although the animal has not received any medication so far, treatment is under consideration.

References


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