

## Vitiligo in a Pure-Bred Yorkshire: Clinical and Histopathological Aspects - Case Report

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**Abstract:** Leucoderma and vitiligo are rare diseases in animal species, not contagious and characterized by the presence of stains or whitish plates, being related to the gradual loss of melanin in the dermal layer. It is a disorder resulting from the destruction of melanocytes and involves genetic, immunological, hereditary and environmental factors causing skin depigmentation of the nose, lips, oral mucosa, facial skin and footpads. The highest prevalence occurs in animals from 8 months to 3 years old. Clinical signs associated with histopathologic findings of samples allow the diagnosis of the disease. This report aims to describe a case of vitiligo diagnosed in a Yorkshire canine in the city of Pelotas, Rio Grande do Sul - Brazil. This breed so far was not mentioned in the literature as susceptible to illness.

**Keywords:** Depigmentation, leucoderma, melanocytes, pigmentation, vitiligo, skin

### INTRODUCTION

Skin disorders involving skin pigmentation changes are known as melanodermas and leukodermas. The leukodermas are rare diseases in animal species, not contagious and characterized by the presence of stains or whitish plates, being related to the gradual loss of melanin in the dermal layer. Vitiligo, an acquired leukoderma, is a well-known human disease, affecting mainly the facial skin, lips, hands, arms, legs and genital areas [1]. Approximately 1 percent of the world population has the disease, affecting all ethnic origins and both sexes [2]. Factors linked to release of toxic substances to melanocytes in nerve endings, primary self-destruction of these cells and autoimmune diseases are described as major causes of the disease. Currently stress is recognized as an important factor in the disruption of the immune system and its impact on the destruction of melanocytes [3]. Furthermore, individuals presenting vitiligo show increased susceptibility to the development of others autoimmune diseases [4].

In canine, vitiligo is characterized by being a skin disorder with total absence of melanocytes. The etiology is not yet fully understood, but suggests autoimmune conditions. Often circulating antibodies and reactive T cells are found in greater quantities in the serum of animals which have vitiligo than in healthy animals. Dysfunctions in melanocytes-specific receptors, stress and infection, are also described as possible causes of the disease [5]. It is more prevalent

in young adult dogs and purebreds, regardless of sex. The Rottweiler breeds [6] German Shepherd, Collie, Doberman, Giant Schnauzer, Bull Mastiff, Sheepdog and Dachshund [7] are often the most affected; showing localized or generalized cutaneous manifestations. Otsuka et al. (2004) [8] describes the disease in 11 dogs and 1 cat, where the main skin lesions included leukotrichia and leukoderma of the nasal region, oral mucosa, lips and footpads. Some patients showed leukonychia. The biopsy and histopathology of the affected tissue are essential for determining the diagnosis. This report aims to describe a case of vitiligo in a Yorkshire canine, as well as its clinical and histopathological implications. This is first report of this disease in dogs of this breed.

### CASE HISTORY

8 years old, 6 kg, male Yorkshire was referred to the Dermatology Service of Veterinary Clinic Dr Paulo Sampaio, Pelotas-RS, Brazil, with a history that 4 years ago emerged depigmented and alopecic areas in the periorbital region. On clinical examination there was body temperature within the physiological standards, good condition, normal hydration, congested mucous membranes, lymph nodes unchanged and normal heart and respiratory rates. Examination of periorbital region and face showed depigmentation of the skin around the nose and infraorbital region (Fig. 1), mucosa of the hard palate and footpads (fig. 2). No presence of pruritus in the affected areas was detected. Also, no other dermatologic or systemic change was

detected during clinical examination. Skin biopsy was performed in the affected areas and the samples were sent for histopathological analysis. Histopathological examination found: skin with presence of hair, regular epidermal hyperplasia, orthokeratosis in light basket braided and pigmented areas interspersed with areas of apparent hypopigmentation. Absence of hydropic degeneration signs of the basal layer of the epidermis. Presence of congestion of blood vessels, mild edema and discreet monomorphonuclear inflammatory infiltrate in perivascular pattern with mast cells, lymphocytes and plasma cells in the superficial dermis. Hair follicles, sebaceous glands and apocrine glands without pathological changes. The holding of special staining for fungi (PAS) was negative. Considering the histological pattern and clinical history of depigmentation and absence of pruritus, we conclude that this is a case of restricted / localized vitiligo. No treatment was prescribed, and only recommended the use of sunscreens in the affected regions.



**Fig-1: Depigmentation infraorbital with crusts and ulcerations**



**Fig-2: Hypopigmentation area in footpad**

## DISCUSSION

Leukodermas are diseases characterized by hypo or depigmentation of the skin, resulting in destruction of the cells producing melanin, the principal pigment responsible for skin pigmentation. The disease reaches humans and animals alike, presenting multifactorial etiology. The literature shows that factors common to both species predisposes to disease, and gives special importance to individuals with autoimmune diseases [9]. Usually the disease appears early and may have restricted or generalized location; but rarely causes clinical symptoms and discomfort to the patient [10]. We noted in our report the onset of the disease around 3 years of age, with no significant clinical symptoms, presence of lesions and itching, or occurrence with other diseases of autoimmune nature. The signals shown are consistent with those described in the literature and is expressed exclusively through localized areas of depigmentation. The disease although well known in human literature is still underdiagnosed in veterinary medical clinic. The presence of chronic inflammatory processes in the region near to the eyeball is a common finding especially in those patients with long hair, which provides constant irritation in this area. In these situations, careful examination of the affected site and tissue biopsy are essential for the correct diagnosis. Histopathological findings in our patient are consistent with the previously reported, regardless of the affected species. These findings are compatible even with those described in human literature [11]. Although the lack of effective therapeutic drugs for vitiligo healing in dogs, it is important to determine the diagnostic certainty, thus avoiding the use of unnecessary therapies. Until now we have not yet been found documented reports of the disease in Yorkshire dogs, which shows the importance of clinical, laboratory and especially histopathology research of skin diseases.

## CONCLUSION

This report demonstrates the occurrence of vitiligo in a Yorkshire canine, representing the first report of the disease in the said race. Although the disease has an asymptomatic course, without prejudice the quality of life of patients and is basically an esthetic illness, it is important to establish the diagnosis of the disease. In this sense, the histopathological findings from a biopsy of the affected tissues are essential in diagnosis.

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