

## ***Leporacarus gibbus* (Acari: Listrophoridae) IN A NATURALLY-INFESTED DOMESTIC RABBIT: FIRST REPORT OF ITS OCCURRENCE IN THE STATE OF ESPÍRITO SANTO, BRAZIL**

*Leporacarus gibbus* (Acari: Listrophoridae) EM UM COELHO DOMÉSTICO NATURALMENTE INFESTADO: PRIMEIRO RELATO DE SUA OCORRÊNCIA NO ESTADO DO ESPÍRITO SANTO, BRASIL

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**ABSTRACT:** This study aimed to report the first occurrence of *Leporacarus gibbus* in a domestic rabbit (*Oryctolagus cuniculus*) from the state of Espírito Santo, Brazil. The two-year-old male rabbit came from a rural area and was admitted to the Veterinary Hospital Professor Ricardo Alexandre Hippler with intense pruritus throughout the body, severe hair loss, crustal lesions on the outer surface of the ears, and desquamation mainly in the dorsal region. A skin scraping and trichogram were performed. In the microscopic evaluation of the hairs obtained from the dorsal region, mites with morphology compatible with *L. gibbus* were observed. *Cheyletiella parasitovorax* and *Psoroptes cuniculi* were also detected in the same region. Treatment with ivermectin (0.4 mg/kg) was prescribed with three applications every 14 days, over a period of six weeks. This report presents the first description of the occurrence of *L. gibbus* in the state of Espírito Santo concomitant with poly-infestation of *C. parasitovorax* and *P. cuniculi*, and it is hoped that this will provide a research tool for future work in the region.

**KEYWORDS:** Espírito Santo. Mite. Dermatitis. Domestic rabbit.

### **INTRODUCTION**

The domestic rabbit (*Oryctolagus cuniculus*) is no longer an animal that is used exclusively for food or the production of skins; it also makes an excellent pet, due to its peaceful nature, captivating appearance, and easy handling (MELO et al., 2008; SANTOS et al., 2017). Various skin diseases have been described in these animals, including neoplasms, and bacterial and viral infections (JENKINS, 2001) as well as zoonoses, particularly dermatophytosis caused by the fungi *Trichophyton mentagrophytes* and *Microsporum canis* (RODRIGUEZ-TOREES et al., 1992; CAFARCHIA et al., 2010). However these animals may suffer from several types of dermatoses caused by species of the Acari and Insecta classes (HOPPMANN; BARRON, 2007), such as *Cheyletiella parasitovorax*, *Psoroptes cuniculi* and *Leporacarus gibbus* (SANTOS et al., 2017). Dermatitis in humans, associated with *L. gibbus*, has

been described in some studies (BURNS, 1987; D'OIDIO; SANTORO, 2014), and there is a significant risk of humans and other animals being exposed to skin mites from newly adopted rabbits (KIM et al., 2008). A study conducted in Spain revealed the risk of infection among workers on commercial rabbit farms, and the possibility of transmitting infection to their families (RODRIGEZ-TOREES et al., 1992), emphasizing the importance of these animals for the public health services.

*C. parasitovorax* and *P. cuniculi* are most commonly found in domestic rabbits and laboratory animals. The literature is still discrepant in providing epidemiological information about *Leporacarus gibbus* (= *Listrophorus gibbus*), but several studies have described the presence of this mite in both domestic and laboratory rabbits (NIEKRASZ et al., 1998; KIM et al., 2008; SERRA-FREIRE et al., 2010; SANTOS et al., 2017). Serra-Freire et al. (2010) mention that this

mite is considered cosmopolitan, but there have been no records of it in any geographical or geopolitical region of Brazil. Therefore, the confirmation of the presence of this mite in a specific region of the country may help in its epidemiological recognition. In the state of Espírito Santo, the occurrence of *L. gibbus* has never been reported in either domestic or laboratory rabbits.

*L. gibbus* is a surface mite of the Family Lirophoridae, Order Astigmata and Superorder Acariformes (BIRKE et al., 2009). It affects wild and domestic rabbits worldwide, and all stages of its evolutionary cycle occur in a single host (JENKINS, 2001). According to Kirwan et al. (1998), there seems to be no predisposition linked to age or sex for the occurrence of this ectoparasite. Affected animals show erythema, pruritus, moist dermatitis, seborrhea, severe scaly dandruff and alopecia in different body regions (PATEL; ROBINSON 1998; JENKINS, 2001). The condition is treated primarily with acaricides, such as doramectin (SANTOS et al., 2017), although other therapeutic protocols have been proposed for the disease, including a single subcutaneous dose of ivermectin (300 mg/kg), (SILVA et al., 2006) and topical treatment combined with moxidectin 1.0% and imidacloprid 10.0% associated with the application of a miticide-based disinfectant to the animal's housing (D'OVIDIO; SANTORO, 2014).

The present work aimed to report the first occurrence of *L. gibbus* in a domestic rabbit in the state of Espírito Santo, from a rural area co-infected with *C. parasitovorax* and *P. cuniculi*.

## CASE REPORT

A two-year-old castrated male rabbit (*Oryctolagus cuniculus*) was admitted to the Hospital Veterinário [Veterinary Hospital] Professor Ricardo Alexandre Hippler presenting intense pruritus throughout the body associated with intense hair loss, crusty lesions on the outer ears, and desquamation mainly in the dorsal region. Skin scraping and trichogram were requested.

For the skin scraping, sterile scalpel blades were used, and deep scraping of the lesions of the back and ear was performed. A hemostatic forceps was used to perform the trichogram, removing the fur from different parts of the dorsal region of the animal.

The material obtained in both techniques was mounted on glass slides with mineral oil and then covered with a coverslip. The animal also had mites adhered to the hair, which were collected with a fine comb and sent to the Experimental

Parasitology and Biological Control Laboratory of the Universidade Vila Velha, for subsequent analysis. The parasites were identified using the key classification described by Kirwan et al. (1998). The parasites observed had a dark head with a "hood". They were clinging to the rabbit's hair and his short paws. Some of the parasites were male (two adanais processes), figure 1.

Microscopic evaluation of the fur obtained from the dorsal region showed mites with subcylindrical bodies, laterally flattened, with fine striations, sclerotic gnathostoma and short legs, being morphology compatible with *L. gibbus*. The parasites *C. parasitovorax* and *P. cuniculi* were also detected from the same region. No parasites were isolated in the material taken from the crustal lesion from the outer surface of the ears.

Treatment with ivermectin 0.4 mg/kg was prescribed for six weeks, with subcutaneous application every 14 days. Two weeks after initiation of the therapeutic protocol, the animal still had pruritus, but to a lesser extent. At the final contact, 42 days after the beginning of the treatment, the pruritus, desquamation, and other signs compatible with dermatosis had disappeared.

## DISCUSSION

Silva et al. (2006) reported that the occurrence of *L. gibbus* is associated with the presence of the *C. parasitovorax* mite, since both parasites can occur in simultaneous infestations. However, in some situations the presence of only one parasite it is more common. In the present work, besides *L. gibbus* and *C. parasitovorax*, *P. cuniculi* was also found, making this report a unique reference.

The first record of the occurrence of *L. gibbus* in rabbits from Brazil was in the south region of the country, in the state of Rio Grande do Sul (SILVA et al., 2006), being described thereafter in Pará, in the North of the country, and São Paulo, in the Southeast of the country (SERRA-FREIRE et al., 2010). However, up to the present moment, there have been no reports of this mite in Espírito Santo, and the present report expands its geographical registry.

This condition has already been described in rabbits from breeding sites, as observed in the animal of this report. The breeder of origin of the reported animal was in a rural area, surrounded by native forest, and the animals were raised in cages set out in an open environment. The rabbits had contact with other species, such as birds, and dogs,

so the infestation may have been correlated with the sanitary aspects of the place.

The clinical signs presented were compatible with those described by Patel et al. (1998) and Jenkins (2001), who also mentions alopecia, seborrhea, erythema and moist dermatitis. A correlation has been reported between crustal lesions in the outer ear and *Psoroptes sp* in rabbits (JENKINS, 2001), but in the present study, the parasite was detected in the dorsal region. Distribution in the abdominal region was also described in situations of intense infestation (ACAR et al., 2007) affecting the face, neck, and base of the tail as well (JENKINS, 2001).

Treatment of the condition with ivermectin has been shown to be effective (SILVA et al., 2006; SERRA-FREIRE et al., 2010), as observed in the

present report. It is important to associate drug therapy with adequate disinfection of cages, such as segregation of rabbits, quarantining, and adequate sanitation for the animals, to avoid cross-infestations (MITRA et al., 2014).

In conclusion, this work reports, for the first time, the occurrence of *L.gibbus* in the state of Espírito Santo. This is also the first observation of co-infection with *C. parasitovorax* and *P. cuniculi*. The therapeutic protocol administered with ivermectin at a dose of 0.4 mg/kg every 14 days for six weeks proved effective.

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**RESUMO:** este trabalho teve como objetivo relatar a primeira ocorrência de *Leporacarus gibbus* em um coelho doméstico (*Oryctolagus cuniculus*) do estado do Espírito Santo, Brasil. O coelho macho de dois anos de idade veio de uma área rural e foi internado no Hospital Veterinário Professor Ricardo Alexandre Hippler com intenso prurido em todo o corpo, severa queda de cabelo, lesões crustais na superfície externa das orelhas e descamação principalmente na região dorsal. A raspagem da pele e o tricograma foram realizados. Na avaliação microscópica dos pêlos obtidos na região dorsal, observaram-se ácaros com morfologia compatível com *L. gibbus*. *Cheyletiella parasitovorax* e *Psoroptes cuniculi* também foram detectados na mesma região. O tratamento com ivermectina (0,4 mg / kg) foi prescrito com três aplicações a cada 14 dias, durante um período de seis semanas. Este relato apresenta a primeira descrição da ocorrência de *L. gibbus* no estado do Espírito Santo concomitante à polinfestação de *C. parasitovorax* e *P. cuniculi*, e espera-se que esta seja uma ferramenta de pesquisa para futuros trabalhos na região.

**PALAVRAS-CHAVE:** Espírito Santo. Ácaro. Dermatose. Coelho doméstico

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