

Case Report

Accidental ulcer infestation due *Tenebrio molitor* in an AIDS patient: canthariasis[◇]

Wilmer E. Villamil-Gómez,^{1,2,3} John J. Vera-Ospina,^{4,5} Javier Miguel Berthel-Vergara,¹ Luz Alba Silvera-Arenas,^{2,†} Alfonso J. Rodríguez-Morales.^{3,4,5,6*}

¹Infectious Diseases and Infection Control Research Group, Hospital Universitario de Sincelejo, Sincelejo, Sucre, Colombia.

²Programa del Doctorado de Medicina Tropical, SUE Caribe, Universidad del Atlántico, Barranquilla, Colombia.

³Comité de Medicina Tropical, Zoonosis y Medicina del Viajero, Asociación Colombiana de Infectología, Bogotá, Colombia.

⁴Public Health and Infection Research Group, Faculty of Health Sciences, Universidad Tecnológica de Pereira, Pereira, Risaralda, Colombia.

⁵School of Veterinary Medicine and Zootechnics, Faculty of Health Sciences, Universidad Tecnológica de Pereira, Pereira, Risaralda, Colombia.

⁶Universidad Privada Franz Tamayo/UNIFRANZ, Cochabamba, Bolivia.

†In Memoriam.

Rev Panam Enf Inf 2018; 1(1):40-41.

Received 30 March 2018 - Accepted 1 September 2018.

Copyright © 2018 Villamil-Gómez et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Canthariasis is a disease of humans caused by the infestation of beetle larvae. It is the second important insectal disease after myiasis. Several species of beetles are reported to cause the disease in gastrointestinal tract, urogenital system, nasal sinuses, ears and faces of mammals. The mealworm beetle, *Tenebrio molitor*, a species of darkling beetle, is a widespread pest that usually feeds on stored grain. The human infestation by this worm is extremely rarely reported, we described a case of *T. molitor* infestation in a AIDS patient in Colombia.

Key words: Canthariasis; *Tenebrio molitor*; AIDS patient; immunosuppression; infestation; Colombia.

[◇]This case was previously presented in part at the XXIV Latin American Congress of Parasitology (FLAP 2017), Santiago de Chile, Chile, December 10-14, 2017 (ENT. 2) and at the 18th International Congress of Infectious Diseases (ICID), Buenos Aires, Argentina, March 1-4, 2018 (UMP. 413).

Introduction

Infestations by arthropods would be common than reported. Among them, there is a group that probably is unlikely described in the literature, as is the case of canthariasis

Canthariasis is medically defined as the infestation caused by coleopteran insects or their larvae [1-4]. This is a very rare infestation with several forms of canthariasis, most of them gastrointestinal [4]. It is the second i/mportant insectal disease after myiasis [4].

Several species of beetles are reported to cause the disease in gastrointestinal tract, urogenital system, nasal sinuses, ears and faces of mammals [1,4].

The mealworm beetle, *Tenebrio molitor*, a species of darkling beetle, is a widespread pest that usually feeds on stored grain. The human infestation by this worm is extremely rarely reported [2].

For these reasons we report a very rare cause of infestation due to the larvae *Tenebrio molitor*

accidentally found in an ulcer of an AIDS patient in Colombia. Clinical case presentation and systematic review of literature.

Case Report

A 32-year-old HIV/AIDS patient, from Sucre, Colombia, severely immunosuppressed (<50 CD4 cells/mm³), concomitant with severe cutaneous Kaposi sarcoma (KS) in lower limbs, and pneumonia due to *Pneumocystis jirovecii* (PJP).

This patient was admitted to an Intensive Care Unit (ICU) at a private center in Sincelejo, Sucre, northern Caribbean coast of Colombia.

He presented ulcers in lower limbs, in which 48 hours after being hospitalized due to multiple opportunistic diseases (including neoplastic and infectious one), was found with a larvae coming out from one ulcer, which was extracted and placed for further identification (Figure 1).

The larva was extracted and subsequently identified, according keys for Coleoptera, as possible *Tenebrio molitor* (Figure 1). The larva was identified and photographed at Universidad Tecnológica de Pereira, Pereira, Risaralda, Colombia. Patient was from a rural area of Sucre department, Colombia. Patient was treated with trimethoprim with a successful evolution.

Figure 1. *Tenebrio molitor* isolated from the patient.



Discussion

Canthariasis is a rare ectoparasitic condition [1-4]. Several forms of canthariasis have been described in the previous reports [4]. Thus far, canthariasis caused by adults of the family *Tenebrionidae* are rarely reported [2]. Only one previous case is known. Adults of the family *Scarabaeidae* in Sudan, causing enteric canthariasis by cadelle beetle, *Tenebroides mauritanicus* have been reported [4]. And large carpet beetle, *Trogoderma versicolor* and nasal canthariasis by black carpet beetle, *Attagenus piceus* in USA, otic canthariasis by adult *Crasydactylus punctatus* (Coleoptera; Carabidae) in Oman and facial canthariasis by the drugstore beetle, *Stegobium paniceum*, and a beetle of the genus *Trogoderma* in Jordan have been also reported [3-5]. Besides, adult dung beetles were recovered from stool samples of 18 children from rural northeast India [4].

Among the reported cases of canthariasis, most of them were gastrointestinal [1-4]. No previous cases in HIV/AIDS patients have been reported, neither associated to skin ulcers [1-4]. Even in HIV/AIDS patients, report of myiasis is rare [6,7].

For canthariasis risk, beetles could be found in houses where dried grains are stored, especially in rural areas as our case, particularly this is case for *T. molitor* [8,9]. It is believed that adult *Tenebrio* laid eggs on the skin of our patient. Females lay eggs and larvae develop within few weeks at necrotic tissue. In fact, scars attract the beetle and its larvae are fed on a variety of dried plant or animal matter and are known to scavenge on carcasses of dead animals. Further research would be expected as

also to consider canthariasis as a potential infestation in endemic areas and immunosuppressed patients.

Acknowledgements

The Faculty of Health Sciences and Vice-Rectorship of Research of the Universidad Tecnológica de Pereira, the Colombian Association of Infectious Diseases (ACIN) (Coffee-Triangle Region chapter), the International Society for Infectious Diseases (ISID) and the Latin American Federation of Parasitology (FLAP); supported A. J. Rodríguez-Morales, for their participation at the ICID and FLAP meetings where this case was presented.

References

1. Mokhtar AS, Sridhar GS, Mahmud R, Jeffery J, Lau YL, Wilson JJ, et al. First Case Report of Canthariasis in an Infant Caused by the Larvae of *Lasioderma serricornis* (Coleoptera: Anobiidae). *Journal of medical entomology*. 2016 May 19.
2. Palmer ED. Intestinal canthariasis due to *Tenebrio molitor*. *The Journal of parasitology*. 1946 Feb;32:54.
3. Smadi R, Amr ZS, Katbeh-Bader A, Obidat N, Tawarah M, Hasan H. Facial myiasis and canthariasis associated with systemic lupus panniculitis: a case report. *International journal of dermatology*. 2014 Nov;53(11):1365-9.
4. Sun X, Wang LF, Feng Y, Xie H, Zheng XY, He A, et al. A case report: A rare case of infant gastrointestinal canthariasis caused by larvae of *Lasioderma serricornis* (Fabricius, 1792) (Coleoptera: Anobiidae). *Infectious diseases of poverty*. 2016 May 3;5:34.
5. Bhargava D, Victor R. Carabid beetle invasion of the ear in Oman. *Wilderness & environmental medicine*. 1999 Autumn;10(3):157-60.
6. Clyti E, Nacher M, Merrien L, El Guedj M, Roussel M, Sainte-Marie D, et al. Myiasis owing to *Dermatobia hominis* in a HIV-infected subject: Treatment by topical ivermectin. *International journal of dermatology*. 2007 Jan;46(1):52-4.
7. Pires WR, Puttini IO, Oliva AH, Jacob RGM, Figueira HCl, Sonoda CK, et al. Oral Myiasis in a Patient With HIV Manifestations and Neurologic Toxoplasmosis Treated by Ivermectin. *The Journal of craniofacial surgery*. 2018 Jul 13.
8. Cespedes CL, Salazar JR, Martinez M, Aranda E. Insect growth regulatory effects of some extracts and sterols from *Myrtillocactus geometrizans* (Cactaceae) against *Spodoptera frugiperda* and *Tenebrio molitor*. *Phytochemistry*. 2005 Oct;66(20):2481-93.
9. Guo Z, Doll K, Dastjerdi R, Karlovsky P, Dehne HW, Altincicek B. Effect of fungal colonization of wheat grains with *Fusarium* spp. on food choice, weight gain and mortality of meal beetle larvae (*Tenebrio molitor*). *PloS one*. 2014;9(6):e100112.

Corresponding Author: Alfonso J. Rodríguez-Morales. Public Health and Infection Research Group, Faculty of Health Sciences, Universidad Tecnológica de Pereira, Pereira, Risaralda, Colombia. Email: arodriguezm@utp.edu.co

Conflict of interest: No conflict of interest is declared.