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CASE REPORT

Furuncular myiasis—Eco-epidemiological view of a case report



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Received 2 July 2013; accepted 18 February 2014

Available online 22 October 2014

KEYWORDS

Myiasis;
Dermatobia hominis;
Diptera

PALABRAS CLAVE

Miasis;
Dermatobia hominis;
Díptera

Abstract Myiasis includes several entities recognized in the rural environment. It occurs generally in older adults and may compromise locations from the skin and scalp to mucous membranes. The responsible are insects of the Diptera class, whose larvae develop in living tissues thus infesting of the host. We report the case of an 82-year-old patient with a furuncular right knee lesion associated with *Dermatobia hominis* myiasis. Following the extraction, full recovery was achieved after a 3-week follow-up. An eco-epidemiological study of the patient's environment revealed all factors that favor the development of myiasis.

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Miasis furuncular. Visión ecoepidemiológica de un reporte de caso

Resumen Las miasis son entidades reconocidas en el ambiente rural, se presentan generalmente en adultos mayores y pueden comprometer desde piel y cuero cabelludo hasta mucosas. Los responsables son insectos de la clase díptera cuyas larvas se desarrollan en los tejidos vivos del hospedero que infestan. Se presenta el caso de una paciente de 82 años con lesión furuncular en rodilla derecha asociada a miasis por *Dermatobia hominis*. Posteriormente a la extracción hubo recuperación total después de 3 semanas de seguimiento. Se realizó un estudio ecoepidemiológico del entorno de vida de la paciente, encontrando todos los factores ambientales que favorecen el desarrollo de las miasis.

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Introduction

Myiasis, caused by *Dermatobia hominis* (Linnaeus, 1781) (Diptera: Calliphoridae) commonly known as flystrike or blowfly strike, or maggot infestation ("nuche" in Spanish),

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Figure 1 (A) Knee furunculous after extraction of larvae, (B) after one week, (C) after two weeks.

is one of the infestations that greatly impacts economically important animal populations such as cattle, horses and other species.¹

Dermatobia belongs to the class Diptera and family Oestridae; it has a life cycle of indirect infestation by “phoresis”, that consist in the transfert of eggs to a host animal via other blood sucking insects of the genus *Aedes* (Linnaeus, 1761), *Psorophora* (Robineau desvoidy, 1827), *Stomoxys* (Linnaeus, 1758), house flies and ticks. The result of this process is the invasion of living tissue by larvae which is called specific myiasis.^{1–3}

The specific type of injury that generates infestation by *D. hominis* through single or multiple inoculations is furunculous in nature due to the inflammatory reaction, mechanical and enzymatic damage caused by larvae.^{2–6}

Human population susceptible to accidentally infestation corresponds to inhabitants or migrants to tropical or subtropical areas below 1400m above sea level and in areas with moist soils; because of the life cycle of insects, fly population commonly increases in the month after the rainy season.³

The primary treatment consists of removal of larvae by suffocation or through surgical incision. In the first case, it is done using Vaseline, grease or other item that plugs the breathing hole of the larva which is forced to move to the outside. In the surgical procedure, a small incision is made and then the larva is removed with tweezers. In most cases, the use of topical antibiotic to reduce the risk of superinfection is recommended.^{3–6}

Other common myiasis-causing agents in our environment are *Cochliomyia* spp. (Coquerel, 1858) and *Lucilla* spp. (Pilsbry, 1890).^{7–10} This paper presents a clinical case of *D. hominis* myiasis and its eco-epidemiological related aspects.

Clinical case

An 82-year-old female with a history of hypothyroidism, hypertension and type 2 diabetes mellitus, therapeutically controlled with sodium levothyroxine 50 mg 1 h before breakfast, glyburide 5 mg at breakfast and dinner, acetylsalicylic acid 100 mg after lunch, metformin 850 mg, metoprolol 50 mg, losartan 100 mg, ciprofloxacin 500 mg every 12 h, gemfibrozil 600 mg, furosemide 40 mg, omeprazole 20 mg, calcium carbonate 500–600 mg plus vitamin D3 200 IU tablet every day, clonidine 150 mg and acetaminophen 500 mg every 8 h. The patient originated of the village of Chinauta, municipality of Fusagasugá—Cundinamarca, Colombia. She consulted to School of Medicine, at Universidad Militar

de Bogotá presenting a right knee lesion of a month of evolution, characterized as a furunculous and erythematous lesion with a central hole and inflammation that surrounded the area. When applying pressure on the lesion, the presence of purulent exudate was noticed (Fig. 1A) and it was associated with occasional stabbing pain. All procedures were performed after signature of the informed consent.

The patient was in good general conditions, alert and aware. Blood pressure 150/80 mmHg, pulse 68 beats per minute, axillary temperature 36.8 °C. A week before the patient had consulted to her Healthcare Institution—IPS—in Fusagasugá for the same reason; she was prescribed topical treatment with 2% fusidic acid and oral therapy with dicloxacillin 500 mg. The patient reported having taken dicloxacillin for 4 days and discontinued its use because of fever, vomiting, headache, generalized edema, itching and rash.

The patient reported that the larva was removed and delivered to the authors who proceeded to preliminary identification in the microbiology laboratory. Subsequently, the specimen was categorized as a stage 1 larva (8 mm) of *D. hominis* (Fig. 2) in the Microbiology and Parasitology Research Center at Universidad de los Andes—Bogotá.

The patient continued with outpatient management during two weeks with topical 2% fusidic acid; last control was made at home (Chinauta, Cundinamarca) with no evidence of other larvae in or around the initial lesion and a good tissue recovery (Fig. 1B and C).

The eco-epidemiological study¹¹ was performed in Chinauta, a southwest village of the province of Fusagasugá, Cundinamarca Department, Colombia. Chinauta is located 70 km from Bogotá D.C. (capital city), 1 h and 30 min by R40 highway (Fig. 3). It is over 1200 mamsl near to a major river named Cuja, with an estimated population of 5000 inhabitants; tourism is the principal economic activity; there are many relaxing places with swimming pools and night accommodations.

Although during our field visit no wild mammal species were found, the presence of armadillos (*Dasybus*), foxes (*Cerdocyon*), rabbits, rats (*Rattus*), bats, opossum (*Virginia*) (‘faras’ in Spanish), nocturnal monkeys, among others has been reported. Regarding the birds, commonly found species are swallows, owls, vultures, harrier hawks, doves (*Columba*), blackbirds (*Turdus*), ‘chirlobirlos’, cardinal tile (*Cardinalis*), ‘pechiamarillo’ (*Capsiempis*), ‘copetón’ (*Zonotrichia*), parrots (*Amazona*), hummingbirds (*Topaza*), canaries, wrens, hawks (*Accipiter*), macaws (*Ara*), among others. The most representative reptiles are snakes such as the hunter (*Dendrophidion*), coral, false coral, four noses

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