Case Report

A Rare Case in Turkey: Cutaneous Myiasis after Traveling

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Abstract

Cutaneous myiasis is a localized infectious disease which affects humans and vertebrate animals. Most common causes of cutaneous myiasis worldwide are dipterous larvae of "*Dermatobia hominis*" and "*Cordylobia anthropophaga*." Clinical presentations include nodules, ulcers, creeping eruption, and wound infections which may be localized anywhere on skin including trunk, scalp, and extremities. Here, we present a 30-year-old female patient consulted to our clinic who presented with erythematous lesions on her lower extremities after a visit to South America. According to her travel history, laboratory and imaging results, she was diagnosed with cutaneous myiasis. Etiology, clinical presentation, and surgical treatment options of myiasis, which is very rare in Turkey, are discussed.

Keywords: *Dermatobia hominis*, larva, myiasis

Introduction

Myiasis is the cutaneous infestation of humans and vertebrate animals by fly larvae. Wound myiasis and furuncular myiasis are its two basic clinical forms. Another clinical form is myiasis linearis, characterized by an erythematous track that becomes indurated with the subcutaneous migration of the larva.

While its prevalence varies with season, region, and the lifecycle of flies, myiasis has a higher incidence in the Americas and the tropical and subtropical parts of Africa.[1] Humans are most commonly seen to be infested by the larvae of "*Dermatobia hominis*" and "*Cordylobia anthropophaga.*" Eggs and young larvae of these types of flies entering the human body lead to infestation once they reach their late phase. *C. anthropophaga* mostly causes lesions on the torso, in the femoral and gluteal regions, while *D. hominis* causes lesions on the scalp, the arms and legs, and the face. After larva penetration, papulae develop in 24 h and expand over several days. Lesions are typically painful, tender, crusted or purulent, and movement sensation may be felt. A history of travel to tropical regions can be indicative, and ultrasound examination may prove highly useful.[2] The disease is often self-limiting. Histologic examination shows mixed response including lymphocytes, giant cells, neutrophils, eosinophils, mast cells, and plasma cells, but definitive diagnosis can be made by screening the larvae in sectioned images. Preventive treatment measures include medical and surgical approaches that can also be used in combination with each other.

Case Report

Our department was consulted by the infectious diseases department for a 30-year-old female patient who presented with 1-month-old redness and swelling in both of her lower limbs. Her anamnesis included a recent trip to South America. She had consulted a local doctor during her travel and received 1,200,000 IU intramuscular benzathine penicillin. She was given oral cephalexin monohydrate and ivermectin for suspected secondary infection. After continuing on this treatment for some time after her return to Turkey, the patient consulted the infectious diseases department when she did not benefit from this treatment. Ultrasound screening showed images consistent with mobile larvae in lesions. Her physical examination showed a total of 7 erythematous lesions both in the left crus: 1 in the lateral 1/3 of the proximal part, 1 in the posterior part, and 2 in the lateral 1/3 of the distal part; and in the right crus: 1 in the posterior 1/3 of the proximal part, 1

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in the lateral 1/3 of the middle part, and 1 in the anterior 1/3 of the distal part [Figure 1]. Decision was made for surgical intervention to incise and remove the larvae. Under spinal anesthesia, each lesion was opened with a cross-shaped incision to reach the subcutaneous adipose layer. One dead larva was removed from each of the lateral 1/3 of the proximal part of the left crus, and the posterior 1/3 of the proximal part, all others were removed alive [Figures 2 and 3]. The larvae were sent to the infectious diseases laboratory for examination. Skin incisions were sutured, and the procedure was completed. Examination identified the larvae as *D. hominis*. In her first follow-up visit 1 week after the operation, no pathologic findings were observed in the lesion areas. In postoperative week two, sutures were removed and the lesions were seen to have healed.

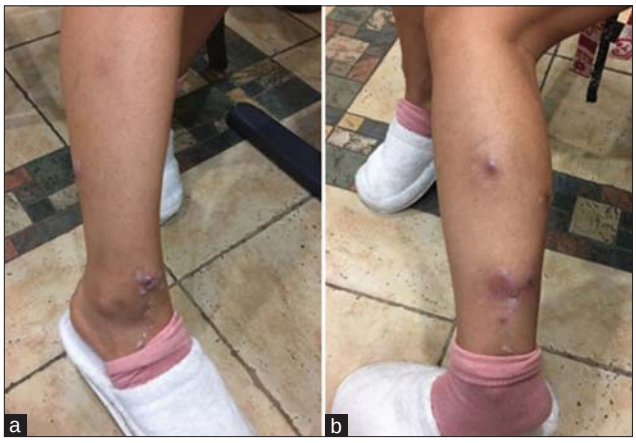

Figure 1: View of lesions in limbs at initial presentation (a) tender erythematous nodule in 1/3 distal right crus, (b) tender erythematous subcutaneous nodules in 1/3 middle and distal posterolateral left crus

Discussion

D. hominis, also known as human botfly, is a two-winged fly of about 12–18 mm in length, and its maggots may live as parasites in the skin of humans and animals.[3] It is found in South and Central America and in some parts of Africa. It has a yellow head, metallic blue abdomen, and orange legs[4] and resembles a bumblebee with its hairy segments. The egg is cream colored and oval shaped. The fly typically deposits its eggs on the underside of plant leaves or in other insects. Contact with these leaves or insects causes the eggs to be released from their place and to enter the host.[5] Since disease-causing flies are likely to reside in hilly, humid areas and secondary forest areas, anyone (including airline crew and volunteer doctors) who travels to the tropical or semitropical regions can have the risk of contracting myiasis. The egg needs 5–9 days to develop after entering its host. Then, it develops into larva in three stages in 27–128 days. It leaves its host at the end of the third stage.[6]

Figure 2: Intraoperative view

Although the first lesion mimics an insect bite, the larvae of *D. hominis* will create a skin lesion of 1–2 cm wide and 0.5–1 cm high, perforate the skin, and cause a difficult and painful process for the patient. When closely examined *in situ*, the larva can be seen to have respiratory activity. In some cases, patients reported that they could feel the movement of the larva while taking a shower or dressing the wound.[7] The lesion is mostly of purulent character because of increased leukocyte count, and macrophage migration around the wound causes a reaction. Complete blood count can reveal leukocytosis and eosinophilia. Different types of flies found in different geographies can cause lesions that resemble those inflicted by *D. hominis*. As the symptoms of cutaneous myiasis are nonspecific, they can be confused with other symptoms such as those of actinomycosis, staphylococcal lesions, cellulitis, sebaceous cysts, leishmaniasis, tungiasis, mycosis, furunculosis, chronic mammary abscesses, tuberculosis-derived furuncular mammary lesions, malignancies, and insect bites. Ultrasound imaging can be very useful for identifying the size of the larva and diagnosing the disease.[2]

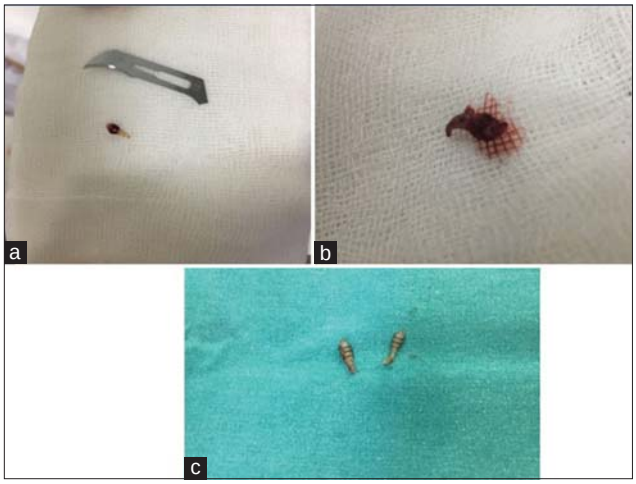

Figure 3: View of larvae after being removed from lesions (a-c) Postoperative view of larvae after removal

D. hominis is dangerous in humans as the larvae can spread to the different parts of the body, especially in infants can reach as far as the brain tissue since the skull is not fully

developed. Feeding on the surrounding tissue, they inflict tissue damage, infestation can cause secondary infection, and lead to complications and fatality if antibiotic prophylaxis is not used.[8] Likewise, the correct technique should be used for removing the larvae, and care should be given not to damage the larvae or the tissue. Ruptured larvae can be difficult to identify in type and further lead to local or total allergic reactions. Removed larvae are generally fixed in sterile screw-capped tubes containing 70% alcohol – glycerine before sending to the laboratory. The type of the larva cannot be identified when ruptured; therefore, ruptured larvae are not accepted by laboratories.

D. hominis larvae are very difficult to remove manually since they cling to the subcutaneous tissue. There are two primary treatment methods, namely surgical and nonsurgical. The surgical method involves a cross-shaped incision, if necessary, under local anesthesia, or squeezing the skin around the furuncle either digitally or using wooden spatulas. The aim is to remove the larvae with minimal trauma. Once the lesion is closed, larvae are asphyxiated and forced to move. Nonsurgical methods include blocking their access to air by closing the perforations on the skin with vaseline, lard or hair gel, or similar material.[9] Secondary treatment methods include application of topical or systemic ivermectin, chloroform/ether, ethanol spray, or piper betel leaf oil.[10] An alternative and beneficial treatment in all types of myiasis, especially in cases that involve the circumoral and orbital region, is oral ivermectin.[11] Surgical extraction nevertheless seems to be the best option both for diagnosis and for treatment.[12]

Conclusion

Myiasis induced by two-winged flies and maggots is rarely seen in Turkey. Possibility of myiasis should be considered in patients of all age groups who present with a history of travel to the regions where the disease is endemic and with single or multiple expanding lesions that resemble a nonhealing erythematous papular boil, have central punctum, and do not respond to conventional empiric antibiotic therapy.

Right to privacy and informed consent

In our case report "A Rare Case In Turkey: Cutaneous Myiasis After Traveling," there is no photographs and/or texts to disclose the patient's personal information or identity and patient privacy was protected. For this reason, informed consent of the patient was not required.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Burkhart CN, Burkhart CG, Morrell DS. Cutaneous myiasis. In: Bolognia JL, Jorizzo JL, Schaffer JV, editors. Dermatology. 3rd Ed, Vol. 2. London: Elsevier; 2012. p. 1432-8.
2. Bowry R, Cottingham RL. Use of ultrasound to aid management of late presentation of *Dermatobia hominis* larva infestation. J Accid Emerg Med 1997;14:177-8.
3. Veraldi S, Gorani A, Süss L, Tadini G. Cutaneous myiasis caused by *Dermatobia hominis*. Pediatr Dermatol 1998;15:116-8.
4. Tamir J, Haik J, Schwartz E. Myiasis with Lund's fly (*Cordylobia rodhaini*) in travelers. J Travel Med 2003;10:293-5.
5. Vijay K, Kalapos P, Makkar A, Engbrecht B, Agarwal A. Human botfly (*Dermatobia hominis*) larva in a child's scalp mimicking osteomyelitis. Emerg Radiol 2013;20:81-3.
6. Wild G. Cutaneous myiasis with *Dermatobia hominis* (human bot fly) larvae treated both conservatively and surgically. J R Nav Med Serv 2006;92:78-81.
7. Guse ST, Tieszen ME. Cutaneous myiasis from *Dermatobia hominis*. Wilderness Environ Med 1997;8:156-60.
8. Bhandari R, Janos DP, Sinnis P. Furuncular myiasis caused by *Dermatobia hominis* in a returning traveler. Am J Trop Med Hyg 2007;76:598-9.
9. Lowry MA, McEvoy PL. *Dermatobia hominis* infestation: A case report. Mil Med 1992;157:683-4.
10. Shorter N, Werninghaus K, Mooney D, Graham A. Furuncular cuterebrid myiasis. J Pediatr Surg 1997;32:1511-3.
11. De Tarso P, Pierre-Filho P, Minguini N, Pierre LM, Pierre AM. Use of ivermectin in the treatment of orbital myiasis caused by *Cochliomyia hominivorax*. Scand J Infect Dis 2004;36:503-5.
12. McGraw TA, Turiansky GW. Cutaneous myiasis. J Am Acad Dermatol 2008;58:907-26.