

Cutaneous Furuncular Myiasis: A Case Series from Yemen

Abstract

Myiasis is defined as the infestation of living humans or animals by the larvae of two-winged flies (order Diptera). The affected sites may be cutaneous or extracutaneous, with cutaneous myiasis further classified into furuncular, migratory, and wound forms. Herein, we present four cases of cutaneous furuncular myiasis that, to the best of our knowledge, represent the first reported cases of this condition in Yemen. None of the patients had any history of travel outside Yemen, making this case series particularly noteworthy. Following clinical evaluation, an entomologist at our university identified the larvae as third-instar larvae of *Dermatobia hominis* in one patient and third-instar larvae of *Cordylobia anthropophaga* in the remaining three patients. This case series aims to increase awareness among medical personnel and to advise individuals at risk of *C. anthropophaga* infestation to iron linen and clothing after washing, avoid drying laundry outside, particularly near the ground and in the shade, and avoid wearing clothes that have been placed on the ground in the shade. Additionally, this case series provides evidence that these flies, despite being native to tropical areas, may be found outside of these regions owing to international travel, through which eggs or larvae are inadvertently transported.

Introduction

Myiasis is the infestation of living humans or other vertebrate animals by the larvae of two-winged flies (order Diptera), which feed, for at least part of their development, on the living or dead tissues of the host.[1] Myiasis is classified as cutaneous or extracutaneous, with cutaneous myiasis further subdivided into the furuncular, migratory, and wound forms. Among these clinical forms, the furuncular form is the most common.[2] Although myiasis is endemic in tropical regions of the Americas and Africa, cases have been reported worldwide.[2] Nevertheless, a MEDLINE search using the search terms “furuncular

Table 1. Summary of clinical findings, causative larvae , and treatment of the presented cases.

	Sex	Age	Site	Number	Fly identified	Treatment
Case 1	F	18 y	Hand	Single	<i>Dermatobia hominis</i>	Mupirocin ointment plus oral azithromycin (500 mg)
Case 2	M	2 y	Trunk	Multiple	<i>Cordylobia anthropophaga</i>	Mupirocin ointment plus oral azithromycin suspension (250 mg)
Case 3	M	8 y	Thigh	Two	<i>Cordylobia anthropophaga</i>	Fusidic acid ointment plus oral azithromycin (250 mg)
Case 4	F	3 y	Arms	Multiple	<i>Cordylobia anthropophaga</i>	Mupirocin ointment and oral azithromycin (250 mg)

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myiasis” and “Yemen” did not identify any previously published reports of furuncular cutaneous myiasis from Yemen. Therefore, we report a case series of four patients with this condition.

Case reports

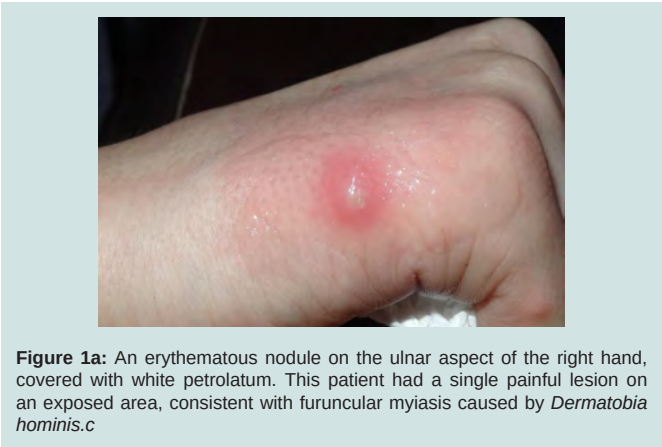


Figure 1a: An erythematous nodule on the ulnar aspect of the right hand, covered with white petrolatum. This patient had a single painful lesion on an exposed area, consistent with furuncular myiasis caused by *Dermatobia hominis*.c

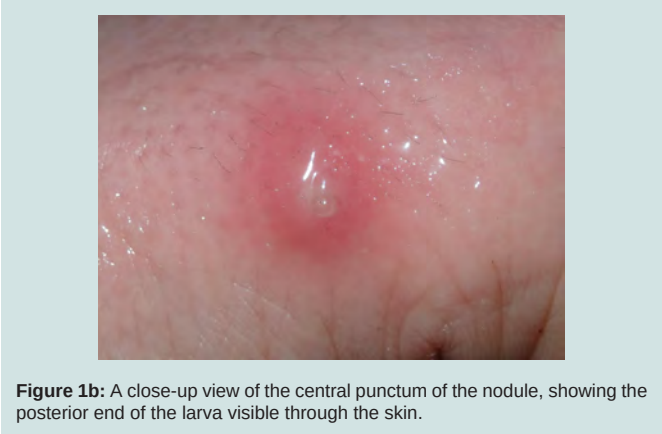


Figure 1b: A close-up view of the central punctum of the nodule, showing the posterior end of the larva visible through the skin.



Figure 1c: The *D. hominis* larva protruding through the skin at its posterior end. Note the black body spicules.



Figure 1d: The *D. hominis* larva showing characteristic black spicules, which are absent from the three terminal segments; posterior respiratory spiracles located away from the skin surface; and mouthparts at the anterior end in close contact with the skin.

(Table 1) presents a summary of the clinical findings of the four presented cases.

Case 1

An 18-year-old woman presented with a 3-week history of swelling on the ulnar aspect of her right hand that had become painful over the preceding 2 weeks. The patient recalled experiencing an insect bite at the same site at the onset of symptoms. Cutaneous examination revealed an erythematous nodule. The posterior end of the larva, bearing the posterior spiracles, was visible through the central pore of the nodule. After the area was covered with white petrolatum, the patient observed slight movement and protrusion of an object from the center of the lesion. A larva was subsequently removed by applying gentle pressure. The larva exhibited black circular spicules on the proximal body segments and two black tubercles at the distal end. Based on its typical morphology, a third-instar larva of the fly *Dermatobia hominis* was suspected and subsequently confirmed by an entomologist at the Department of Agriculture, Sana'a University (Figure 1a–1d). Based on the clinical findings (a single lesion on an

exposed area) and the larval morphology, a diagnosis of furuncular cutaneous myiasis caused by *D. hominis* was established. The patient was prescribed topical mupirocin ointment and oral azithromycin (500 mg), and the lesion showed visible improvement after 1 week.

Case 2

A 2-year-old boy presented with a 3-week history of multiple tender nodules on the trunk. The posterior end of the larva, bearing the posterior spiracles, was visible through the central punctum of the nodules. A single larva was manually extracted by applying gentle pressure to the sides of a lesion on the right side of the abdomen and was subsequently identified by an entomologist as a third-instar larva of *Cordylobia anthropophaga* based on its morphological features. Because the affected areas were normally covered by clothing, transmission was speculated to have occurred through contact with damp clothing or via a mechanical carrier, such as a mosquito (Figure 2a–2f). Topical mupirocin ointment and oral azithromycin suspension (250 mg) were administered, achieving complete healing after 1 week.

Case 3

An 8-year-old boy presented with a 2-week history of two



Figure 2a: Multiple nodules on the left side of the upper trunk.



Figure 2b: A close-up view of the lower nodule shown in Figure 2a, with the larva visible through the skin.



Figure 2c: Three scattered nodules on the right lower back. The involvement of covered areas and the presence of multiple lesions were consistent with myiasis caused by *Cordylobia anthropophaga*.



Figure 2d: A lesion on the right lower abdomen before larval extraction.



Figure 2e: *C. anthropophaga* larva on the skin of the right lower abdomen.



Figure 2f: The lesion shown in Figure 2d after larval removal, with mupirocin ointment applied.

nodules on the medial aspect of his left thigh. The posterior end of the larva, bearing the posterior spiracles, was visible through the central punctum of the nodule. Based on the morphological features of several larval specimens provided by the patient and a larva extracted in the clinic, the larvae were identified by an entomologist as third-

instar larvae of *C. anthropophaga*. As in Case 2, the affected areas were normally covered by clothing (Figure 3a–3c). Treatment with topical fusidic acid (Fucidin) ointment and oral azithromycin (250 mg) resulted in complete healing after 10 days.

Case 4

A 3-year-old girl presented with a 2-week history of multiple tender nodules on her arms, from which larvae had been manually extracted by her father, who also provided videos documenting the extraction process (Videos 1–3). The posterior end of the larva, bearing the posterior spiracles, was visible through the central punctum of the nodule. The affected body regions were normally covered by clothing. The presence of multiple lesions was suggestive of *C. anthropophaga* as the causative species. Treatment with topical mupirocin ointment and oral azithromycin (250 mg) resulted in complete healing after 7 days.

Discussion



Figure 3a: The medial aspect of the left upper thigh. The larva emerged spontaneously after application of fusidic acid (Fucidin) ointment to the punctum.



Figure 3b: The extracted *C. anthropophaga* larva.



Figure 3c: Larvae self-extracted by the patient and provided to the investigators.

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Table 2. Reported Cases of Furuncular Myiasis in Arabian Countries.

Year	Author	Article Title	Journal	Country	Patient Details	No. of Cases	Causative Species	Type/Site
1992	Omar MS	Cutaneous myiasis caused by tumbu fly larvae, <i>Cordylobia anthropophaga</i> in southwestern Saudi Arabia	Trop Med Parasitol	Saudi Arabia	4YM	1	<i>Cordylobia Anthropophaga</i>	
2019	Hosni EM	A brief review of myiasis with special notes on the blow flies' producing myiasis (F.: calliphoridae)	Egypt Acad J Biol Sci	Egypt	Review			
2021	Nassar A	A dermoscopic study of cutaneous myiasis. other findings	Int J Dermatol	Egypt	5M,10F	15		
2020	Vahedi Nouri N	Myiasis in humans and animals	Anim Husb Dairy Vet Sci	Iran	Review		?	
2021	Yaseen AT	Myiasis, its types, causes, and the relationship of some bacterial species to its events. (article review)	Mesopotamia J. of Agricc	Iraq	Review			
2026	Ahmed RS	Cutaneous myiasis complicating squamous cell carcinoma. a case report with literature review	Dermatol Rep	Iraq	70YM	1	<i>Dermatobia hominis</i>	Wound
2020	Bani Hani MN	Cutaneous Myiasis Around Gastrostomy (PEG) Tube Insertion Site. The Second Case Report	Clin Med Insights Case Rep	Jordan	71YF	1	?	
2022	Sher A	First Case of Nosocomial Nasal Myiasis Caused by <i>Chrysomya bezziana</i> in Kuwait	Open Acc Libr J	Kuwait	62YF	1	<i>Chrysomya bezziana</i>	
2009	Frikh D	Furuncular myiasis. unusual case of African <i>Dermatobia hominis</i>	Dermatol online J	Morocco	47YM	1	<i>Dermatobia hominis</i>	
1988	Qadri SMH	Cutaneous Myiasis Due to <i>Dermatobia Hominis</i> . Report of a Case	Ann Saudi Med	Saudi Arabia	31YM	1	<i>Dermatobia hominis</i>	
2017	Al Juaid A	Furuncular Myiasis in a Child. A Case Report and Literature Review	Saudi J Med Med Sci	Saudi Arabia	5YF	1	?	
2018	Alotaibi S	Cutaneous Myiasis in Saudi Infant. A Rare Case Report	Int j multispeciality health	Saudi arabia	7MF	1	?	
2020	Alahmed AM	Two new records of flies causing myiasis from Saudi Arabia with a survey of flies parasitizing goats and sheep in Jazan Region	Trop Biomed	Saudi arabia	Review			
2020	Almatary A	A Case of Cutaneous Myiasis Due to <i>Cordylobia anthropophaga</i> in Infant in Makkah, Saudi Arabia	Asian J Res Dermatol Sci	Saudi Arabia	1MF	1	<i>Cordylobia Anthropophaga</i>	
2022	Gabra AO	Furuncular cutaneous myiasis in Saudi Arabia	J Pediatr Surg Case Rep	Saudi arabia	1YM	1	<i>Dermatobia hominis</i>	
2022	Wakid MH	Furuncular myiasis by <i>Wohlfahrtia magnifica</i> (Diptera. Sarcophagidae) in a healthy child	Asian Pac J Trop Med	Saudi arabia	4YM	1	<i>Wohlfahrtia magnifica</i>	
2023	Alsaedi OK	Wound myiasis by housefly in a patient with pemphigus vulgaris in Riyadh, Saudi Arabia	Saudi Med J	Saudi arabia	62YF	1	<i>Dermatobia hominis</i>	wound
2024	Wakid MH	Scrotal Myiasis in a Child Due to <i>Cordylobia anthropophaga</i>	Cureus	Saudi Arabia	8YM	1	<i>Cordylobia Anthropophaga</i>	
2024	Alzayyat R	Furuncular myiasis in a Saudi male. Case report	J Clin Images Med Case Rep	Saudi Arabia	23YM	1	<i>Cordylobia anthropophaga</i>	
2024	Aldairi AS	Cutaneous Myiasis in a Healthy Young Adult From Saudi Arabia. A Report of a Rare Case	Cureus	Saudi Arabia	14YF	1	?	
2025	Yamany AS	<i>Wohlfahrtia nuba</i> (Wiedemann, 1830) (Diptera. Sarcophagidae) Development and Survival Under Fluctuating Temperatures	Insects	Saudi arabia	Original Research		<i>Wohlfahrtia nuba</i>	
1993	Khan ZA	Myiasis. Report of Two Cases	Ann Saudi Med	Saudi arabia	35YM,20DM	1	<i>Cordylobia Anthropophaga</i>	
2023	Al-Dabbagh J	The first reported case of furuncular myiasis in Syria with no international travel history of the patient to an endemic area	Oxford Medical Case Reports	Syria	21YF	1	?	
2022	Bousbia C	A case report of nosocomial myiasis caused by <i>Musca domestica</i> and literature review		Tunesia	31YM	1	<i>Musca domestica</i>	
2022	Papineni V	The Human Botfly "Bubbling Sign". Ultrasound Features of Cutaneous Furuncular Myiasis	Indian J Radiol Imaging	UAE	39YF	1	<i>Dermatobia hominis</i>	

Reporting four cases of furuncular myiasis is very unusual in an area distant from the natural habitat of myiasis-causing flies, namely tropical Africa and Central America; however, this unusual finding may be explained by the possible transport of their eggs or the flies themselves via transport vehicles such as airplanes, ships, or trains. Conversely, numerous cases have been reported from countries distant from the endemic areas of these flies, including Europe, North America, and Asia. Approximately 12 cases of furuncular myiasis have been reported in Saudi Arabia, the northern neighbor of Yemen (Table 2).

In contrast to *D. hominis*, *C. anthropophaga* typically penetrates the skin less deeply, although mild pruritus may occur for up to 2 days after infestation. The lesion initially appears as a reddish papule that develops into a boil-like nodule with a central pustule. Erythema may develop in the surrounding tissue within a few days.[7] The mature third-instar larva typically leaves the host after 1–2 weeks, and the posterior spiracles may sometimes be visible through the central pore. Multiple lesions may be associated with systemic symptoms, such as regional lymphadenopathy or malaise.

Infestations with *C. anthropophaga* most commonly occur during the rainy season. Adult flies oviposit on soiled clothing, which explains the distribution of lesions on covered body sites, such as the trunk, buttocks, and thighs, as well as the greater number of lesions observed in affected individuals. [7] Additionally, the thinner skin and immature immune system of infants may explain their increased susceptibility to infestation. In the presented cases the actual route of infection was unfortunately not established.

In its furuncular form, cutaneous myiasis manifests as boil-like lesions on exposed areas of the skin, such as the face, arms, scalp, or legs, which gradually develop over the course of a few days. A characteristic feature of these lesions is the central punctum, which facilitates air exchange within the lesion and through which the larvae discharge serosanguineous fluid. These puncta can be readily identified with the aid of a magnifying glass or by observing air bubbles that rise when the affected area is submerged in water. The posterior end of the larva, bearing the posterior spiracles, is generally visible through the punctum, as observed in all four cases described

above. However, these furuncular lesions resolve rapidly after the larva emerges or is removed.

A definitive diagnosis of myiasis is generally established by extracting and identifying the infesting larva based on its characteristic morphology. However, in clinical practice, the diagnosis is typically based on characteristic clinical findings (the site and number of lesions), particularly in endemic areas. The injection of lidocaine around the lesion may facilitate painless larval extraction. Treatment consists of occlusion therapy, manual extraction of the larva, and topical or oral ivermectin. Topical and, occasionally, systemic antibiotics are used to prevent secondary bacterial infection and to facilitate healing, which was the case in the presented cases [2]. This case series emphasizes the importance of considering furuncular myiasis in lesions resembling boils, particularly in children living in resource-limited settings.

Video 1. Case 4. Manual extraction of the larva by the patient's father.

Video 2. Case 4. Larva after extraction from the skin.

Video 3. Case 4. Multiple larvae after extraction from the skin.

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