

Cutaneous Myiasis Caused by *Dermatobia Hominis* in Saudi Child

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Abstract

Case Report

Cutaneous Myiasis is an infestation with dipterous larvae, which feed on the host tissue, to complete botfly cycle. It is common in Africa, central, and south America. We report one case in Taif, Saudi Arabia. He presented with skin lesion in the foot, incision revealed maggot from the wound.

Keywords: Cutaneous myiasis, *dermatobiahominis*.

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INTRODUCTION

Cutaneous myiasis developed by larvae, where the host is essential to complete the botfly cycle [1, 2]. Persons who developed cutaneous myiasis usually exposed to blood-sucking arthropod. When it insect the host, the eggs will hatch as a result of an increase in the temperature. The larva will deposit to the skin through a hair follicle or damaged skin and feeding on the host's tissue for 4-14 weeks. Mature larva falls to the ground and pupates in the environment to produce adult fly [3]. *Dermatobiahominis*, also known as tropical botfly commonly present in the endemic region of the Western hemisphere, causing furuncular myiasis. The prevalence of cutaneous myiasis is higher in Africa, central and south America [1, 4, 5]. The flies accommodate in the humidified environment that explains the high incidence in the tropical area [6]. In Saudi Arabia, the ministry of health stated cutaneous myiasis cases in Hail and Jazan caused by blue flies. Between 1980 to 1995, about 46 cases of myiasis were reported, such as ophthalmomyiasis, cutaneous myiasis, and autochthonous cutaneous myiasis [8]. In Taif, two cases caused by *Dermatobiahominis* infestations was reported, domestic cattle appear to be the source of the infection [9].

CASE REPORT

A One-year-old boy was medically free. He presents to the emergency department with a history of the right foot swelling and redness for three days after he is playing in the public garden in ALTAIF city. The swelling increases gradually and becomes painful and

pruritic with yellowish discharge. There is no history of fever, joint pain, and diarrhea.

On physical examination, the patient looks well and appeared good nourished. His tympanic temperature was 37.1 °C, and blood pressure was 100/60 mmHg. Pulse was regular with a rate of 130 beats per minute, and respiratory rate was 30 per minute. Respiratory examination revealed bilateral air entry with no added sounds. Cardiovascular examination revealed normal S1 and S2 with no murmur, and the central nervous system examination revealed no neurological deficits. Abdominal examination revealed soft and lax; there was no tenderness or organomegaly. Foot examination revealed swelling and erythematous skin in the dorsal aspect of the right foot with a yellowish discharge, warm skin, and mild tenderness (Figure-1). Laboratory investigations were done. The white blood cells count $14.84 \times 10^3/\mu\text{L}$. Neutrophils 43%. Red blood cells count $4.65 \times 10^6/\mu\text{L}$, and hemoglobin level was 11.9 g/dL. Pus swab showed no bacterial growth.

Foot x-ray showed soft tissue swelling with normal bone density and joint space. Followed by ultrasound that showed subcutaneous edema and swelling with increase vascularity without underlying pus or abscess collection. Drainage was done, and larvae were explored (Figure-2). He was treated with systemic cefuroxime and clindamycin



Fig-1: Cutaneous lesion in dorsal aspect of the right foot



Fig-2: Larva after extracted from lesion

DISCUSSION

Myiasis is an infestation of live vertebrates (humans and/or animals) with dipterous larvae which feed on the host tissue [9]. Myiasis may be obligatory where the host is required for completion of the human botfly cycle, where the larval form of the botfly continues after transfer from a more conventional habitat [10]. The female human botfly puts her eggs on the body of an intermediate host (e.g., a mosquito or a fly), which serves as a vector onto the human skin when it feeds [11]. The skin temperature causes the eggs to hatch into larvae, which breathe through a central punctum. However, other family members of botflies, the larva of the human botfly does not transfer far into the skin from its entrance point [12]. The larval stage in the skin can last between 27 and 128 days before the adult larva falls to the ground where it pupates for between 27 and 78 days before maturing into an adult

botfly. The adult the human botfly is rarely seen and ranges between 1 and 3 cm long. The whole life cycle takes between 3 and 4 months [13].

Cutaneous myiasis can be divided based on clinically manifestations, including open- wound myiasis with soft-bodied maggots, creeping eruption, subcutaneous myiasis with migratory swellings, and furuncular myiasis [1, 2]. Our case can be classified as open- wound myiasis with soft-bodied maggots which originate from a bite of *Dermatobia hominis* (tropical botfly).

Cutaneous myiasis symptoms develop within the first two days of infestation and can range from a mild or a "prickly heat" sensation to severe pain. Agitation and insomnia can also occur [14]. Furuncular injuries with an intense inflammatory reaction in the surrounding tissue rapidly develop over six days after cutaneous symptoms begin [14]. Hosts with various sites of infestation may develop regional lymphadenopathy and fever [15]. Once developed into the third instar, the caudad respiratory spiracles may be observed in the central opening of the lesion and may withdraw when touched [15]. Our case was admitted with right foot swelling and redness for three days after he is playing in the public garden, which increases gradually and becomes painful and pruritic with a yellowish discharge, and there is no history of fever, joint pain, and diarrhea with normal circulatory and respiratory functions.

The diagnosis of cutaneous myiasis mainly depends on the patient's clinical history, typical clinical presentation, the lesion itself, plus the extraction of the larvae from the site [16]. However, complete blood cell count (CBC) may show high levels of leukocytes especially, eosinophils because the presence of the larva in the skin stimulates a local inflammatory response with the proliferation and migration of inflammatory cells, including neutrophils, mast cells, eosinophils, fibroblasts, and endothelial cells [17]. Imaging may be required for patients with atypical presentations in unusual anatomical sites [18]. Magnetic resonance imaging (MRI) can be used in cases of cerebral, breast, facial, orbital, and furuncular myiasis. A computed tomography scan has also been suggested [19]. Also, ultrasonography is very useful in establishing the diagnoses and in determining the size of the larvae. In our case, the white blood cell count was $14.84 \times 10^3/\mu\text{L}$, with neutrophils 43%. Pus swab showed no bacterial growth. Foot x-ray showed soft tissue swelling with normal bone density and joint space. Followed by ultrasound that showed subcutaneous edema and swelling with increase vascularity without underlying pus or abscess collection.

Treatment of cutaneous myiasis includes the application of petroleum jelly or other fat-derived substances to asphyxiate the larvae. Sometimes,

surgical exploration and removal of the larvae at the site are undertaken, especially if more than one larvae is discharged from the site [16]. A secondary bacterial infection can happen as a result of wound infection or to the incomplete elimination of the larvae during extraction. In this event, patients will need an antibiotics course [16]. In our case, Drainage was done, and larvae were explored, the patient was then treated with systemic cefuroxime and clindamycin.

CONCLUSION

Myiasis is a rare human disease predominantly found in tropical and subtropical locations [20]. The diagnosis mainly depends on the patient's clinical history. Surgical exploration and removal of the larvae at the site are undertaken in our case.

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