

# Cutaneous Myiasis: A Rare Tropical Disease in an 11-Year-Old Girl

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## Abstract

Myiasis is the infestation of live human and vertebrate animals with maggots that feed on the host's dead or living tissue, depending on the life cycle of the fly. It is a rare condition and often misdiagnosed. Tropical and subtropical regions of the world are commonly affected. The aim of this case report is to share this uncommon cutaneous condition with health workers and also remind them of its common symptoms and signs such that its diagnosis is not missed. An 11-year-old girl presented with a nine-day history of itchy rash involving mainly the trunk and upper arms which were found to be cutaneous Myiasis. Cutaneous Myiasis can cause miserly to the affected individual due to its symptoms, yet it can be prevented with good environmental and personal hygiene. Diagnosis and treatment are cheap and effective.

## Keywords

Myiasis, Cutaneous, Enuresis, Furuncle, Tropical Disease

## 1. Introduction

Myiasis is the infestation of live human and vertebrate animals with maggots (dipterous larvae) that feed on the host's dead (facultative) or living tissue (obligatory), depending on life cycle of the fly. The term Myiasis was first introduced in the 1940s by Hope, and it was derived from a Greek word "myia", meaning fly. It is a worldwide infestation with seasonal variation depending on life cycles of the various species of flies. The incidence is higher in the tropics and subtropics of Africa and the Americas. The flies responsible for Myiasis prefer a warm and humid environment. It prefers shade, is often active during

morning and afternoon and is attracted by odour of urine and faeces.

Myiasis-producing flies belong to the superfamily *Oestrodiæ*, and sub classified into three major families, namely; *Oestrodiæ*, *Calliphoridae*, and *Sarcophagidae*. The *Oestrodiæ* family—*Oestrinae*, *Gasterophilinae*, *Hypodermatinae*, and *Cuterebridae*—are all obligate parasites, and are responsible for human Myiasis [1] [2]. Classification of Myiasis may depend on the location of affected area (Cutaneous, nasopharyngeal, ocular, intestinal/enteric, and urogenital), or the relationship between the host and the parasite (obligatory, facultative, or accidental).

Cutaneous Myiasis is the most common in the tropical region and travelling to this region has led to an increase in the disease in non-endemic countries [3] [4]. The disease is divided into three main clinical presentations: furuncular, creeping (migratory), and wound (traumatic) Myiasis [5].

We present a rare case of cutaneous myiasis in a girl who was initially misdiagnosed as chicken pox. The main objective of this case presentation is to increase awareness about the existence/presence of this disease in the tropical and subtropical regions of the world, although it is not common disease. More importantly, it is advisable that travelers be aware and take preventive measures to avoid being affected by cutaneous myiasis.

## 2. Case Summary

An eleven-year-old girl was referred from a public primary health care facility (clinic) to the regional hospital with nine days history of an itchy rash mainly on the trunk. There was no associated fever or pain. At the clinic healthcare workers had diagnosed the condition as chicken pox and prescribed Amoxicillin, paracetamol and calamine lotion for topical application. Three days after initiation of the above treatment the patient was seen again at the same clinic with worsening skin rash and itching which prompted referral of the girl to hospital for further management.

Examination revealed a relatively well-nourished girl, afebrile, but had small boil-like lesions on the trunk and the upper arms (measuring about 2 - 3 mm) sparing the face and the lower extremities, see **Figure 1**. On closer look, each lesion had a punctum, with some serous fluid exudate. She had no lymphadenopathy, and other systems were essentially unremarkable.

After a thorough examination of the lesions a diagnosis of Cutaneous Myiasis was made. Vaseline jelly was applied to all the lesions and about after an hour it was easy to remove the larvae by exerting pressure around the edges of the lesions, and some were removed by using forceps (**Figure 2**). The child was discharged on day 2 of admission and asked to come for follow-up 2 weeks later. On follow-up review she did not have any complaint, and the wounds were healing well with minimal scarring.

## 3. Discussion

Cutaneous Myiasis is a worldwide infestation of living animals, humans and



**Figure 1.** Cutaneous lesions on the trunk and upper arms of an 11-year-old girl.



**Figure 2.** Maggots extracted from an 11-year-old girl.

other vertebrates, by various species of flies with seasonal variation of life cycle. Flies responsible for myiasis prefer a warm and humid environment found in the tropical and sub-tropical regions of Africa and the American regions. In Africa the most common species causing human cutaneous Myiasis is *Cordylobia anthropophaga* (Tumbu fly), a member of the *Oestrodiae* family [6]. According to the article review of 2018 by Kuria SK *et al.*, only 10 countries had reported cases of myiasis during the study period of 1998-2018. Most of the cases were from West Africa (Nigeria, Gambia and Sierra Leone) and North Africa (Tunisia, Egypt, Sudan, Libya and Algeria). Only South Africa and Central Africa reported cases from the southern and central regions [7].

The adult Tumbu fly is about the size of a housefly, and it prefers hiding under the shade, and it is usually active during morning and afternoon. Females lay eggs on dry, sandy soil or on damp clothing hung out to dry. The eggs normally

hatch within one to three days. The larvae can survive near the soil surface or on clothes for up to 15 days waiting for contact with a suitable host. The larvae penetrate the skin of individuals wearing adequately dried ironed clothes. They feed and develop in the host's tissue and can stay for 7 - 20 days before they develop into a fly and drop out.

Myiasis is usually self-limiting with minimal morbidity. It is common among children [8] [9], although it affects any age group. The disease presents with boil-like pruritic erythematous papules that develop within 24 hours of larvae penetration and later enlarge to 1 - 3 cm in diameter and almost 1 cm in height. It commonly affects the upper arms, trunk, thigh, and buttocks [10]. Pain is not a characteristic symptom but occasionally lesions may become painful and tender. Each lesion has a central punctum from which serosanguinous fluid may be discharged, (see **Figure 1**). Sometimes they may become purulent and crusted. Movement of the larvae under the skin may be felt by the patient. Sometimes tips of the larvae protrude from the central punctum.

The flies may be attracted to the linen by the smell of urine and faeces and therefore poor hygiene may be contributory to human infestation. This may explain the common occurrence of Myiasis among children as they often wet their linen at night (nocturnal enuresis). Usually, children attain full control of the bladder by the age of 5 years although a few of them may still have enuresis beyond this age.

Diagnosis of Cutaneous Myiasis is usually clinical, and therefore no investigations are needed. However, misdiagnosis is not uncommon and the case presented here was first misdiagnosed as chicken pox and therefore wrong treatment was initiated. The condition can also be misdiagnosed as a furuncle. Health workers should therefore always think about myiasis whenever they come across a patient who present with boil-like itchy lesions on the skin. In addition, clinicians working in non-endemic areas should always a differential diagnosis of myiasis in any patient presenting with these lesions especially if there is a history of having travelled to endemic areas. In certain cases, ultrasound scans have been used to localize the larvae and determine their size [11].

Treatment for Myiasis is by suffocation or occlusion approach using non-invasive approach. This is done by applying petroleum jelly, liquid paraffin, beeswax, heavy oil, or bacon strips over the central punctum. In this case petroleum (Vaseline) jelly was used. Larvae usually emerge within 3 - 24 hours after application. Surgery is rarely needed to remove the larvae [2] [5].

The main preventive method for Myiasis due to *Cordylobia anthropophaga* is by avoiding hanging clothes outside especially in the shady area. Ironing the laundry to kill the eggs/larvae is equally important [2]. Proper washing of linen for bedwetters may also help reduce the chances of the flies getting to the linen and therefore good personal hygiene plays a very important role at preventing Myiasis. Community education and awareness is therefore important at preventing the infestation.

## 4. Conclusion

Cutaneous Myiasis is one of the common preventable non-communicable diseases found in the tropics and sub-tropical regions of Africa and the Americas. The disease can easily be diagnosed clinically and treated successfully. It can also be prevented by improving environmental and personal hygiene to keep away the implicated flies. In addition, ironing the laundry dried outside in the shade can easily kill the Tumbu fly eggs/larvae.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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