

Furuncular myiasis in a pediatric outpatient clinic in Enugu, South-Eastern Nigeria

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Abstract

Myiasis has been associated with poor standards of hygiene in children, particularly in sub-Saharan Africa. In our practice, however, we encountered cases of myiasis in children from high socio-economic backgrounds. Four cases of myiasis were reported in

children aged between 20 months and 7 years, all belonging to the upper socio-economic class. Spreading clothes inside-out on clothesline and shrubs was a major risk factor. We concluded that there is a need for the enlightenment of the public as regards this disease condition, even among the upper class.

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Introduction

The condition known as myiasis occurs when the larvae (maggots) of certain fly species belonging to the arthropod order Diptera (two-winged adult flies) infest living tissue.^{1,2} Whereas the Tumbu fly (*Cordylobia anthropophaga*) is the most common species responsible for myiasis in Sub-Saharan Africa,³ the human botfly (*Dermatobia hominis*) is the commonest species in South and Central America.³ Myiasis can be divided into cutaneous and cavitory types. Cutaneous myiasis, the most common clinical form of the disease, can be divided into 3 main types: furuncular, migratory, and wound myiasis.⁴ Furuncular myiasis, which is the most common cutaneous form, is endemic in West Africa⁵ and occurs when penetration of the skin by fly larvae results in pustular lesions that mimic furuncles.⁶ Nigeria accounts for more than 50% of reported myiasis cases in Africa,⁷ and within Nigeria, some endemicity has been reported in the Niger Delta region.^{5,8}

Myiasis has been associated with poor standards of hygiene, especially in sub-Saharan Africa.^{2,9} However, we recorded four cases of children who do not belong to the lower socio-economic strata. We report these cases to increase awareness of diagnosis and to highlight the possibility of this disease in children of high-income families.

Case Report

Case #1

A 7-year-old boy belonging to the upper socioeconomic class I presented to the clinic with complaints of a boil on his left thigh, associated with severe pain. The boil ruptured after six days, revealing a yellowish-brown mass inside, which occasionally wriggled about. He was managed with some medications purchased from a patent medicine store but was later brought to the pediatric clinic. On examination, there was a lesion on the left thigh with surrounding skin erythema, along with a ruptured central punctum containing a yellowish-brown interior and discharging a serous fluid. A diagnosis of myiasis was made. The punctum was occluded with petroleum jelly, after which a maggot emerged from the central punctum (Figure 1). This was extracted with dissecting forceps. The patient and his caregiver, who were shocked at the experience, were counselled, and their fears allayed.

Case #2

A 5-year-old female was noticed by her mother, who is a nurse, to have developed a boil on her back, initially the size of a small pimple. The boil had a small opening at its tip, covered by a white mass. Several attempts to drain the boil of what was supposedly pus proved abortive as the white mass wriggled further into the skin. The lesion gradually increased in size over a period of one week, after which the patient's mother squeezed out a white, motile mass. The patient's mother subsequently presented to the clinic in a state of panic. Hitherto, she had neither heard of myiasis nor encountered a child with a similar diagnosis, even though she was a practicing nurse with several years of experience. Similarly, the father, who is also a nurse, was not aware of such a medical condition. The patient belongs to social class I, and her clothes are spread inside out on a clothesline, which consists of a rope tied between two metallic poles. The diagnosis was explained to the child's mother.

Case #3

A 21-month-old female presented to the pediatrics clinic with a history of boils all over her body, which were very painful. As a result of this, she was extremely restless and cried inconsolably. Her mother then noticed that the different boils had a whitish mass protruding from each of them and sought more information from the internet as well as from a neighbor. Following this, she applied oil over the boils, with eventual protrusion of what she identified as the head of maggots from the different boils. This was followed by manual extraction of the maggots. Thereafter, the patient was brought to the clinic. On presentation, the lesions were completely healed, leaving behind hyper-pigmented macules. The patient's family belongs to the upper socio-economic class I, and her clothes are sometimes spread inside out on a clothesline consisting of a rope tied between two poles; and also sometimes on shrubs. The patient's mother was counseled on the diagnosis of myiasis, as well as its etiology and mode of prevention.

Case #4

A 20-month-old male who was admitted into the hospital and being managed for acute gastroenteritis with sepsis was noticed to have developed a reddish spot on his right elbow. A few days later, this became very painful and on examination, there was a hyperemic and swollen right elbow region with two areas of supposed pus collection. Later same day, the swellings were noted to be softer, and an incision and drainage done yielded two sizable maggots. On further evaluation for the probable source of tissue invasion, mother disclosed that the dirty clothes of her children were usually kept in a basket behind the kitchen, exposed to house flies. The clothes were usually hand-washed and spread inside-out on a clothesline. Mother was counselled on the diagnosis and modes of prevention.

Discussion

We have reported four cases of myiasis which presented to our pediatric outpatient clinic over a period of 18 months. All four children reported belong to socio-economic class I families, according to Oyediji's classification.¹⁰

The occurrence of these cases amongst our patients is noteworthy, since myiasis has been widely documented in literature as a disease affecting children from very low socio-economic classes of society associated with poverty and poor hygiene.^{2,9,11} This is because such children are more likely to be exposed to unhygienic

living conditions that favor the breeding of the vectors of the disease and are more likely to come in contact with clothing exposed to the larvae as a result of poor sanitary measures. These children are also more likely to be exposed to dirty play areas, as well as infected animals, and may be less likely to have their clothes properly washed, dried, and ironed after exposure to risk factors.

Furuncular myiasis occurs following contact of the host with soil which has been contaminated by eggs of the vector fly. Following contact with a host, the eggs hatch, with eventual skin penetration and the development of furuncular myiasis. These eggs can also come in contact with the skin through dirty or wet clothes which fall to the ground.^{5,6} Our study reveals that children from high socio-economic classes are not exempt from this infestation, especially if their clothes are spread inside-out and, therefore, easily come in contact with the soil.

The diagnosis of myiasis is mainly clinical, involving the identification of larvae extracted from apparently furuncular lesions. Older patients typically complain of paroxysmal episodes of pain and itching, which usually occur at night, as well as accompanying movement sensations.^{3,12} Younger children are unable to verbalize these experiences and therefore the accompanying discomfort is expressed by restlessness and excessive crying, especially at night when the paroxysms of pain occur. This was seen in our third case.

The adult Tumbu fly which is endemic to sub-Saharan Africa, tends to lay eggs on clothing, which explains the distribution of the lesions of this fly on covered sites such as the trunk, buttocks, and thighs, as seen in our patients.⁶ Lesions caused by *Dermatobia hominis*, which is spread through the bite of mosquitoes are more



Figure 1. The larva extracted from one of the children.

commonly seen on exposed skin such as the face and extremities.⁶ In three out of the four cases reported, the identified risk factor was the spreading of clothes inside-out on clotheslines and shrubs. This practice exposes the inside of the clothes to flies, which then lay their eggs on them.

Treatment of furuncular myiasis involves occlusion of the punctum with oil, thereby inducing hypoxia which forces the larvae out of the punctum in search of oxygen. The larva is then mechanically extracted with forceps. Substances such as petroleum jelly can be used to induce hypoxia, and this was employed in two out of the four cases, with successful manual extraction in all four cases.

Prevention includes measures such as the use of insect repellents against biting insects in areas with endemicity of the fly *D.hominis*. In areas where the Tumbu fly is endemic, keeping clothes away from contact with the soil, hanging clothes to air-dry in sunlight with the right side facing outwards, and ironing them, are useful measures.^{13,14} Local studies have reported cases of infestation with both *Cordylobia anthropophaga* as well as *D. hominis* in Nigerian children.^{5,15}

Conclusions

Myiasis still occurs in present day practice, despite advances in medicine and in hygiene. Children from high income families in endemic areas are not exempt from infestation. Physicians who attend to children in endemic areas should have a high index of suspicion especially when presented with close differentials such as furuncles.

Limitations

Unfortunately, the authors were unable to obtain parasitological identification of the extracted larvae. However, a clinical photograph obtained from the first case is inserted (Figure 1).

References

1. Pathania V, Kashif AW, Aggarwal RN. Cutaneous myiasis: Think beyond furunculosis. Med Journal, Armed Forces India 2018;3:268-72.
2. Bholra N, Jadhav A, Borle R, et al. Primary Oral Myiasis: A Case Report. Case Rep Dent 2012; 2012:1-4.
3. Blechman AB. Myiasis. 2019. Available from: <https://emedicine.medscape.com/article/1491170>.
4. Robbins K, Khachemoune A. Cutaneous myiasis: a review of the common types of myiasis. Int J Dermatol 2010;49:1092-8.
5. Jesuyajolu DA, Jesuyajolu P. Furuncular myiasis affecting the glans penis of a young boy caused by the larvae of *Cordylobia anthropophaga* (the tumbu fly): a case report. Pan Afr Med J 2022;42.
6. Francesconi F, Lupi O. Myiasis. Clin Microbiol Rev 2012;1:79-105.
7. Kuria SK, Oyedeji AO. Human myiasis cases originating and reported in Africa for the last two decades (1998–2018): A review. Acta Trop 2020;210.
8. Ogbalu OK, Achufusi TG, Orlu EE, et al. Human Myiasis in Neonates and Children of the Niger Delta Wetlands and South-East Nigeria. J cosmet. Dermatol. Sci. appl 2011;1:171-6.
9. Talwar HS, Panwar VK. New safe haven for maggots: a report of penile wound myiasis. BMJ Case Rep 2020;13:e237762.
10. Oyedeji GA. Socio-economic and cultural background off hospitalized children in Ilesha. Niger. J. Paediatr 1985;12:111-7.
11. Pereira T, Tamgadge AP, Chande MS, Bhalerao S, Tamgadge S. Oral myiasis. Contemp. Clin. Dent 2010.1:275-6.
12. Silva JMR, Varandas P, Santos F, et al. Cutaneous furuncle-like lesions with an unexpected diagnosis: a case report. Rev Port Med Geral Fam 2022;38:305-10.
13. Adisa CA, Mbanaso A. Furuncular myiasis of the breast caused by the larvae of the Tumbu fly (*Cordylobia anthropophaga*). BMC Surg 2004;5.
14. Dawadi BR, Sherpa MT, Shrestha R. A Case of Vulvar Myiasis. J Nepal Med Assoc. 2015;53:288-90.
15. Nwosu PU, Dakul DA. Report of a case of cutaneous (furuncular) and gastrointestinal myiasis (*dermatobia hominis*) in a Nigerian child. West Afr J Med. 2013;32(2):149-52.