

Neonatal Cutaneous Myiasis: A Mistaken Identity for Impetigo

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Abstract

Introduction: Myiasis is a parasitic infestation of the animal body by fly larvae that grow inside the host and feed from its tissue. Myiasis occurs when eggs laid by female flies come in contact with the human skin where they feed and develop into the larvae. Greater numbers are noted in the less-developed countries where environmental hygiene remains a problem. **Case Report:** A case of a previously healthy 10-day old female neonate delivered in a specialist hospital but was infested by the larval forms of the blowfly with over 50 papules widely distributed to all parts of the body excluding the diaper area which was initially mistaken for impetigo. **Conclusion:** This case is to heighten the index of suspicion in this category of babies especially in endemic settings and reiterate the need to handle newborn clothing with better care such as ironing especially where such articles are aired in the open.

Keywords

Diptera, Impetigo, Myiasis, Neonate, Tumbu Fly

1. Introduction

Myiasis is the infestation by larvae of diptera on man and animals. Myiasis has a global distribution, with more cases seen in the low-income countries in the tropical regions of the world. In the more developed countries where it does not constitute a major health risk, it is one of the top five dermatological diseases found in returning travelers [1]. Myiasis occurring in the neonatal period has been documented in Nigeria especially in rural settings [2] [3]. This report is particularly remarkable as about 60 maggots were extruded from this newborn baby born to parents of the middle class in an urban setting.

Worldwide, the flies that commonly cause the human infestation are *Derma-*

tobiahominis (human botfly) and *Cordylobia anthropophaga* (tumbu fly) [4]. Cutaneous myiasis occurs when these flies lay their eggs directly on debris or wound and occasionally on clothing (which may come in contact with the human skin). A female fly can lay as much as 500 eggs which hatch into larvae within a day. These larvae feed on dead or decaying organic material, host dead or living tissue and body substances and live for around one week, the maggots then crawl out to a cool, dry place to transform into pupae, from which adult flies emerge [5] [6].

2. Case Report

A term female neonate delivered by elective caesarean section on account of 3 previous caesarean section and antepartum haemorrhage to a booked para 4 mother at Federal Medical Centre, Abeokuta, Ogun State, Nigeria who was discharged on the 5th day of life. Her birth weight was 2.7 kg. She presented on the 10th day of life with 5-day history of multiple swellings on the body. The swellings were initially reddish but later became pustular. There was associated persistent irritability as patient was unable to sleep. Father gave a history of wearing clothes that were washed and aired outside. No history of similar swellings in older siblings or other family members.

She was commenced on chlorhexidine bath and oral cefuroxime 2 days after the onset of symptoms with no significant improvement. She is the fourth of 4 children in a monogamous family. The older siblings are alive and well. Father is a 46-year-old trader and mother is a 43-year-old accountant. They reside in a new site with bushes around and the family spread their cloths on line with bushes underneath but denied spreading of cloth directly on the shrubs.

On examination, she was acutely ill-looking, in painful distress, not pale, anicteric and not cyanosed. She had multiple papular/pustular swellings on erythematous bases on the scalp, face, trunk, limbs and some digits (**Figure 1**). None was noticed in the diaper covered region. Other systemic examinations were essentially normal.

Diagnosis of impetigo to rule out cellulitis was made. However, about 8 hours into admission, larvae were found to be creeping out of the swellings. Patient was reassessed and appropriate diagnosis of Cutaneous Myiasis was made. Petroleum jelly was applied to the lesion to create an oxygen-sparse environment for the larvae. A total of 60 cylindrical, whitish, segmented, legless and headless larvae measuring 10 - 20 mm were extruded from the body over a 4-day period (**Figure 2**). The morphology of the larva is consistent with those reported for the tumbu fly, *Cordylobiaanthropophaga* [7].

Laboratory investigations revealed a packed cell volume of 35% (35% - 55%), white cell count of 13,000/mm³ (9100 - 34,000/mm³) with differentials of neutrophil-54% (54% - 62%) and lymphocyte-31% (25% - 33%). Blood culture yielded no growth. Antibiotic treatment consisted of 6 days of intravenous cefuroxime, 100 mg/kg/day and subsequent 5-day course of oral cefuroxime of 30



Figure 1. Photograph of the neonate showing (a) scalp and facial swellings and (b) lesions on the back.

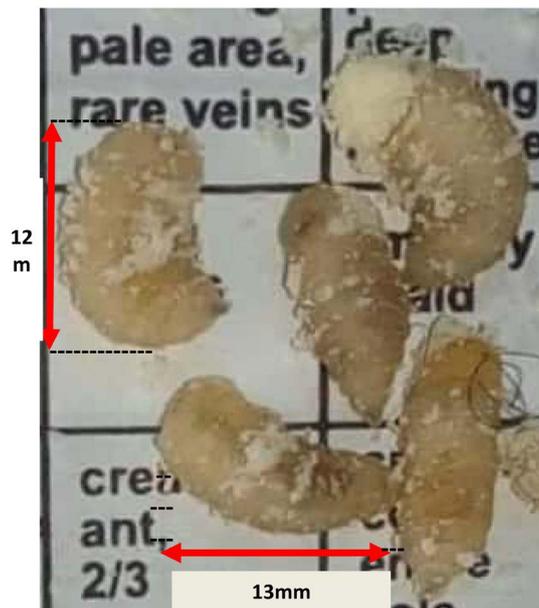


Figure 2. Photograph showing some of the extruded maggots. (Resolution: 4160 × 3120 pixels).

mg/kg/day. The child was discharged on the 16th day of life and had been seen on follow up clinic on 2 different occasions without further complaints.

3. Discussion

Myiasis in the newborn is considered a rare occurrence largely because this category of human are thought to be highly protected in every culture. Bapat in india documented a case (family *Calliphoridae* and genus *calliphora*) in a neonate abandoned in the dustbin [8]. Infestation by *Cordylobiaanthropophaga* in tropical Africa have been documented to cause “furuncular myiasis” because it pierces healthy skin resulting in itchy sores and painful boil-like lesions or fu-

runcles as seen in the present case that lead to an initial erroneous diagnosis of impetigo [9]. This species has also been documented to cause the highest number of myiasis in the newborn in a previous study [2].

Literatures have documented likelihood of misdiagnosis in settings where this clinical conditions are rare but even in tropical settings where they are thought to occur more frequently, the diagnosis is often missed [10]. Lesions have been documented in hidden parts of the body such as nose, mouth, ear, sinuses, anus, rectum, or vagina as a result of the flies being attracted to sites prone to malodorous discharges [8] [11] [12].

There are over 85,000 species of dipterans in 140 families, but all undergo complete metamorphosis in their life cycle, developing from the egg through a number of larval stages to the pupa from which the adult emerges. The larva (feeding and growing stage) is typically found in a completely different environment from the adult. This organism is thought to cause specific or obligatory myiasis because it needs a host for larval development. A large group within the *diptera*, sometimes known as the *calypterate* flies which includes houseflies (*musca* species), bluebottle (*calliphora* species), green bottle (*Jucilia* species), lesser houseflies (*fannia* species) and grey flesh flies (*sarcophaga* and *wohlfahrtia* species) are closely associated with human and have adapted to the human domestic environment (synanthropic). These larvae are short, plump, cylindrical with tapered ends and footless measuring about 5 - 35 mm in length, they are usually referred to as “maggots” [13].

The mode of infestation is thought to be from contact with eggs on clothing with which the baby was swaddled and larvae penetration of the skin of this baby as is typical of *Cordylobia spp.* The home environment could have been a contributory factor in this newborn whose clothing were spread outside in an uncontrolled environment that could easily be infested with these flies coupled with the fact that his clothing were not subjected to ironing before contact with his skin. The sources of contact were thought to be his clothing or shawls particularly because the areas covered by his disposable diaper were spared. However, a study in Nigeria has documented cutaneous myiasis affecting the diaper region including the penile shaft especially in neonates with recycled diapers [2].

There was no systemic infection in the present case but a previous study had documented associated *Staphylococcus aureus* infection in a case of umbilical myiasis a variant of cutaneous myiasis [14]. Similar to a previous study where over 100 maggots were extruded from the umbilicus, more than 60 maggots were extruded from the body of the baby, as a single female fly can lay as much as 500 eggs [5] [14].

Poor hygiene and environmental sanitation as well as low socioeconomic status are important risk factors for acquiring myiasis. Exposed suppurative lesion on human skin can also attract and stimulate the deposit of eggs by the female insect. Myiasis has been documented to occur all year round in Nigeria with peaks during the raining season. This case was also reported at the peak of the

raining season [2]. Duration of postembryonic development (egg to larval forms) varies from species to species. In this case, the infestation and development of the larva were thought to be in the first 5 days of life as the swellings were first noticed on Day 5, although the parents lingered for another 5 days before presenting in the hospital.

The recommended therapy of blocking the passages where the maggots reside with petroleum jelly, which deprives the maggots of oxygen was adopted in the management of this case. Surgical interventions are required where subcutaneous tunnels are found [9].

4. Conclusion

Cutaneous myiasis in neonates is indeed rare in urban settings. This case documents such in this environment; hence more attention should be given to so-called impetigo cases in the neonatal period. Physicians & health care workers attending to children in tropical countries should have a high index of suspicion for cutaneous myiasis in all cases of generalized pustular rash or furunculosis not responding to conventional antibiotics treatment, particularly where a history of sun drying of the patient's clothing in areas surrounded by shrubs or bushes is obtained. Parents are also encouraged to keep the clothing of their newborn away from environments where such flies are likely to perch and lay their eggs on them and where this is not feasible, their clothing should be ironed.

Ethical Consideration

Informed consent was obtained from the parent of the baby.

Conflicts of Interest

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

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