Furuncular Myiasis: A Diagnostic Challenge in Non-Endemic Regions

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ABSTRACT

Myiasis is a rare infestation caused by the larvae (maggots) of fly species. Due to frequent travelling, diseases previously restricted to certain parts of the world are being encountered in non-endemic areas. We report a case of a young Pakistani who had a history of travelling to Africa. Soon after returning, he noticed pruritic, erythematous, and mildly tender nodules on the trunk and right thigh. His travel history was a clue to the diagnosis. The lesions were infiltrated with lignocaine solution at the base and pressure was applied over the surrounding skin, resulting in the extrusion of larvae of *Cordylobia anthropophaga* from the centre of the lesions. Our case highlights the need for health professionals to be vigilant about the prospect of encountering rare diseases.

Key Words: *Furuncular myiasis, Tumbu fly, Cordylobia anthropophaga, Myiasis.*

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INTRODUCTION

Myiasis is a rare infestation of humans or other vertebrate animals, caused by the larvae (maggots) of fly species. It can be categorised on the basis of anatomical site involvement e.g., cutaneous, ophthalmic, auricular, urogenital, *etc*.[1] Furthermore, cutaneous myiasis can present as follicular, migratory, or wound myiasis.[1,2] *Cordylobia anthropophaga*, also known as the Tumbu fly, is typically found in tropical and subtropical areas of Africa.[2]

The adult Tumbu fly, also known as the mango fly, is yellow-brown in colour and approximately 15 mm in size. Although infestation by the Tumbu fly is year-round, hot humid conditions, e.g., during the rainy season, increases the chance. Female flies are shade-loving and prefer soil, contaminated with host fomites or wet clothing, for laying eggs.[2] It lays 100-300 eggs. After 2-3 days larvae hatch and can survive for 9-15 days only in the dirt and will perish unless they find a viable host (human or vertebrate animal). The larvae have the ability to penetrate intact skin. This leads to symptoms of mild pruritus and a small red papule at the site.

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With the passage of time symptoms aggravate to intense pruritus, a burning sensation and the lesion enlarges to a raised, erythematous papule or nodule with a central punctum. In 8-12 days in the host, larvae develop prepupal stage and emerge out from the punctum and under suitable conditions, drop back into the dirt and develop into pupa, and then emerge as adult flies. Hence, the life cycle starts again.[2]

CASE REPORT

A 34-year male presented to the dermatology outpatient department of a tertiary care hospital in Lahore, Pakistan with complaints of raised red lesions on the posterior trunk and right thigh for the last four days. The patient complained of an occasional pricking sensation as if something was crawling under the skin and mild pain. The patient had a history of travelling to the Central African Republic for four months and returned to Pakistan five days ago. He denied any systemic complaints. He remained well in Africa and did not develop any skin or mucosal lesions there. He initially went to a general physician who prescribed oral antibiotics. However, the patient was not satisfied with the medication and sought dermatologist's consultation. His cutaneous examination revealed four erythematous, warm, mildly tender nodules with central pustulation and surrounding erythema on lower trunk and thigh as shown in Figure 1.

The lesions had peripheral induration, erythema, and a central opening. The patient had stable vital signs. There was no associated lymphadenopathy, pallor, jaundice, *etc*. His systemic examination was unremarkable.

As the patient gave a history of travel to the Central African Republic and had symptoms of pricking, crawling sensation,

and mildly tender lesions, other cutaneous disorders were considered in differential diagnoses, apart from the furuncles due to bacterial aetiology. Furuncular myiasis was kept as the most probable diagnosis and one of the lesions on the thigh with pus at the top was selected for potential larva extraction. Lesions were cleaned with pyodine solution and the base of the furuncle was infiltrated with five ml (2%) lignocaine solution diluted with normal saline. A small incision was made at the centre and tangential pressure was applied over the base. This resulted in a larva popping out from the centre of the lesion. The extracted larva is shown in Figure 2A, B.

Figure 1: Two erythematous nodules with central pustulation and surrounding erythema on the anterior aspect of the upper right thigh.

Figure 2: (A) Larva extracted from the lesion and (B) its magnified image.

The same procedure was repeated on the second furuncular lesion on the thigh and another larva was extracted from that lesion as well. The remaining two lesions were smaller in size and the overlying skin had no central pustulation. We applied ointment containing polymyxin B, bacitracin and white petrolatum, and occluded the lesions to asphyxiate the larvae. The patient was asked to follow-up after 48 hours. On his return, lesions were examined and dead larvae came out of lesions employing the same technique. Post-extraction topical antibiotic cream was advised. Laboratory investigations i.e. complete blood picture, liver and renal profile were within normal limits. There was no eosinophilia. Colour Doppler ultrasound of the lesions was done post-procedure to confirm that there were no larvae under the skin. The larvae were collected in a bottle and sent to the microbiology section of the same tertiary care hospital, which confirmed these to be of *Cordylobia anthropophaga*. The patient was seen after two weeks and his skin lesions were almost healed and he had no systemic complaints.

DISCUSSION

Myiasis cases have been reported previously in Pakistan, which included the involvement of scalp, oral cavity, and urogenital area *etc*.[3-5] However, a case of furuncular myiasis presented to a dermatologist working in Pakistan has not been described before in local literature. Cutaneous myiasis due to *Musca domestica* (house fly) has been reported on the scalp of a 12-year emaciated, malnourished girl.[3] She presented with multiple heavily crusted, purulent lesions predominantly on the vertex and occiput of the scalp. Another case of cutaneous myiasis in an underweight five-year boy who was reported after an incisional biopsy of the enlarged parotid lymph node.[4]Due to improper wound care, post-surgical procedure, and crusted lesions formed at the site extending into the posterior oral cavity and the maggots were removed manually under local anaesthesia. The authors have not provided details of the species causing myiasis. Zaidi *et al*.[5] have reported another case of a five-year girl, malnourished, having urogenital myiasis due to *Chrysomya bezziana.* She presented with pain in her lower abdomen, burning micturition, and vaginal itching. All these cases have been reported in the paediatric population with patients belonging to low socio-economic strata. Our case report is of a healthy, well-kept, male adult with good personal hygiene. It highlights the need to broaden the list of differential diagnoses taking into consideration detailed history, especially the travel history, followed by meticulous examination.

Lesions of *Cordylobia anthropophaga* usually occur on body parts that are covered by clothing e.g., back but can also be seen in unusual places e.g., over the head and neck or genitalia.[6] The lesions present as furuncles but pruritus is usually the dominant symptom, rather than pain, as seen in our patient. Sensations of itch and discomfort prompted us to think of conditions other than furunculosis due to bacteria. There have been reports of furuncular myiasis presenting as thickened, hyperproliferative lesions, making the diagnosis difficult to establish.[7]

Management includes surgical or non-surgical techniques. Extracting larvae without an incision includes applying petroleum jelly over the punctum and cutting off the air supply, hence forcing the maggot to come to the surface and then capturing it with some forceps. We employed this method for the smaller lesions. Local anaesthesia and epinephrine can be injected at the base of the lesion. The central punctum can be increased in size by making a longitudinal incision over it and then applying pressure at the base to extrude the maggot.[8] This is the method we resorted for the larger lesions. However, it is important to prevent the burst of larvae to avoid granulomatous or serious inflammatory reactions. The patient's follow-up investigations did not reveal eosinophilia, and his pruritus had

settled after the extraction of larvae, indicating smooth retrieval of larvae without invoking inflammatory response.

Local researchers have published about furuncular myiasis in Pakistani troops deployed in the African continent as part of the UN Peace-keeping mission.[9,10] However, its diagnosis in Pakistan has not been reported before. As international travelling is getting frequent, physicians need to consider conditions endemic in certain parts of the world in their differential diagnoses, especially when there is a history of travel to those areas. Currently, cutaneous myiasis is among the top five cutaneous disorders encountered by global travellers.[2] Being aware of their clinical manifestations will ensure prompt diagnosis and effective management plans.

PATIENT'S CONSENT:
Informed consent was obtained from the patient to publish the data concerning this case.

COMPETING INTEREST:
The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:
AR: Conception, design, and writing of the manuscript and critical analysis of the intellectual content.
SI: Conception, acquisition of the data, and manuscript writing.
NR: Acquisition of data and manuscript writing.
All authors approved the final version of the manuscript to be published.

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