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# Human Foot Myiasis in Malaysia with a Review of the Literature

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## Abstract

We report a case of foot myiasis in a 65-year-old male Chinese farmer living in rural Kuala Lumpur, Malaysia. The patient presented to plastic surgery clinic at the University Malaya Medical Center (UMMC) in January, 2002 with a swollen, inflamed right big toe with an ulcerated first right interphalangeal web space. Numerous maggots were emerging from the ulcerated area. The patient is a diabetic. An X-ray showed rarefaction of the bones of the right big toe. The patient was treated with debridement and removal of ulcerated infected tissues and amputation of the big toe. All the maggots were collected from the wound, then it was closed. The morphological characteristics of third stage larvae identified them as *Chrysomya* spp (Calliphoridae). This is the third case of big toe myiasis reported in Malaysia.

**Keywords:** myiasis, *Chrysomya*, foot, Malaysia

## Introduction

Myiasis is the infestation of live humans or vertebrate animals with fly (dipterous) larvae, which feed on dead or living tissues [1]. Flies commonly involved in myiasis are *Chrysomya bezziana*, *C. megacephala*, *Cochliomyia hominivorax*, *Lucilia* spp and *Sarcophaga* spp [2].

Myiasis appears in different forms and locations, depending on the fly species and where the larvae are located. Some flies may lay eggs in open wounds, other larvae may invade unbroken skin or enter the body through the nose or ears, and still others may be swallowed if the eggs are deposited on the lips or in food [3]. Many types of myiasis have been reported in humans: intestinal [1-4], auricular [5], orotracheal [6], vaginal [7], nasal [8], and penile [9,10].

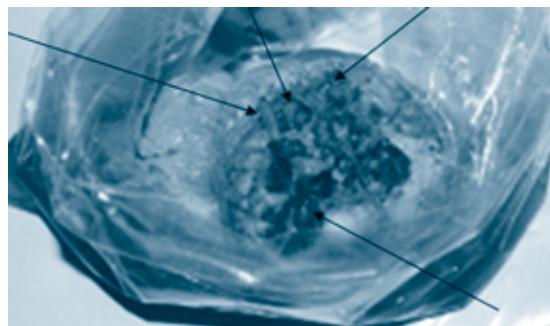
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## Case Report

We present the case of a 65-year-old male Chinese diabetic farmer living in rural Kuala Lumpur who suffered from a swollen, and inflamed right big toe with an ulcerated wound in the first web space. The patient was admitted to the plastic surgery unit at the University Malaya Medical Center (UMMC) in January, 2002. He used to work on the farm in bare feet. He had trauma to his right foot one month before admission. He neglected the wound until the maggots started to come out of it. On examination his big toe was swollen inflamed, ulcerated and oozing blood and pus with an offensive odor. An x-ray showed rarefaction of the bones of the big toe. Wound inspection revealed a large number of maggots in the tissue of the big toe.

His diabetes mellitus was controlled, the wound was debrided and tissue of the big toe was explored, which was found to be infested with a large number of maggots. Amputation of the big



**Fig 1 Numerous maggots in amputated big toe.**



**Fig 2 Third instar larvae of *Chrysomya* spp (Diptera: Calliphoridae) found in the wound. Note the ingested blood in the gut (arrow).**

toe was done, and maggots were removed from the wound, which was then closed (Fig 1). Post-op the wound was cleaned and dressed until it healed.

We were unable to preserve and mount the maggots onto slides. Based on the larvae morphological characteristics [2] and the cases reported by Reid [11], Thomas *et al* [12] and Abu Bakar *et al* [13], and the fact that *Chrysomya* spp and *Sarcophaga* spp are the most likely causative agents of dermal myiasis in Malaysia, the insect was most likely Calliphoridae. On gross observation of the larvae morphology, we noticed the posterior spiracles were well sclerotized, the spiracular slits were cigar-shaped and radiating from the opening of the peritreme. The posterior spiracles were not within a depression pit,

suggesting Calliphoridae, based on Greenberg and Kunich [14] (Fig 2).

## Discussion

Different types of human myiasis have been reported from peninsular Malaysia which are attributed to *Chrysomya bezziana* fly species. Cheong *et al* [15], Baharudin *et al* [16] and Lee *et al* [17] reported intestinal myiasis; Thomas [12], Ramalingam [18] and Abu Bakar *et al* [13] reported cutaneous myiasis; Ramalingam *et al* [19] and Lee [20] reported urogenital myiasis; Lee and Cheong [21] and Roszalina and Rosalan [22] reported oral myiasis; Lee *et al* [23] reported nasopharyngeal myiasis. Four cases of aural myiasis have been reported, one caused by *C. megacephala* [24], two by *C. bezziana* [25,26] and one by *Sarcophaga* spp [27].

There is report of maggot infestation of an ulcer of the big toe caused by *C. bezziana* [11] and another similar case caused by *S. krameri* [12]. This is the third case of dermal human myiasis reported from Malaysia.

We conclude the myiasis in this case was a complication of an open, neglected wound which was infested with calliphorid flies.

We recommend farmers and other people in rural areas should avoid working with bare-feet, should wear shoes (boots) while working, and wounds should be treated properly to avoid such complications.

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