

CASE REPORT

A case of human enteric myiasis due to larvae of *Hermetia illucens* (Family: Stratiomyiidae): first report in Malaysia

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Abstract

A case of true enteric myiasis in a 7-year-old girl is reported. Two larvae were obtained from the vomitus of the patient. After processing and identification, the larvae were found to be those of *Hermetia illucens* (Soldier Fly). This is the first case of true enteric myiasis due to these larvae in Malaysia.

Key words: Enteric myiasis, fly larvae.

INTRODUCTION

Malaysia, with its warm tropical climate is known for the wide varieties of fly in the Order Diptera. Many of these branchyceral flies are known myiasis-producers in man and animals. However, cases of human myiasis (due to *Chrysomya bezziana* Villeuve) were only first reported in the 50's.¹ Subsequently, cases of human myiasis were reported occasionally. Pakeer Oothuman & John Jeffery² had reviewed all known cases of human myiasis and classified these as urogenital, cutaneous and intestinal myiasis. Later, Lee³ also reported a case of oral myiasis due to *Ch bezziana*. Despite these reports, relatively little is known about other forms of myiasis. A case of true enteric myiasis due to *Hermetia* species involving the gastro-intestinal tract of a patient is reported for the first time in this paper.

CASE REPORT

A 7-year-old girl from Kati, Kuala Kangsar, Perak complained of vomiting for about 1-2 months. Subsequently, she vomited 3-4 live greenish "worms." Other than vomiting, she did not show any symptoms and was not anaemic. The worms were collected and preserved in 70% alcohol for taxonomic studies.

Entomological findings

On receipt, the specimens were processed according to the methods described by Lee.³ The maggots were immediately washed in distilled water and soaked in 10% KOH solution

overnight after the last segments were cut transversely. The maggots were then washed with distilled water and neutralised in 10% acetic acid for 30 minutes. Dehydration of the specimen was conducted in ascending series of ethanol and the maggots were mounted onto glass-slides with Canada balsam. After drying in an oven at 30°C overnight, the specimens were examined. The larvae were identified as those of *Hermetia illucens* (Soldier Fly) using the description of James⁴ and the pictorial key prepared by the Division of Medical Entomology, IMR. These larvae were flattened dorso-ventrally, very leathery and dark brown in colour. The body segments showed transverse rows of strong bristles (Fig 1). The body length of these larvae was 15 and 20 mm and the width was about 5 mm.

RESULTS & DISCUSSION

Myiasis is often known as the infestation of a live human or animal host with dipterous larvae.¹ This pathologic condition is very common in the tropics due to the large variety of dipteran flies. Although the Soldier Fly is quite commonly found in Malaysia, according to Leclercq,⁶ *H illucens* is not an indigenous species in this part of the world and its original home is said to be in the American continent. In Malaysia, this fly is very often associated with decaying carcasses and human cadavers. Lee & Marzuki⁷ reported that larvae of *Hermetia* were often recovered from monkey carrion at the late stages of decomposition. Lee (unpublished) had also

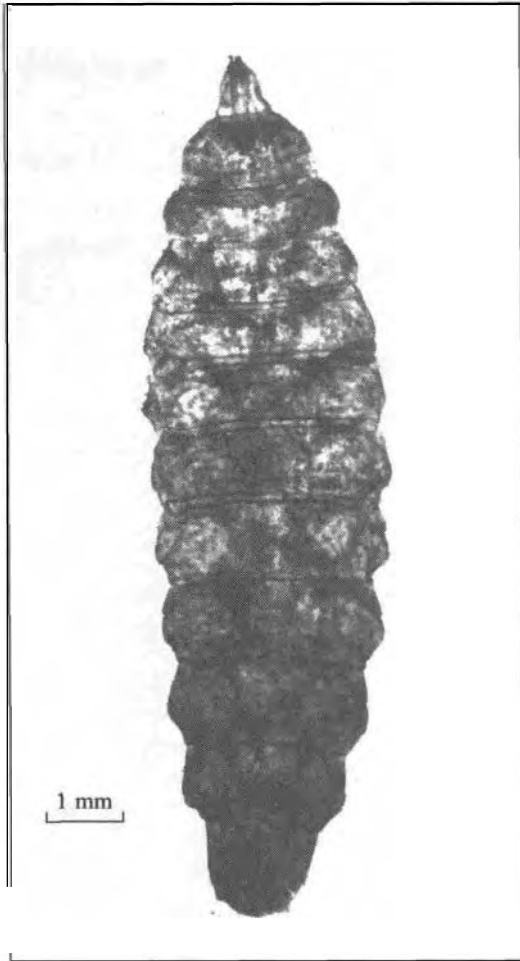


FIG. 1: Larva of *Hermetia illucens* recovered from the vomitus of the patient. Note the tough and leathery larval skin and the small non-retractile head which are characteristic of the Soldier Fly larva. (Magnification X10).

observed several forensic cases in which *Hermetia* larvae were retrieved from highly decomposed human cadavers and skeletons. Hence it is clear from these limited information that larvae of *Hermetia* are primarily an invader of carrion and cadavers in Malaysia. The development of the larvae of *H illucens* has been well-studied by *Furman et al*⁸ in the laboratory. Early young instars of the larvae (1-3 mm long) cultured on a standard fly medium at 30°C grew to a length of 10-15 mm within 4 days. At the end of 2 weeks, they had attained lengths ranging from 25-30 mm and 50% of the larvae had pupated.

True enteric myiasis due to larvae of *H illucens* in a living patient has never been reported

in Malaysia, although Sinniah *et al*⁹ were able to obtain 2 larvae of *H illucens* from a human cadaver estimated to be 4-5 days old. They postulated that the deceased might be infested with *H illucens* larvae before death, though the possibility of migration of the larvae from other breeding sites to the corpse was not examined. In the present case, the patient had been vomiting for 1 to 2 months without any larvae in the vomitus and only mature larvae were detected in the subsequent vomitus indicating that they could have completed their development in the gastrointestinal tract before being expelled through vomiting. Our findings raise for the first time a case of true enteric myiasis and the consideration that *H illucens* larva is a myiasis-producer in man in Malaysia. *H illucens* larvae had been known as a enteric myiasis-producers since 1935¹⁰ and many similar cases have since been reported.⁴ It is thus clear that enteric infestation of a human with these larvae constitutes true myiasis as the larvae were found to develop in the gastrointestinal tract.

The route of infestation of *H illucens* larvae in the child is unclear. We speculate that she ingested food contaminated with eggs of *H illucens* prior to the onset of vomiting. According to *Harwood & James*,¹¹ the infestation of *H illucens* in humans occurs mainly via accidental ingestion of decaying fruits and vegetables contaminated with larvae/eggs. The large and heavily chitinised larvae often cause severe gastro-intestinal disorders such as vomiting. Probably because of the tightly closed spiracular cavity and the tough coating of silicious material, the larvae are very resistant to acid found in the intestinal tract.¹² To date, however, there has been no evidence that these flies are capable of disease transmission.

There is at present no known effective treatment for enteric myiasis other than the use of purgative.⁵ Preventive measures such as a high level of personal hygiene, proper preservation of food, disposal of carcasses and decaying materials and other fly control measures are needed. In the absence of detailed information on the Soldier Fly, studies on its bionomics should be seriously considered.

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