

Short Communication

Intestinal Myiasis Due to *Musca domestica*: A Report of Two Cases

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SUMMARY: Myiasis is the infestation of live human and vertebrate animals with dipterous larvae, which, at least for a certain period, feed on the host's dead or living tissue, liquid body substances, or ingested food. Intestinal myiasis is usually an accidental phenomenon, which occurs due to the ingestion of eggs or larvae present in food. Usually the patient is asymptomatic and the larvae are excreted harmlessly in the feces. In some cases, however, the passage of larvae may be associated with symptoms. The present paper describes two such cases.

Myiasis is the infestation of live human and vertebrate animals with dipterous larvae, which, at least for a certain period, feed on the host's dead or living tissue, liquid body substances, or ingested food (1). Broadly, myiasis can be divided into three types: cutaneous myiasis, body cavity myiasis, and accidental myiasis.

Intestinal myiasis, an accidental phenomenon occurring when eggs are ingested in food and passed into the feces as larvae, is usually transient and asymptomatic. *Musca domestica* or the common house fly is a rare cause of myiasis in humans. Previously, one case of intestinal myiasis due to *M. domestica*, in which there was persistent excretion of maggots in fecal samples, has been reported (2). Other case reports from India indicate that intestinal myiasis can be caused by *M. domestica* (3-5) and *Megaselia scalaris* (6). Other fly larvae that can cause intestinal myiasis include *Sarcophaga* sp. and *Phormia regina* (7), *Parasarcophaga* (8), *Sarcophaga crassipalpis*, *S. peregrina* and *Hermetia illucens* (9), *Eristalis tenax* (10), and *Dryomyza formosa* (11). Though, the majority of infestations reported have been characterized chiefly by the asymptomatic passage of "worms", infestation can be associated with symptoms. Oral feeding of larvae on human volunteers showed that the larvae could produce gastrointestinal distress (12). Here we describe two cases of infestation associated with symptoms.

Case I: A 44-year-old man presented with a history of passage of worms in his stools over the previous year. The patient reported having had episodes of loose stools, 4-5 motions per day, which would last for 2-3 days then subside in response to symptomatic treatment. There was no history of pain in the abdomen, hematemesis, melena, rectal bleeding, weight loss, or fever. The patient had been diagnosed for depression and was on treatment with tab amitriptyline 25 mg thrice daily and tablet chlorthalidone 10 mg twice daily. Examination revealed an averagely built and reasonably nourished individual. Blood pressure was 140/80 mm Hg and pulse rate was 84/min. There was no pallor, clubbing, icterus, lymphadenopathy, or pedal edema. There were no markers of malnutrition in the form of glossitis, cheilitis, angular

stomatitis, or Bitot's spots. Examination of abdomen, cardiovascular system, chest, and central nervous system showed normal findings.

Fecal samples from the patient sent to the Parasitology Laboratory for routine testing revealed the presence of larvae of *M. domestica*.

To rule out whether the feces were being contaminated by larvae from the pot in which the patient was defecating, a sigmoidoscopy was done. Mucosa was normal and a biopsy obtained. Feces obtained directly from the large gut. This specimen was examined, and it also showed the presence of maggots. Histopathological examination of the rectal biopsy showed a mild increase in inflammatory cells.

Case II: A 19-year-old boy, a wrestler, presented with dull, diffuse pain in the abdomen that had been experienced off and on for the previous 2 years. There had been no alteration in bowel habits nor any fever. A history of loss of appetite and decrease in weights, however, was reported. The patient had lost 4 kg over the previous year. There was no history of melena, hematemesis, vomiting, or rectal bleeding. Medical history included operation for congenital hernia at the age of 2-and-a-half months. Examination revealed an averagely built and reasonably nourished individual with a blood pressure of 130/70 mm Hg and a pulse rate of 76/min. There was no pallor, clubbing, icterus, or pedal edema. There were no markers of malnutrition in the form of glossitis, cheilitis, angular stomatitis, or Bitot's spots. Examination of the abdomen, cardiovascular system, chest, and central nervous system showed normal findings.

Fecal samples from the patient sent to the Parasitology Laboratory for routine testing revealed the presence of larvae of *M. domestica*.

Sigmoidoscopy was performed. The mucosa was normal, and a biopsy obtained feces directly from the large gut. This specimen was examined, and it showed the presence of maggots. Histopathological examination of the rectal biopsy showed mild inflammatory changes.

Macroscopic examination revealed small worm-like structures the size of pinworms, which showed vigorous movement. Upon being placed in a Petri dish, the worms could even escape it. In appearance they resembled fly larvae; a black structure appeared at one end. They varied in size from 4-10

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mm in length. The anterior end revealed the presence of a couple of black retractable hooks. The larvae were fixed in 10% formalin for 24 h, dehydrated in ascending grades of alcohol, cleared in xylene to clear the internal structures, and mounted in DPX. They were then examined microscopically for detailed internal structure and identification. Several of these maggots were placed in a Petri dish and several in a bottle with filter paper and normal saline. These specimens were observed daily for the next 10-12 days to observe whether the conversion into pupae and subsequently into flies would occur. Identification of the species of the resulting fly was performed.

Microscopic examination of the larvae revealed the characteristic features of the maggots of the common house fly (*M. domestica*) in both the above cases (Fig. 1). The main identifying features were the smooth posterior and the presence of characteristic spiracles at this end. The posterior spiracles were D-shaped with three sinuous slits and a button in the center, which is a characteristic feature of the larvae of *M. domestica* (Fig. 2). At the anterior end, two black retractable hooks were present. Conversion of the maggots into pupae then into adult flies occurred within 7-10 days, and these flies were also identified as *M. domestica* in both cases (Fig. 3).

Intestinal myiasis occurs when fly eggs or larvae deposited in food are ingested, survive in the gastrointestinal tract, and are excreted in the feces. These larvae may lead to what is called as pseudomyiasis in which the ingested eggs hatch

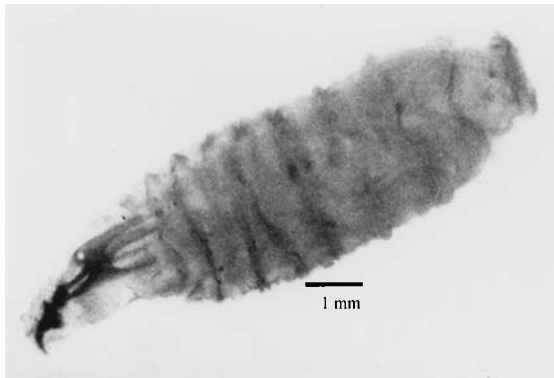


Fig. 1. A microphotograph of the larvae detected in the feces of the two patients. Note the typical black hooks at the anterior end and the cephalopharyngeal skeleton.

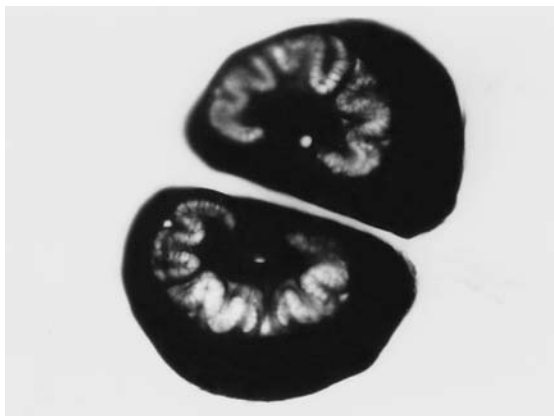


Fig. 2. The posterior end of a larva, showing the posterior spiracles. These are D-shaped with three sinuous slits, which features are typical of *Musca domestica*.



Fig. 3. Photograph of an adult fly after its conversion in the laboratory from larva to pupa to adult.

into larvae in the intestine and are passed out without any symptoms. In certain cases, the ingested maggots can cause some damage to the intestine and lead to symptoms. The present paper describes two such cases; one associated with the persistent passage of maggots of *M. domestica* in feces and symptoms such as episodic diarrhea, the other with a decrease in appetite and weight loss. The source of the larvae could not be ascertained, as was the case in most of the previous reports, though overripe fruit is generally suspected. The present case report highlights the possibility that worms or seeds passed in fecal samples may be the larvae of flies, and these should be closely examined in case of such complaints. The larvae are usually refractory to treatment, and the best strategy is to try to identify the food source responsible and eliminate it from the diet (5).

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