

A Case of Intestinal Myiasis Caused by *Lucilia cuprina* (Wiedemann) from Jordan

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(Accepted September 5, 1995)

Abstract

This paper records the first case of intestinal myiasis reported from Jordan. The patient, a cook in the armed forces, passed live maggots of different larval instars with his stool over a 2 month period. Third instars were reared in the laboratory and emerged as adults which were identified along with the larvae as *Lucilia cuprina* (Wiedemann) (Diptera: Calliphoridae). This is the first report of intestinal "pseudomyiasis" caused by larvae of this species.

Key words: intestinal pseudomyiasis; *Lucilia cuprina*; Jordan.

In man, myiasis is rarely a life threatening disease and is most commonly cutaneous or ophthalmic (Zumpt, 1965; Service, 1986). Other forms include intestinal myiasis which is rare in humans and is usually caused by the accidental ingestion of undercooked food contaminated with larvae (Service, 1986). Sporadic cases of intestinal myiasis, caused by larvae of a number of dipterous flies have been reported from various parts of the world. These include cases caused by the larvae of *Sarcophaga peregrina* (Tachibana *et al.*, 1987; Nagakura *et al.*, 1991; Hasegawa *et al.*, 1992), *Parasarcophaga crassipalpis* (Shiota *et al.*, 1990; Nagakura *et al.*, 1991) and *Hermitia illucens* (Nagakura *et al.*, 1991) from Japan; cases caused by larvae of *Stomoxys calcitrans* and *Megalesia insulana* from Macao (Ferreira *et al.*, 1990) and a case resulting from larvae of *Muscina stabulans* reported from Washington, USA (Laurence, 1986). In this report we present the first recorded autochthonous case of intestinal pseudomyiasis from Jordan.

Case History

The patient was a 27 year old cook in the Jordanian armed forces. At the time of infection, he was

stationed in a military camp situated 10 Km from Zarqa city, Jordan. On seeing moving "worms" in his faeces, the patient presented himself for treatment to the physician at the outpatient clinic located on site. He also complained of abdominal pain, diarrhoea, dizziness, vomiting and loss of appetite.

Initially, the infection was erroneously diagnosed as an intestinal helminthic infection and the patient was treated with mebendazole. Upon the persistence of symptoms, the patient was referred to Prince Hashem Military Hospital in Zarqa for further diagnosis. The stool sample examined at the laboratory was soft but did not contain mucous or blood.

Faecal examination revealed the presence of live maggots. Routine blood tests were performed and were all normal. No further treatment was given to the patient and he was asked to report to the clinic weekly for supervision. During each visit, faecal samples obtained from the patient and examined in the laboratory revealed the presence of live maggots during the first 5 weeks. Since the larval stage of maggots lasts less than 1 week at room temperature, the passing of larvae over a period of 5 weeks indicates that the patient must have repeatedly ingested contaminated raw meat. From the onset of the infection and during supervision, the patient lost 5 Kg of weight. The infection lasted two months after



Fig. 1 Stages of *Lucilia cuprina* and diagnostic characters used in the identification of the third instar larva (L₃). An L₃ (a) from the stool of case reported here was reared into a pupa (b) from which an adult fly (c) emerged under laboratory conditions. L₃ was identified through the characteristic arrangement morphology of its posterior end tubercles (d), posterior spiracles (e) and cephalopharyngeal skeleton (f).

which the patient spontaneously recovered and regained his appetite.

Identification of Larvae

Active first, second and third instar larvae were separated from the faecal material of the patient. Eight third instars were kept in a moist jar at 23°C and developed into pupae within a week. The pupal stage lasted another week after which two adult female flies emerged (Fig. 1). Third instars were identified by the distinctive characteristics of their cephalopharyngeal skeleton as well as the morphology and position of their posterior spiracles and the position and orientation of the tubercles on their posterior end (Fig. 1). Identification was carried out according to keys and descriptions of Kano and Sato (1952), Zumpt (1965) and Ishijima (1967). The major characters used in the identification of adult females at the species level were the metallic green colour of the femora of prothoracic legs, the width of the frontal stripe in relation to the parafrenal and the single bristle on the occiput (Zumpt, 1965; Furman and Catts, 1970; Smith, 1973). Both larvae and adults were identified as the green bottle blowfly *Lucilia cuprina* (Wiedemann) (Diptera: Calliphoridae).

Discussion

Lucilia cuprina is a facultative agent of myiasis in man and domestic animals (Service, 1986). It is most commonly known as an economically important producer of cutaneous myiasis in domestic animals, particularly sheep, in Australia and South and West Africa (Zumpt, 1965; Kettle, 1984). *L. cuprina* is also known to infest wounds of humans (Zumpt, 1965; Service, 1986) and can occasionally infect body cavities causing intestinal myiasis (Smith, 1973; Service, 1986). Adults of *Lucilia* are known to gather around unhygienic places, particularly where meat is found, in order to lay their eggs (Service, 1986). The present case concerned a cook who had a habit of eating raw meat. He probably acquired the infection accidentally through the ingestion of raw meat contaminated by eggs or early stage larvae of *L. cuprina*. The excretion of larvae in various stages of development, including third instar larvae, com-

bined with the presence of symptoms during the infection, indicates that egg hatching and larval development have probably taken place within the digestive tract. However, not all larvae have completed their development into third instar larvae before being passed out with the faeces. This indicates that the alimentary tract is not a suitable environment for the full development of the majority of larvae. Oldroyd and Smith (1973) and Service (1986) commented on the poor survival of *Lucilia* larvae in the alimentary tract of man and Zumpt (1965) even suggested that all cases where fly maggots are found in the human intestine should be regarded as 'pseudomyiasis'. Apart from the psychological impact of the infestation on the patient, there did not seem to be any serious or lasting pathogenicity. Therefore, this case is one of 'pseudomyiasis' as defined by Zumpt (1965).

This is the first case of human intestinal myiasis to be reported from Jordan. The only other cases of myiasis reported from this country are those of ophthalmomyiasis, caused by the larvae of *Oestrus ovis* (Nabeel and Saliba, 1978; Amr *et al.*, 1993). As far as we know, this is the first reported case of intestinal pseudomyiasis caused by *L. cuprina*.

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