

Cutaneous myiasis caused by the housefly, *Musca domestica*

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Accepted for publication 29 April 1991

Summary We report a case of cutaneous myiasis by the housefly, *Musca domestica*.

In urban environments human myiasis caused by maggots of blowflies (Calliphoridae) is not uncommon¹⁻³ but invasion of the skin by larvae of the housefly is less frequently observed. We report a case of cutaneous myiasis by *Musca domestica*.

Case report

A 57-year-old obese, insulin-dependent diabetic woman was admitted to the dermatology unit at the Belfast City Hospital in June 1990. She presented with recent marked deterioration of a long-standing leg ulcer. She lived alone in circumstances of poor hygiene and was unable to walk much beyond 20 yards and used a wheelchair for outdoor excursions. She had refused a 'home-help', but permitted the district nurse to attend on alternate days to dress her ulcers.

On admission she was unkempt but alert and was in considerable distress from pain in the ulcer which was deep and contained foul-smelling and macerated necrotic tissue. A few small maggots were observed emerging from the ulcer, one of which was collected for identification. On subsequent days no further maggots were found. Over the next 3 weeks the ulcer was cleaned daily with hydrogen peroxide solution, Hioxyl cream was applied to the base of the ulcer and magenta paint and 1% hydrocortisone cream were applied to the surrounding area. The pain diminished and the ulcer gradually improved and the patient was discharged after 3 weeks to the care of a district nurse.

Identification

The single maggot removed for identification died shortly after emergence from the tissue. It was fixed in 50% ethanol and sent to Medical Entomology Centre where it was identified as *Musca domestica*, the common

housefly, by the characteristic appearance of the posterior spiracles; three strongly sinuous slits with axes approximately parallel to the spiracle margins;⁴ and the structure of the cephalopharyngeal skeleton.⁵ In this case the mouthparts appeared somewhat confusing because the larva was found to be in the process of moulting from the second to the third larval stage and remains of the second instar sclerites were in the process of being moulted with the old skin (Fig. 1). This, together with its length of 5.3 mm, indicated that the maggot was about 3 days old on removal from the patient.

The gut contained a number of erythrocytes in a partially digested state indicating that the maggot had penetrated living tissue at least temporarily (Fig. 2).

Discussion

Facultative myiasis, where fly larvae gain access to human tissues via a wound, is most common in tropical regions. However, an increase in reports received by the Medical Entomology Centre from an average of one case annually in Britain until 1988, to three cases in 1989 and nine cases in 1990, suggest that it is increasingly common in temperate countries. The causative organisms are mostly blowflies of the family Calliphoridae, which are normally found in cadavers but will develop well in necrotic wounds or living tissues given the opportunity.¹⁻³ The clinical presentation varies depending on the species of fly involved.⁶

In contrast the larvae of the housefly *Musca domestica* are normally saprophagous, being found in dung and decaying refuse. Even when found in cadavers it is probably the micro-organisms of decay that constitute their principal food source.⁴ Consequently whenever this species is found as a causative agent in myiasis it is probably due to insanitary conditions. This has been so in all previously reported cases of which the majority were patients with long-term necrotic cutaneous lesions that had suffered some degree of neglect.⁷⁻¹⁰

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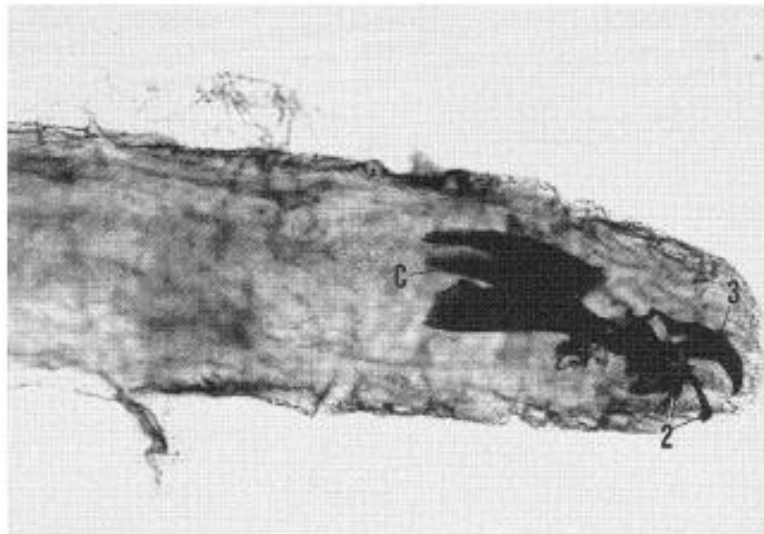


Figure 1. Photomicrograph showing the cephalopharyngeal skeleton (C) with mandibular sclerites of the third instar (3) and mandibular and pre-oral sclerites of the second instar (2). (original $\times 100$).

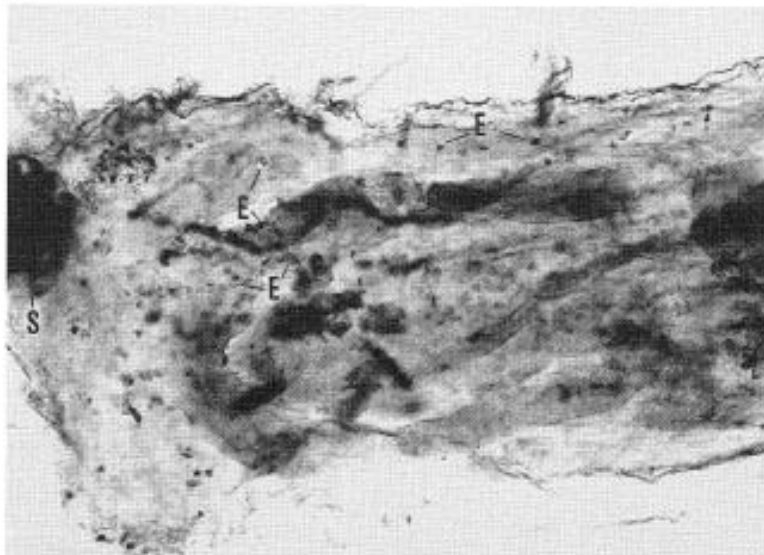


Figure 2. Partially digested erythrocytes (E) in the gut near the posterior spiracles (S). (original $\times 100$).

Houseflies have an acute sense of smell and are able to detect faecal or decaying material at some distance, and although they will enter houses and readily alight on human skin they are not persistent seekers of mucus or sweat.⁶ The fly in our case was probably initially attracted to contaminated dressings as a site to lay its eggs and subsequently a few of the maggots entered the ulcerated tissue.

The female housefly normally lays up to 150 white, sausage-shaped eggs in a batch which hatch in a few hours at temperatures around 30°C. If, however, the fly

was disturbed it may have laid only a few eggs which could easily be overlooked and a few first instar maggots are unlikely to have been noticed when the soiled dressing was changed. Because so few larvae emerged from the tissue it is probably only by misfortune that any managed to enter at all. Housefly myiasis is not reported to cause any pathology, except under extreme circumstances,¹⁰ and appears to cause no discomfort.⁷ In most cases the larvae do not find adequate nourishment within living tissues and are slow to develop and frequently stunted in growth,⁷ often emerging from the

tissues over a long period. Because our specimen was found to have ingested blood cells it is possible that some houseflies may be better adapted to myiasis and able to invade living tissue, in a similar way to pathogenic strains of blowflies.

Irrespective of pathogenesis the possibility of myiasis as a complication of long-term ulcerative conditions is a risk of which both clinical staff and patients should be aware, especially during periods of warm and humid weather when flies abound. In some cases there may be a need to identify the species involved because the presentation of relatively benign and potentially pathogenic infestations may initially appear similar. If there is any doubt live maggots should be sent to a specialist laboratory for identification.

Acknowledgments

This study was financed in part by the annual grant from the East Anglian Regional Health Authority to the Medical Entomology Centre at the University of Cambridge. We wish to thank Dr J.C. McMillan, of Belfast City Hospital, for bringing this case to our attention and Mr Chris Burton, of Addenbrookes Hospital Cambridge, for photographic help.

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