Features of a *Dermatobia hominis* Third Stage Larva Recovered from a Patient in Tulsa, Oklahoma

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Myiasis (Gr. *myia* fly) is the infestation of tissues by fly larvae, or maggots. It is common in domestic and wild mammals worldwide and is a relatively frequent occurrence in humans in rural areas where people are in close contact with domestic animals. This report describes the appearance and structures of a mature 3rd stage larva of *Dermatobia hominis* Linnaeus (Diptera: Cuterebridae), the human botfly, recovered from a patient in Tulsa, Oklahoma.

Dermatobia hominis occurs in Mexico and Central and South America where its larvae parasitize a wide range of vertebrate hosts, including humans and domestic and wild mammals and a few birds (Catts 1982, Goddard 2003). Although the fly does not occur in the United States, the larvae have been recovered from Americans traveling in endemic areas.

A mature 3rd stage larva of *D. hominis* emerged from a boil-like ulcer on the scalp of an adult female, a resident of Tulsa, Oklahoma, approximately 9 wk after she had returned from a 2 wk vacation to Costa Rica. The living larva was observed and photographed (Fig. 1) approximately 12 h after emergence; fixed in 70% ethanol at 60°C; cooled to room temperature and after 24 h, processed for scanning electron microscopy (Fig. 2).

The live larva measured 15 mm long by 8 mm wide, tapering to a 3.5 mm anterior end and a 1 mm posterior spiracle. The larva was creamy-white in appearance and possessed two anemone-like spiracles and a pair of well developed oral hooks on the anterior end (Fig. 1). The oral hooks (Figs. 1 & 2) were used for invading the skin and for movement. A thick fringe of villi obscured the lumina of the anterior spiracles.

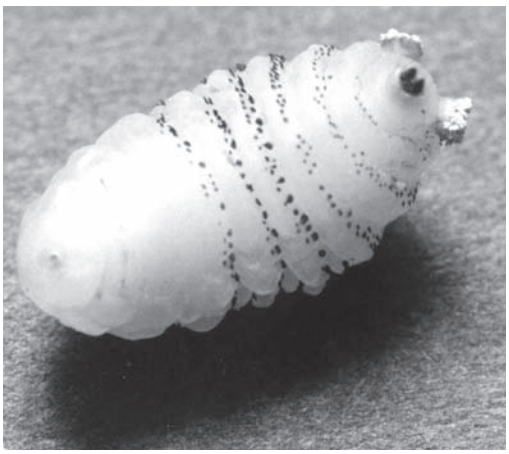

Fig. 1. *Dermatobia hominis*, mature 3rd stage larva. Size 8 x 15 mm.

Fig. 2. Scanning electron micrograph of mature 3rd stage larva of *Dermatobia hominis* ah = abdominal hooklets, as = anterior spiracles, oh = oral hooks, ps = posterior spiracle.

The body consisted of 9 segments of which the first six contained rows of short recurved spines or hooklets, used to anchor the larva in the tissue (Figs. 1 & 2). The posterior end had a pair of spiracular plates located in a small deep cleft.

Human botflies have a remarkable cycle of development and egg dispersal. The female *D. hominis* catches a mosquito or some other bloodsucking fly and attaches her eggs to its abdomen. The eggs develop over a period of 4 to 9 d and when the insect alights to obtain a blood meal, the increased temperature of the warm-blooded host is the trigger for the eggs to hatch and the larvae to emerge and penetrate the skin of the mammalian host. Larvae remain near the site of entry and develop in the subcutaneous tissue over a period of 6 to 12 wk, although the time may be as short as 4 wk or as long as 18 wk (Catts 1982, Goddard 2003).

A boil-like lesion, which may be quite painful, develops as the larva grows. The larva breathes through its posterior spiracle (Figs. 1 & 2), which appears in the center of the lesion as a hole, open to the external air. The larva develops through 1st, 2nd and 3rd stages and then emerges from the skin and drops to the soil where it pupates and becomes an adult in approximately one month (Catts 1982, Goddard 2003).

Typically, treatment is not needed in most cases of cutaneous myiasis, as the larvae eventually will emerge from the skin to pupate. However, a variety of topical applications have been used, from oils and lotions to chicken fat and bacon (Brewer et al 1993, Biggar 1994). The rationale being, to cover the spiracular opening and prevent the larva from breathing, thereby causing it to emerge. If a topical application is indicated, petroleum jelly (Vaseline®) has been found to be effective. In the present situation, prior to the larva's emergence, the woman had been to three physicians for treatment, all of whom had prescribed antibiotics for a presumed bacterial infection. The reader is urged to keep in mind that a confounding condition of myiasis may result from even the briefest visit to a tropical paradise. This traveler recovered without incident from her case of cutaneous myiasis.

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