Case Report on: A rare Case of Gastric Myiasis in a Lion Caused by *Gasterophilus intestinalis* (*Diptera: Gasterophilidae*)

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**Abstract:**

Myiasis is the invasion of the tissues of vertebrates (man and domestic or wild animals) by dipterous larvae. Gasterophilosis is a myiasis affecting equid hosts. It occurs worldwide, but more often in Palearctic and Afrotropical regions. Species of *Gasterophilus* are obligate parasite of horses, donkeys, zebras, elephants and rhinoceroses. Nine species are recognized in total, six of which are of interest as veterinary parasites of equids. Although presence of *Gasterophilus* spp in equids host is usual, but few myiasis among wild animals has been reported. Lion myiasis has been reported rarely, the case appears to be the first report of Gastric myasis in lion. This case report describes infections caused by *G. intestinalis* in an old lion in Zoo of a small town, in eastern Iran.

**Keywords:** Myiasis, *Gasterophilus intestinalis*, Iran

**Introduction:**

The genus *Gasterophilus* (*Diptera, Gasterophilidae*) includes nine species, six of which are reported to cause gastrointestinal myiasis in equid hosts. All species were originally restricted to Palearctic and Afrotropical regions, but three species *G. nasalis, G. intestinalis, G. haemorrhoidalis* have been inadvertently introduced into the New World. The adult flies are large, 11-15mm in length and body is densely covered with yellowish hairs. All the species have a similar general life cycle. Adults have non-functional mouthparts and do not feed. The eggs are usually laid directly on the host, attached to the hairs in particular body region.
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After hatching the larvae burrow into the tissue of the host, the first-instar larvae hatch and moult to L2, which can be present in different regions of the gastrointestinal tract, where the L3 remains attached to the mucosa for 8-10 months. When mature, the larvae detached and are voided from the host in the faeces. The larvae then burrow into the ground and pupariate. Adult bot fly then emerge and egg laying begins in early summer\textsuperscript{1,2}.

**Case report and laboratory finding:**

The present case study aimed to report the detection of *G. intestinalis* in an old lion, which is the first record of Gastric myiasisin wild animals. Larvae were collected during a post-mortem examination the digestive tract of lion for parasitological purposes (Fig.1). Twelve larvae were collected from the stomach and samples were taken immediately to the laboratory of Parasitology Unit of the Veterinary Medicine, for morphological identification. All the collected larvae were identified under a stereomicroscope using the identification keys\textsuperscript{1}. The larvae found belonged to *G. intestinalis*. Larvae of this genus can be distinguished as follows: arrangement spines in two rows; second segment with hooks and spines of equal length; mouth-hooks not uniformly curved dorsally but with a shallow depression and the mature larvae are 12-20 mm long\textsuperscript{1}. The isolated larvae were creamy-white in color, narrow at their anterior end and wide at their posterior end. They measure from 10-15 mm in length and 5-6 mm in width. Spines on the ventral surface of segments are arranged in two rows (Fig.2). On the basis of the morphology and size of the larvae, they were identified as *G. intestinalis*. 

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Figure 1. *Gasterophilus* larvae on the stomach mucosal membrane of a lion

Figure 2. *Gasterophilusintestinalis* collected from the stomach of a lion
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Discussion:

The prevalence of *Gasterophilus* spp has been reported in different countries. Larvae of most *Gasterophilidae*, causing equine gastric myiasis have been recorded in southern Italy\(^3\). *G. intestinalis, G. nasalis, G. hemorrhoidalis, G. inermis, G. nigricornis* and *G. pecorum* were detected in Turkey\(^4\).

Khalifa et al.\(^5\) obtained *G. haemorrhoidalis* from the stomach of Egyptian equines and concerned with morphological characters. Distribution of *Gasterophilus* spp also has been investigated in Brazil and *G. intestinalis* reported to be responsible for the majority of myiasis cases\(^6\). Iranian equine myiasis associated with *Gasterophilus* spp., has been reported on a few occasions, three species of *G. nasalis, G. intestinalis* and *G. inermis* were identified by Tavassoli\(^7\). These results represent the report of the definite establishment of *Gasterophylus* larvae as a horse parasite. Aside from the higher incidence of infection by *Gasterophilus* larvae in equid hosts, a few reports of infections in pigs, dogs and Rabbit are provided by Hall, Sayin Ipek\(^8,9\). In addition to veterinary importance of *Gasterophilus* larvae, it is also encountered in human; there are reports of human myiasis associated with *Gasterophilus* spp\(^10,11,12\).

While *Gasterophilus* spp is reported to cause myiasis in animals and humans but wild animals myiasis has been reported rarely. Only, Kumar et al.\(^13\) reported a case of wound myiasis in a captive lion and it’s successful management. Its involvement in the Gastric myiasis of lion has not been reported, so the present study is the first report of *G. intestinalis* in lion.

References:

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