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GASTRIC MYIASIS DUE TO *GYROSTIGMA PAVESII* CORTI (DIPTERA: GASTROPHILIDAE) IN A WHITE RHINOCEROS, *CERATHOTHERIUM SIMUM*

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SUMMARY: A case of gastric myiasis in a white rhinoceros, (*Cerathotherium simum*), due to an African botfly, *Gyrostigma pavesii*, at the Zoo Negara Malaysia, is presented. A total of 30 live third stage larvae were recovered at postmortem from the animal which died due to a condition unrelated to myiasis. The effect of modern transportation and indiscriminate importation of animals from foreign countries on human and animal health is discussed.

INTRODUCTION

The association of flies with man and their domestic animals has long been appreciated. Besides nuisance and as a carrier of diseases (Schmidt and Roberts, 1977; Service, 1980), some species of flies are also known to cause myiasis in man and animals (Patton, 1920; Stoddard and Peck, 1962; Bennett, *et al.*, 1964; Griffiths, 1965; Zumpt, 1965; Fadzil, *et al.*, 1971; Cheong, *et al.*, 1973; Smith and Thomas, 1979; Ramalingam, *et al.*, 1980; Spradbery and Vanniasingham, 1980; Thomas, *et al.*, 1980; Zahedi and Jeffery, 1982).

The Malaysian fly fauna has been described by many workers (Reid, 1953; Inder Singh, *et al.*, 1979; Baharudin, *et al.*, 1983). They seem to occur in various parts of Malaysia in a variety of ecological conditions. The earlier work by Reid (1953) was confined to Kuala Lumpur and Cameron Highlands. Later Inder Singh, *et al.*, (1979) produced a key to some common calliphorid flies in Peninsular Malaysia. Baharudin, *et al.*

(1983, unpublished) in their survey of the Malaysian National Park and other forest reserves found a number of dipteran species hitherto undescribed in Malaysia. The rapid advances in communication systems will undoubtedly result in the introduction of many exotic species into this country. Indiscriminate importation of animals and lack of proper quarantine measures will further aggravate the matter.

This paper presents a case of *Gyrostigma pavesii* third stage larvae (an African botfly) in the stomach of a white rhinoceros, (*Cerathotherium simum*), during postmortem examination at Zoo Negara, Hulu Kelang, Malaysia. The animal died of a condition unrelated to gastric myiasis.

CASE HISTORY AND POSTMORTEM

A female white rhino, *C. simum*, was imported from Belgium by Zoo Negara, Malaysia on the 22nd. September

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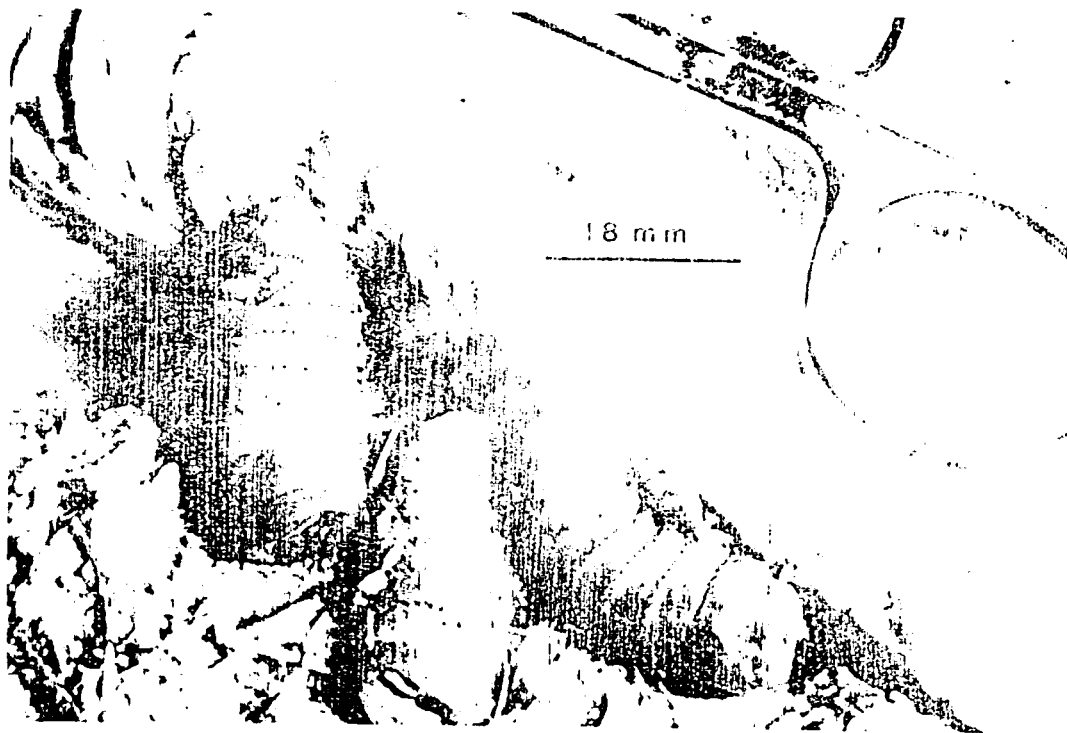


Fig. 1. GASTRIC MYIASIS : 3rd stage larvae of *Gyrostigma pavesii* in the stomach of a white rhino, *Cerathotherium simum*.

1982. The animal was approximately 3 - 4 years old and was certified fit. On arrival it was quarantined for 30 days and various routine medical examinations were conducted. During quarantine the animal was observed having a chronic intermittent diarrhoea, and it was treated symptomatically. On the morning of 14th. December, the animal was found to be recumbent and dyspnoeic; it was subsequently treated. Death occurred within one and a half hour after treatment.

A postmortem was performed by the senior author and the stomach was observed full, without any gross abnormality. On evacuation of food materials, several dipteran larvae were observed lining singly on the stomach wall; a number of similar larvae were also observed in the evacuated food mass. A total of 30 live maggots were recovered from the stomach. Most of these maggots were taken from the nonglandular portion of the stomach. No fresh wounds or ulcers were observed and the only lesion seen was some excoriation of the mucosal layer of the glandular portion.

The maggots were then cleaned and processed for identification as described by Lane (1974) and was subsequently identified according to Zumpt (1965) as *G. pavesii* Corti. Fig. 1 shows the maggots *in situ*.

DISCUSSION

The genus *Gyrostigma* has 3 species. Their larvae causes obligatory myiasis in the alimentary tract of the Asian and African rhinoceroses. The Asian species (*G. sumatrensis* Brauer), obtained from an Asian rhino (*Didemaceros sumatrensis*) was described based on a single third instar larva in 1884. Since

then no other specimens were described (Zumpt, 1965). The two African species *Gyrostigma conjugens* and *Gyrostigma pavesii* have been described by many authors. *G. conjugens* Enderlein was described from a third instar larva found in a black rhino (*Diceros bicornis*) as early as 1901. Unfortunately, information on its biology and veterinary importance is scarce. The immature stages of *G. pavesii* have been described in the black and white rhino (*C. simum*). *G. pavesii* is widely distributed South of Sahara and is strictly host specific (Klos and Lang, 1982; Zumpt, 1965). Both the African species were never reported to occur naturally outside the African Continent.

A complete account of the genus has been described by Zumpt (1965). The eggs of *Gyrostigma* are deposited on the host's skin, mainly on the head, at the base of the ears, on the neck and shoulders. It is still unknown under what circumstances the larvae hatch and how they find their way to the stomach. The larvae are present generally in the oesophageal region of the stomach, with some in the glandular portion (Fowler, 1978). Our observations support those of Fowler (1978). The mature larvae are passed with the feces and pupates on the ground. The pupal stage lasts about six weeks (Zumpt, 1965). The presence of dipteran larvae in the stomach of rhinoceros do not seem to cause any severe pathological effects. Apart from the tapeworm *Anophoccephala gigantea*, intestinal parasites are of little significance in captive rhinoceroses (Klos and Lang, 1982).

In conclusion, awareness of the problems commonly associated with the importation of exotic animals is important. Although, the *Gyrostigma* species reported here is host specific and does

not pose a threat to our animals, it serves to illustrate the importance of strict quarantine measures. If it is not being strictly observed, man would otherwise be subjected to health hazards and significant economic losses among livestock would be experienced.

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