

RESEARCH NOTE

INTESTINAL MYIASIS AMONG CHILDREN LIVING IN A FISHING VILLAGE IN SURABAYA, INDONESIA

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Abstract. Myiasis is a public health problem in Indonesia. In this study we aimed to determine the prevalence of intestinal myiasis among children from a fishing village in Surabaya, Indonesia. Inclusion criteria for study subjects were children aged 6 to 12 years, and willing and successful in collecting the fecal samples. Exclusion criteria were children aged under 6 years and over 12 years, and children aged 6 to 12 years but failed to collect fecal samples. Subjects were purposively selected from elementary school children in a fishing village on the northern coast of Surabaya, East Java, Indonesia that met the inclusion criteria. A total of 30 fecal samples were collected from 30 study subjects. Macroscopic examination identified fly maggots in 3 samples. Microscopic examination of the posterior end of the larvae revealed the spiracle posterior of *Sarcophaga* in all 3 samples. Intestinal myiasis is relatively common in the studied population. Preventive measures need to be educated among the study population and further studies performed to determine if this public health problem can be prevented in this population.

Keywords : *Sarcophaga*, intestinal myiasis, children, fishing village

INTRODUCTION

Myiasis is an infestation with the larvae (maggots) of the order Diptera (Das *et al*, 2010; Ahmad *et al*, 2011; Nagoba *et al*, 2011; Ramana, 2012; Ly *et al*, 2018). Myiasis can be classified into cutaneous myiasis, ocular myiasis, urogenital myiasis, and intestinal myiasis (Ramana, 2012; Kandi *et al*, 2013; Watanabe *et al*, 2016). Intestinal

myiasis is an accidental phenomenon that occurs when fly larvae or eggs are ingested in food or water accidentally, not destroyed in the intestine and passed through into the feces as larvae (Nagoba *et al*, 2011; Kumari *et al*, 2012). It is usually transient and asymptomatic. Intestinal myiasis is often a disease of developing countries where sanitation and hygiene are poor (Shegal *et al*, 2002; Nagoba *et al*, 2011; Kumari *et al*, 2012). We aimed to determine the prevalence of intestinal myiasis among children in a fishing village on the northern coast of Surabaya, East Java, Indonesia, in order to determine if it is a public health problem in the study population.

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MATERIALS AND METHODS

Inclusion criteria for study subjects were children aged 6 to 12 years, and willing and successful in collecting the fecal samples. Exclusion criteria were children under 6 years and over 12 years, and children aged 6 to 12 years but failed to collect fecal samples. Subjects were purposively selected from elementary

school students in a fishing village on the northern coast of Surabaya, East Java, Indonesia that met the inclusion criteria. Initially macroscopic examination was carried out to identify fly maggots in fecal samples. The posterior end of the larva was cut and washed with saline and soaked in clearing agent consisting of 10% NaOH for approximately six hours and microscopically examined thoroughly

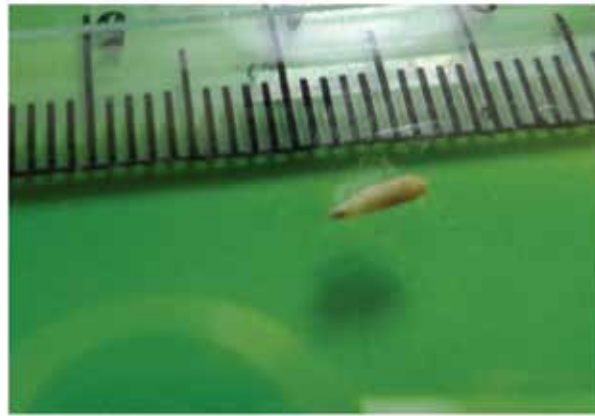


Fig 1-Maggots seen macroscopically (small, white, segmented structures, 5 mm in length and 0.5 – 1 mm in width). The larvae had 12 segments with a broad posterior end and a narrow tapered anterior end.

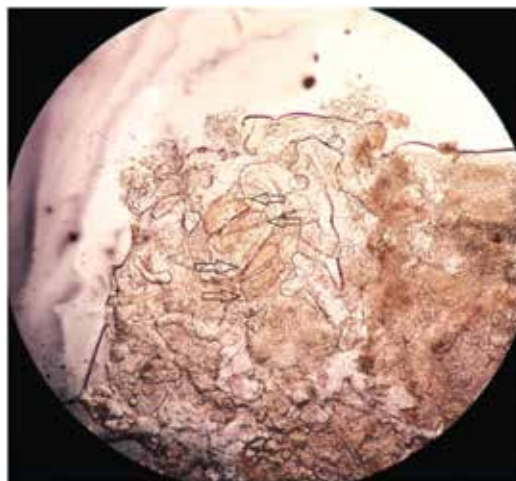


Fig 2-The posterior end of the larvae with 2 parallel slits (arrows). Indicating it to be a second instar larva of the genus *Sarcophaga* (100x magnification).

for morphology of posterior spiracle to determine the genus of fly larvae (Das *et al*, 2010).

RESULTS

A total of 30 fecal samples were collected from 30 study subjects. Macroscopic examination revealed fly larvae in 3 samples; the larvae were small, white, segmented, about 5 mm in length and 0.5-1 mm in width. The larvae had 12 segments with a broad posterior end a narrow tapering anterior end (Fig 1). Microscopically the posterior end had a posterior spiracle with two parallel slits, indicating a second instar larva of the genus *Sarcophaga* (Fig 2). The posterior spiracle was located inside the fossa (hidden spiracle).

DISCUSSION

In Indonesia, wound myiasis is common in animals, but rare in humans (Yolanda and Winata, 2014). Intestinal myiasis has never been reported from Indonesia. The study area has homes close together with poor sanitation, and the presence of a large number of flies. The fish processing in this area attracts flies. Intestinal myiasis can occur via consumption of food upon which flies have laid their eggs, using tablewares where flies have laid their eggs, by drinking water containing fly eggs or even by direct deposition of eggs around the mouth (Bradbury, 2010). The eggs are then swallowed, hatch in the intestine and the larvae are excreted in the feces (Das *et al*, 2010).

Our study findings show intestinal myiasis is fairly common in the study population.

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