

Research Note

***Homalogaster paloniae* Infection from a Cow Found in
Kagoshima, Southern Japan**

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Homalogaster paloniae is an intestinal paramphistome parasite infecting ruminants such as cows, sheep and goats. The parasitosis has been reported from Asian countries (Huq and Rahman, 1968; Swain *et al.*, 1988). Sakamoto *et al.* (1964) who observed flukes from the cecum of a cow at the Tottori slaughter house in 1964 described primary presence of the trematode in Japan. The second case was found in cows in Shizuoka prefecture (Asai *et al.*, 1976). Here we report a case of *H. paloniae* infection in a cow in Kagoshima prefecture, Southern Japan.

A 3-year-old female cow bred at Aira-cho, Aira-gun Kagoshima was weighing approximately 550 kg when slaughtered at an abattoir in Kagoshima city in 26 November 1991. About 20 trematodes were obtained from the large intestine.

A total of 20 worms was incubated in 0.15 M saline solution at 25°C for about 3 hrs to obtain

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the eggs. After that, ten flukes were pressed slightly by slide glass for morphological observation. Several worms of them were fixed in 10% phosphate-buffered formalin and washed 3 times in 0.1 M phosphate buffer for 15 mins. After having been dehydrated through a graded series of ethanol, the specimens were immersed in isoamyl acetate and dried by critical point drying. The specimens were coated with gold in an ion coater. The samples were examined by a scanning electron microscope (SEM, JEOL, JSM-5300). The cecum of the cow was observed in detail. After that, a specimen of the organ was fixed in 10% buffered formalin and embedded in paraffin. Thin sections were stained with hematoxylin and eosin (H & E) and examined under light microscopy.

The mature fluke was light red or pink in colour when the worm was fresh and measured 11.5 to 12.5 by 5.0 to 5.5 mm (Figs. 1 and 2). Papillae on ventral surface arranged in 17 to 19 longitudinal rows, each row contains 20 to 23 papillae (Fig. 3). Mouth was surrounded with papillae. Each papilla was analogous to coral (Fig. 4). The oral sucker had two pouches. Genital pore opened at the level of the intestinal bifurcation on ventral surface (Fig. 5). Ventral sucker was large and muscular (Fig. 6). The eggs were clear and measured 152 by 81 μ m in an average (Fig. 7).

Macroscopically, about 20 worms were seen attached to the mucosa of the large intestine. The

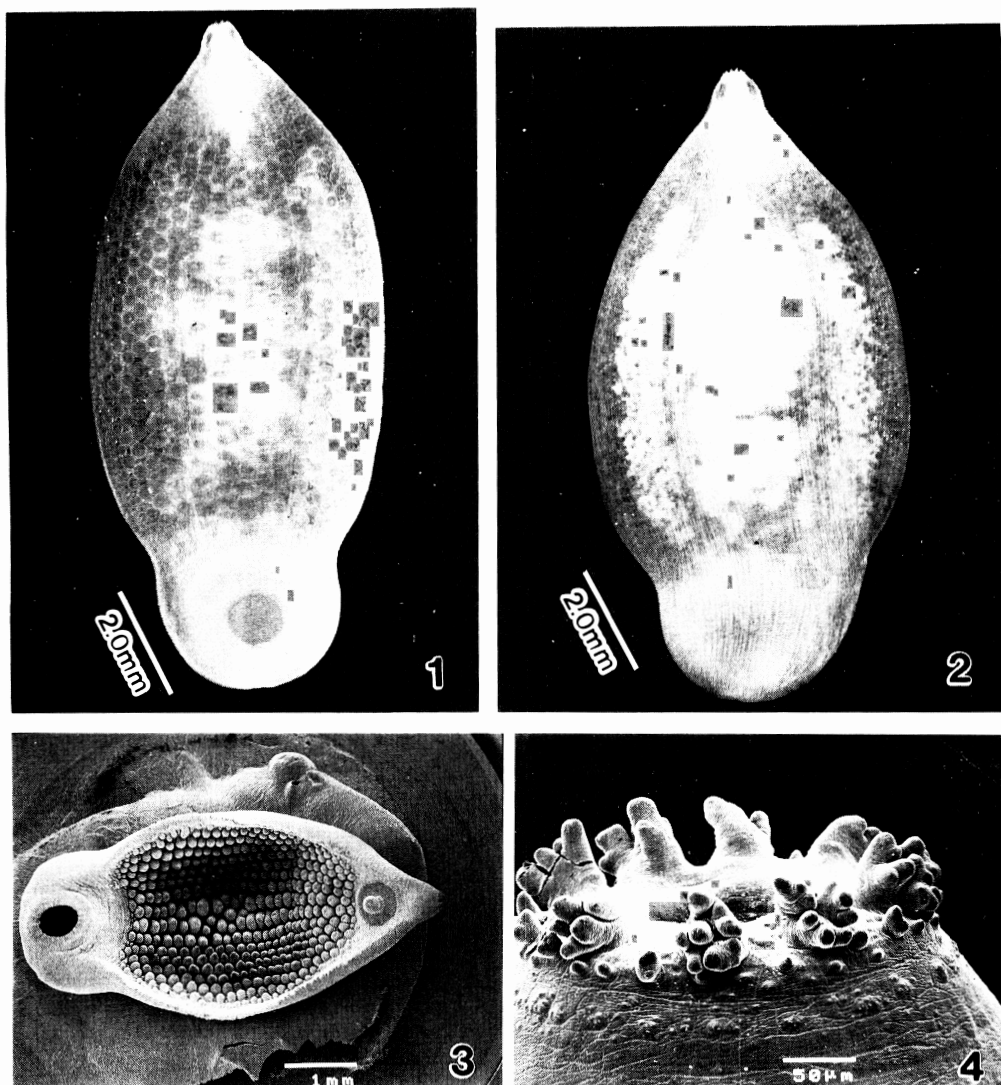


Fig. 1 Ventral view of *H. paloniae*.
 Fig. 2 Dorsal view of *H. paloniae*.
 Fig. 3 Scanning electron micrograph of ventral view of worm.
 Fig. 4 Mouth surround with papillae. Each papilla looks like a coral.

ulcers originated as congested areas with adherent parasites. The diameter of the ulcers was 2 to 3 mm (Fig. 8). A sharply demarcated necrotic foci was observed in the underlying mucosa and submucosa parasitized by the fluke (Fig. 9). The mucosa was remarkably thickened. The lamina muscularis has degenerated and numerous degenerated eosinophils accumulated in these

lesions. The main cellular reaction was an infiltration of eosinophils and plasma cells in the lamina propria and submucosa.

Morphological findings of the parasite were almost the same as those described by Sakamoto *et al.* (1964). Accordingly, the fluke was identified as *H. paloniae*. In the present study, no clinical findings were observed in the cow in-

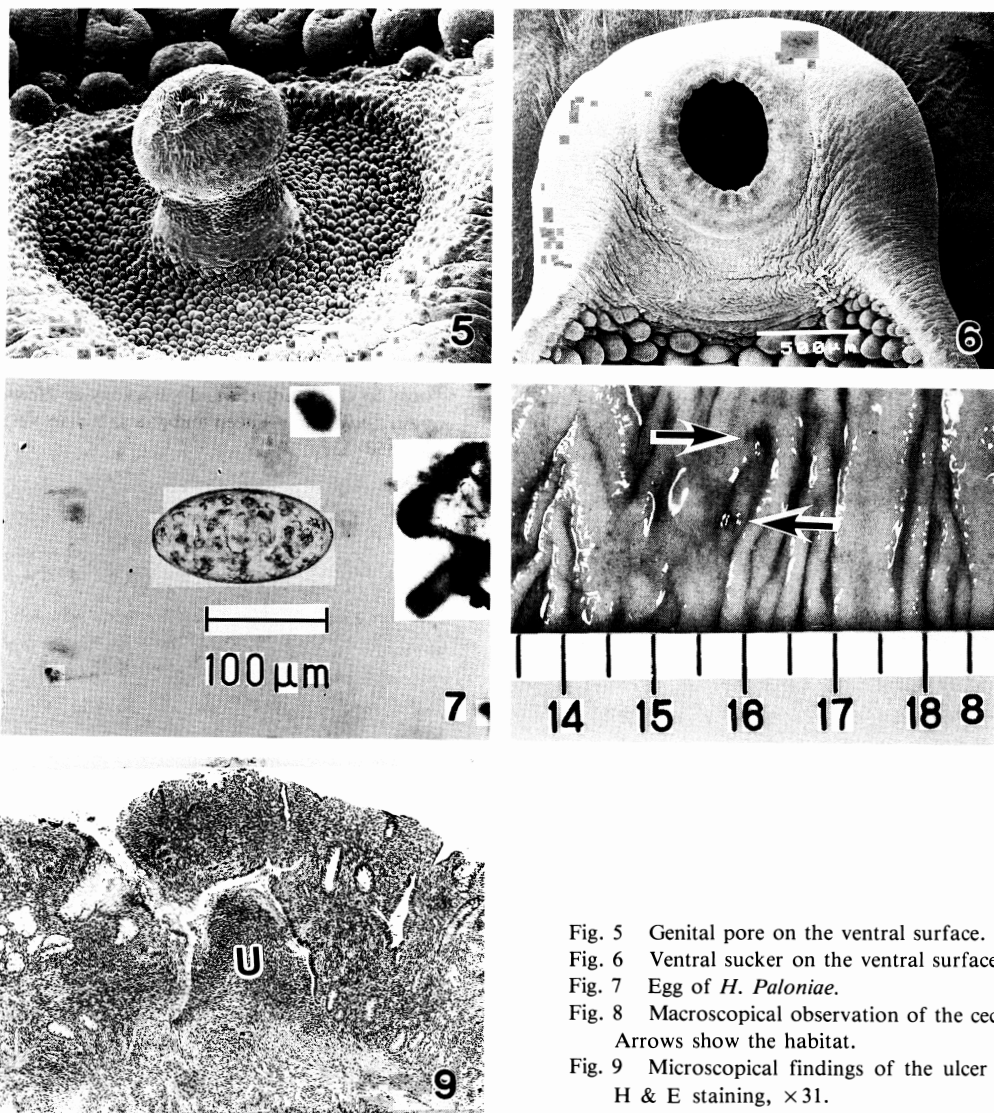


Fig. 5 Genital pore on the ventral surface.
 Fig. 6 Ventral sucker on the ventral surface.
 Fig. 7 Egg of *H. Paloniae*.
 Fig. 8 Macroscopical observation of the rumen.
 Arrows show the habitat.
 Fig. 9 Microscopical findings of the ulcer (U).
 H & E staining, $\times 31$.

ected with about 20 flukes. The pathogenicity of the trematode might be similar to that of *Paramphistomum* spp. However, Asai *et al.* (1976) observed heavily infected cows in the field and pointed out the importance of the trematodiasis as cause of gastrointestinal disorder. The life cycle of *H. paloniae* in Japan has been reported by Chinone and Itagaki (1977). Through the examination of the intermediate host, *Polypylis hemisphaerula*, Chinone (1979) suggests that the fluke may be distributed widely in Japan

excluding Hokkaido. So far, however, few cases had been reported. The reason might be due to the difficulty of diagnosis by fecal examination because the eggs are very similar to those of *Paramphistomum* spp. In addition, the large intestine are usually not examined during meat inspection (Asai *et al.*, 1976). Swain *et al.* (1988) examined microscopically the rumen of sheep and goats infected with *H. paloniae*. Their findings were the same as the authors'.

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