Gymnophalloides seoi Lee, Chai and Hong, 1993 (Trematoda: Gymnophallidae) is a minute intestinal fluke of humans and migratory birds, including the palearctic oystercatcher, Haematopus ostralegus [1-4]. Gerbils, hamsters, cats, rats, dogs, ducks, plovers, and several strains of mice were proved to be experimental definitive hosts [5,6]. High endemicity of human G. seoi infection and high infection rate of its metacercariae in oysters, Crassostrea gigas, were observed on several southwestern islands of the Republic of Korea [4]. The infection rates of humans and oysters have not been changing significantly even after repeated mass chemotherapy of people in the village with praziquantel [7]. Therefore, possible existence of natural definitive hosts other than man and oystercatchers has been suggested.

Stray cats or feral cats are nowadays frequently found in almost every place of the Republic of Korea, including coastal areas. They are suspected as a natural definitive host for G. seoi since they find foods including de-shelled raw oysters in a waste box or, in some cases, steal seafood in the kitchen of villagers in coastal areas. A raccoon dog with a similar life pattern to cats was also suspected as a source of G. seoi or other parasite eggs.

Heterophyid flukes, in particular Heterophyes nocens and Pygidiopsis summa, are another group of intestinal trematodes that infect humans in coastal areas [8,9]. The source of human infections is brackish water fish, including the mullet, goby, and perch produced from estuaries [9]. Cats purchased from a market in Seoul [10] and in Busan [11] were found to be infected with H. nocens and P. summa. However, no studies have been progressed on the infection status of cats caught in other localities of the Republic of Korea. The present study aimed to investigate the infection status of feral cats and a raccoon dog on Aphaedo Island, Shinan-gun, with a Special Note on Gymnophalloides seoi Infection in Cats.

Abstract: Four feral cats and a raccoon dog purchased from a local collector on Aphaedo Island, Shinan-gun, where human Gymnophalloides seoi infections are known to be prevalent, were examined for their intestinal helminth parasites. From 2 of 4 cats, a total of 310 adult G. seoi specimens were recovered. Other helminths detected in cats included Heterophyes nocens (1,527 specimens), Pygidiopsis summa (131), Stictodora fuscata (4), Acanthotrema felis (2), Spiorometra erinacei (15), toxocarids (4), and a hookworm (1). A raccoon dog was found to be infected with a species of echinostome (55), hookworms (7), toxocarids (3), P. summa (3), and S. erinacei (1). No G. seoi was found in the raccoon dog. The results indicate that feral cats and raccoon dogs on Aphaedo are natural definitive hosts for intestinal trematodes and cestodes, including G. seoi, H. nocens, and S. erinacei. It has been first confirmed that cats, a mammalian species other than humans, play the role of a natural definitive host for G. seoi on Aphaedo Island.

Key words: Gymnophalloides seoi, Heterophyes nocens, Pygidiopsis summa, intestinal helminth, cat, raccoon dog
Adult G. seoi were recovered in 2 of 4 cats examined. One cat had 307 G. seoi adults and the other had 3 adults (Fig. 1; Table 1). These cats were co-infected with H. nocens (a total of 1,527 worms in 4 cats) and P. summa (131). In a raccoon dog, no adults of G. seoi were collected; however, 55 specimens of echinostomes (species undetermined) were obtained (Table 1). Other helminths, including toxocarids, hookworms, Stictodora fuscata, Acanthotrema felis, and Spirometra erinacei were also collected from the animals examined.

There had been no studies on intestinal parasites of raccoon dogs in the Republic of Korea. Therefore, this is the first report on intestinal parasites of raccoon dogs. As for cats, infections with several helminth species, i.e., Clonorchis sinensis, Paragonimus westermanni, H. nocens, Metagonimus yokogawai, P. summa, Stellarcthusmus falcatus, Heterophyes continua, Centrocestus sp., Echinococclus perfoliatus, Echinoparyphium sp., A. felis, Pharyngostomum cordatum, S. erinacei, Taenia taeniaeformis, Anisakis simplex (larva), and Toxocara cati, have been reported [14-16]. In addition, an experimental study showed that cats were a fairly suitable host for G. seoi infection compared with ducks, chicks, and 6 kinds of mammals, including gerbils, hamsters, rats, dogs, guinea pigs, and mice [5]. The present study first demonstrates that feral cats are a natural definitive host for G. seoi infection. However, the epidemiological significance of feral cats in maintaining the endemicity in the surveyed area needs to be further clarified.

It is of note that infection of a clam with metacercariae of a gymnophallid, Metegymnophallus fossarum, could change their host’s orientation, behavior, and distribution [17,18]. The infected clams could be more easily visible in the sand substrate by the definitive host than non-parasitized clams, thus could facilitate predation. Oysters infected with metacercariae of G. seoi could be exposed more easily to oystercatchers or other definitive hosts, although this speculation has not been confirmed. It is well accepted that oystercatchers have the natural capacity of destroying oyster shells and eating the animal part. However, it is questioned how cats can open the shell of an oyster and consume the animal part. A possible explanation is that they may have consumed the wasted animal part of oysters, since stray or feral cats could easily find wasted oysters discarded in the trash box or in the yard in endemic areas.

**ACKNOWLEDGEMENTS**

This study was supported by BK21 Human Life Sciences, Ministry of Education, Republic of Korea.

**REFERENCES**


5. Lee SH, Park SK, Seo M, Guk SM, Choi MH, Chai JY. Susceptibility of various species of animals and strains of mice to Gymnophalloides seoi infection and the effects of immunosuppression in C3H/HeN