Isospora heydorni Isolated in Brazil: Endogenous Stages in Dogs

TOSHIHIRO MATSUI1), TSUTOMU MORII1), TOSHIHIKO IIJIMA1), SHINGO ITO2), KIYOSHI TSUNODA2), FUMIE KOBAYASHI1) AND TAKASHI FUJINO1)

(Received for publication; December 10, 1985)

Key words: Isospora heydorni, Hammondia heydorni, Isospora bigemina, endogenous stages, dogs, Brazil

Introduction

Toxoplasma-like oocysts originating from dogs have been reported by Heydorn (1973) and Dubey and Fayer (1976) as small type Isospora bigemina. Following that, this coccidium was named Isospora heydorni by Tadros and Laarman (1976). Dubey in 1977 proposed that the name Hammondia heydorni was more suitable for it because the life cycle was obligatory heteroxenous (Heydorn, 1973; Dubey and Fayer, 1976). Therefore, an I. heydorni-like coccidium which was isolated from some animals as intermediate hosts has been reported as I. heydorni or H. heydorni (Dissanaike and Kan, 1977; Dubey and Williams, 1980; Warrag and Hussein, 1983; Nassar et al., 1983). However, the tissue stages of this coccidium in the intermediate host have not yet been clarified. Such being the case, it is impossible to determine whether the same species of coccidium was reported in each of these studies. However, each showed three common biological characteristics, viz., (1) the final host was a dog, (2) Toxoplasma-like oocysts were shed, and (3) the tissue stages in the intermediate host were not clarified.

We have also isolated Toxoplasma-like oocysts from the feces of a dog in Brazil and reported that the guinea pig was a suitable intermediate host (Matsui et al., 1981). However, the tissue stages in guinea pigs have not yet been elucidated. In order to determine whether this coccidium and Isospora (or Hammondia) heydorni were the same species, the endogenous stages in dogs were studied and compared with the studies reported by Heydorn et al. (1975) and by Dubey and Fayer (1976).

Materials and Methods

Isospora heydorni oocysts

The oocysts used were first isolated from feces of a naturally infected dog in Brazil and were then transferred to guinea pigs and dogs to multiply as described in the previous paper (Matsui et al., 1981).

Animals

Guinea pigs weighing about 250g were used as the intermediate host. Dog puppies weighing 980–4200g were obtained from the East Tama Area Branch, Tokyo Metropolitan Dog Retention Station, Japan and were used as the definitive host. Feces of all the animals were examined by the sugar flotation method (specific gravity of sugar, 1.266) prior to experimentation. Only the animals free from detected oocysts were raised in separate cages under a coccidium-free environment.