RESEARCH NOTE

AN EASY TECHNIQUE FOR HISTOLOGICAL SECTIONS OF SPLIT INTESTINAL TISSUE

Akira Ishih[1], Anchalee Tungtrongchitr[2] and Norio Suzuki[3]

[1]Department of Parasitology, [3]Equipment Center, Hamamatsu University School of Medicine, Hamamatsu 431-31, Japan; [2]Bangkok School of Tropical Medicine, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand

The rejection and expulsion of intestinal parasitic helminths from mammalian, and particularly rodent model systems have long been of interest to the parasitologist. Thus, histopathological reactions in the small intestine of rats, as well as immune reactions, connected with the parasitic infections, *eg* against *Trichinella spiralis* (Larsh and Race, 1975), *Nippostrongylus brasiliensis* (Miller and Jarrett, 1971; Ogilvie and Jones, 1971), and *Hymenolepis diminuta* (Andreassen *et al*, 1978; Hindsbo *et al*, 1982), have been studied extensively.

For the experimental investigation of interaction between *H. diminuta* and rats or mice, the location of the attachment points of each worm in the host intestine has been examined (Holmes, 1961; Hesselberg and Andreassen, 1975; Holland, 1987). In these experiments, the intestine was placed in a long tray, stretched to the measured length and carefully split open. Then the position of scolex of each worm was marked and the worms removed. On the other hand, a relationship between cytological reactions and immunity has been also demonstrated in this cestode infections (McKay *et al*, 1990a, b). For studying the correlation between worm-location and histopathological reactions in the intestine, the histological information should be obtained from the same animal tissue used for examining the scolex position. For this reason, this paper presents an easy technique to obtain histological sections from the split intestine.

Normally, the intestinal tract of mice or rats is a small and very long cylindrical shape with hollow inside; intestinal tissue is not so thick and dense as other tissues. Good sections of intestinal mucosa should have the majority of villi, which appear to be finger-shaped and regularly spaced, separated basally by the gland crypts, and consequently, the preparation for section of intestinal tissue should take into account twisting and muscle contraction. After being opened longitudinally, the intestinal tissue easily becomes tortuous if it is put directly into the fixative solutions (Fig 1). This occurrence creates difficulties for the process of section and later for microscopic examination, and hence, to resolve these problems, a small block was introduced for straightening the split intestinal tissue. Many kinds of materials for making such a block were considered. A cork plate, 5 mm in thickness, was finally selected because of its shape and easiness in cutting. Moreover, this cork plate is cheap, widely available and can be reused many times after being washed. The cork plate is cut into small pieces, its size being about 20 by 30 mm (Fig 2). The split intestine was easily stuck to this block by using an ordinary staple at the upper and lower parts of the section (Fig 3), and immersed in the fixative solutions such as 10% formalin solution or Carnoy's solution before histological processing. After being removed from the cork plate, the tissue remains evenly formed; hence, the tissue sections can be well performed as described (Fig 4). This technique is an easy and simple way to achieve a good condition for section of the split intestine. This method can be also applied to other kinds of thin tissues or muscles which can be easily distorted and changed in shape after being removed.

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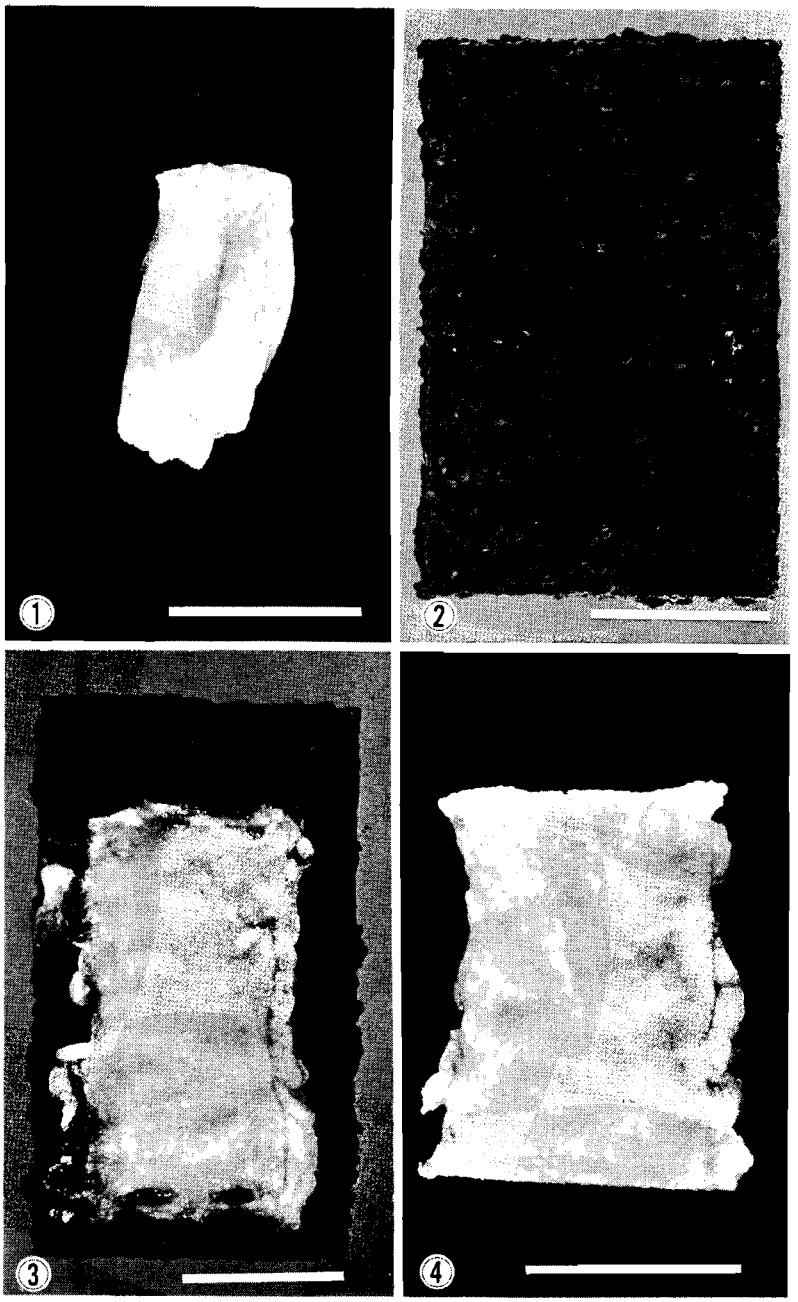

Fig 1—Split rat small intestine, showing tortuous shape after fixation in 10% formalin solution. Bar = 10 mm.

Fig 2—A cork plate. Bar = 10 mm.

Fig 3—Split rat small intestine stuck to a cork plate by staples. Bar = 10 mm.

Fig 4—Split rat small intestine removed from a cork plate after being fixed in 10% formalin solution, showing even form. Bar = 10 mm.

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