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The route of migration of schistosoma japonicum in the body of its final host.

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It is well established that the cercarial form of *Schistosoma japonicum* enters the mammalian host through the skin, and that it passes by way of the blood vessels to the lungs. The route taken by the worms from the lungs to the portal and mesenteric veins where they grow to maturity, has been disputed by various Japanese investigators. Narabayashi[1] concluded that they go mainly by way of the pleural cavity into the mediastinal tissues, and thence through the diaphragm into the abdominal cavity and, by direct penetration, enter the liver and portal vein. Sueyasu[2] claims that they pass from the pleural cavity directly through the diaphragm and into the liver. Miyagawa and Takemoto[3] believe that most of the worms leave the lungs through the pulmonary veins, pass through the aorta and mesenteric arteries into the capillaries of the stomach and intestine and thence into the portal veins. The method used by all these investigators consisted of the examination of serial microscopic sections of mice killed at various intervals after infection.

Owing to the discrepancy of these findings we used somewhat different methods in attacking this problem. A series of ten rabbits was heavily infected and one was killed on each of the first ten days thereafter. The peritoneal and pleural cavities were washed out, and the blood vessels of the lungs, liver, spleen, gastro-intestinal tract and posterior extremities were irrigated with saline-citrate solution. The popliteal lymph nodes, lungs and liver were cut into fine pieces and washed. The fluids from all these washings and irrigations were then examined for worms.

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1 Narabayashi, H., *Mitteil. Med. Gesell. Kyoto,* 1916, xiii, Nos. 2-3 (Japanese text).

2 Sueyasu, Y., *Kyoto Igaku Zassi,* 1920, xvii, No. 1 (Japanese text with German abstract).

3 Miyagawa, Y., and Takemoto, S., *Jour. Path. and Bact.,* 1921, xxvi, 168.

The young worms were recovered from the liver on the third day. This was as early as they were recovered from the pleural cavity and was one day before they were found in the peritoneal cavity. They were never found in the pleural or peritoneal cavity in large numbers, except in one rabbit, which showed the lesions of chronic passive congestion of the lungs and other viscera. The pleural cavity of this rabbit yielded 171 young worms while in the peritoneal cavity only one worm was found.

In these rabbits petechial hemorrhages were numerous in the lungs from the second day on. They appeared in the mucosa of the stomach and intestine on the third day, and in the muscles, the deeper layers of the skin and most of the other viscera on the fourth day. On the fifth day they were intense in all the viscera· but thereafter became progressively fewer. Serial microscopic sections through a hemorrhage in the gastric mucosa and through the cortex of one kidney of a four-day rabbit, showed young worms in both localities.

A series of four mice was killed on the fourth to the seventh day after infection. Serial microscopic sections of one lobe of the liver of the four-day mouse showed that even this early the worms were all in blood vessels. Most of the blood vessels containing worms could be identified as portal veins. Possibly the remainder were also portal veins, but no bile duct could be seen accompanying them. The worms were distributed evenly throughout the liver. There was no tissue reaction or hemorrhage in the liver such as there was in other organs. The diaphragm of each of these four mice was sectioned serially. The only worms found were one on the fourth day and two on the seventh. The pleural cavity in these mice showed worms on the fourth, fifth and sixth days. The peritoneal cavity showed no worms in any of these mice.

As a result of these experiments we conclude that the principal route of migration of *Schistosoma japonicum* from the lungs to the liver is by way of the pulmonary veins, aorta, mesenteric arteries and mesenteric and portal veins.