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A CASE OF CARDIAC MULTILOCULAR ECHINOCOCCOSIS IN A GERBIL

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A female Mongolian gerbil *Meriones unguiculatus* was infected by oral inoculation with about 500 eggs of the Alaskan strain *Echinococcus multilocularis*. Her age was 8 months at the inoculation. The echinococcal foci in various visceral organs including the heart were confirmed at autopsy, 11 months after the inoculation. No abnormal clinical signs were observed other than remarkable swelling of the abdomen before death.

Macroscopically The heart was 10×15×10 mm in size. The muscle of the ventricular septum was replaced by a large echinococcal focus, about 7 mm in thickness. The focus extended to the right and left ventricular wall at the base and apex, where the protrusive lesions could be seen on the surface. The auricles were intact. In the left lung, there existed a large focus at the central portion. Size 6×4×4 mm, and several small foci along the basal border. In the right lung, a large protrusive focus (10×10×7 mm) was found in the superior lobe and one focus, 7 mm in diameter, was also observed in the median and inferior lobes respectively. Two echinococcal foci were found in the wall of the jejunum. The foci were almost round, and had a soft elastic consistency; 7×6×5 mm and 5×4.5×2 mm in size. The liver was enormously enlarged due to development of echinococcal tissue; its size was 80×70×30 mm. The foci were found in all hepatic lobes. The liver tissue remained like a map in the left lateral lobe and papillary processes. In the mesentery also, two typical echinococcal foci were found which were whitish in color and of soft elastic consistency.

Microscopically Paraffin sections were stained with hematoxylin-eosin. In the heart, the ventricular septum was affected by well-established multilocular echinococcal tissue with numerous scolices. The echinococcal tissue also extended to both walls of the left and right ventricles. In the central portion of the focus, regressive changes, such as destruction of scolices, brood capsule and calcification, were seen. At the portion in contact with ventricular muscles, many mature scolices were found. Host tissue reactions were slight, connective tissue layer was thin, but lymphocytic accumulation was sometimes observed. The intestinal echinococcal foci occupied the submucous tissue and mature scolices filled the minute cysts. The lymphatic nodule, however, remained near the echinococcal tissue. Muscular layers in contact with the focus became thin due to pressure atrophy. In the hepatic echinococcal foci, many scolices were contained fully within minute cysts, while large cysts showed a central space with cystic fluid substance. Tissue reactions were slight

and the adventitious connective tissue layer became fibrous and thin. The echinococcal tissue in the mesentery was similar to that in the liver, and regressive changes were slight.

Discussion It is a well known fact that in experimental animals, almost all echinococcal foci are established in the liver by oral inoculation of *Echinococcus multilocularis* eggs (OHBAYASHI & ORIHARA, 1964). In the present case, the echinococcal foci were found in the liver, heart, intestine, lungs and mesentery. The authors consider the foci described in this paper are primary ones, because the foci are in the same stage of development. The echinococcal focus in the heart originated in the ventricular septum and extended to the left and right ventricles. The animal, however, was clinically "healthy". Cardiac echinococcosis is very rare and interesting.

REFERENCE

- 1) OHBAYASHI, M. & ORIHARA, M. (1964): *Jap. J. vet. Res.*, **12**, 79

EXPLANATION OF PLATE

Figures 2~5 are photomicrographs of sections stained with hematoxylin-eosin.

Fig. 1 Animal dissected showing echinococcal foci in the heart, liver, lungs and mesentery $\times 2/3$

Upper right is the heart. $\times 1.3$

Fig. 2 Cardiac echinococcal cyst in contact with muscle of ventricular septum $\times 120$

Fig. 3 Cardiac echinococcal cyst showing degenerative changes $\times 120$

Fig. 4 Pulmonary echinococcal cyst $\times 120$

Fig. 5 Intestinal echinococcal cyst and lymphatic nodule $\times 130$

