BRIEF NOTE

A Fatal Case of Hepatocystosis in an Imported Monkey
(Macaca fascicularis)

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(Received for publication October 22, 1979)

Hepatocystis infection has been reported by many workers in African monkeys of the genera Cercopithecus and Papio [2–4, 8, 10] and Macaca species [1, 4, 5, 7, 9], and some other species of animals [6]. According to these workers, it seems that rupture of merocysts may rarely be encountered and represent the final stage of infection. The present report described the histopathological features of hepatocystosis in an imported monkey (Macaca fascicularis) in which ruptured merocysts were so numerous as to cause widespread necrosis of the liver parenchyma.

Forty captured monkeys arrived at Tokyo Airport from Malaysia on July 19, 1975. One of them died during five hours’ motor transport from the airport to the senior author’s laboratory.

Necropsy of the dead animal revealed numerous grayish white lesions 1 to 3 mm in diameter in the liver. There were no remarkable changes in any other organ or tissue. Tissue blocks were collected from the liver, fixed in 10 percent formalin solution, and embedded in paraffin. Serial tissue sections were prepared from them and stained with hematoxylin and eosin, and by the periodic acid-Schiff (PAS) method.

Only the liver had large multicentric lesions 1.4×3.0 mm in size. The lesions were necrotic, accompanied with varied degrees of cellular infiltration and containing many parasites. Some necrotic foci often fused with one another to form larger foci. The infiltrating cells consisted of lymphocytes, plasma cells, neutrophils and macrophages, some of which formed multinucleated giant cells. Some lesions were in a scarring process. The parasites took various forms, such as free or phagocytized merozoits, intrahepatocytic merozoit colony, mature merocysts, and ruptured merocysts.

The mature merocysts were 600 to 800 μm in diameter and contained a very weakly
eosinophilic homogeneous substance and numerous intensely basophilic granules (merozoits). They had irregular-shaped pseudopod-like processes. Their outermost structure consisted of thin hyaline ectoplasm. Frequently, there was a partial rupture of the ectoplasm from which were released numerous free or subsequently phagocytized merozoits. This change was accompanied with parenchymal necrosis and cellular infiltration. In the early stage of development of *Hepatocystis*, extraordinarily large hepatocytes with an intracytoplasmic colony of merozoits were infrequently observed. Some ruptured merozoys were invaded by neutrophils and/or macrophages, and eventually disintegrated with only ectoplasmic debris remaining. As cellular infiltration progressed, a small number of merozoits appeared and merozoys were disintegrated. Neither merozoys nor merozoits were observed in any scar lesion.

In hepatic lesions of hepatocystosis, the rupture of merozoys has been reported to be rather infrequent and 10 or less hepatic lesions were seen in their cases. In the present case, however, mature merozoys were mostly ruptured, releasing numerous merozoits. Grossly, the liver showed a mosaic pattern because of the presence of numerous foci which sometimes produced large confluent foci. Such changes may have disturbed the liver function seriously and caused death in the present case.

Acknowledgments. The authors wish to thank Professor Y. Fujimoto, of the Department of Comparative Pathology, Faculty of Veterinary Medicine, Hokkaido University, for his valuable advice.

References


要約

サルの Hepatocystis の 1 例（経験）：奈良間 功（生物科学技術研究所）、矢崎 誠・鶴田真章（静岡県実験動物農業協同組合）、小野 咲（相模農業大学家畜病理学教室）——サルの Hepatocystis 感染はこれまで多く報告されているが、本症例は慢性感染症例で、少数の肝膿瘍を発症した。致死的ではないとされている。本症例は肝膿瘍が肉眼的にモザイク状を呈する程度以上の病変を持ち、かつその大部分が壊死し、一部は壊死域とそれが障害する大変性変性であった。肝膿瘍の壊死は極めて広範で、動物の死因として大きな役割を果たしたと考えられた。
Explanation of Figures

Fig. 1. Large necrotic lesions with demarcated cell layer in the liver. Hematoxylin and eosin staining (H-E), ×16.

Fig. 2. Ruptured merocyst with marked cellular infiltration in the liver. H-E, ×40.

Fig. 3. Ruptured merocyst accompanied with a large number of free and phagocytized merozoits in the liver. H-E, ×400.

Fig. 4. Merocyst with irregular-shaped pseudopod-like process on the margin. *Hepatocystis* in the liver. H-E, ×40.

Fig. 5. Extraordinarily large binucleated hepatocyte with merozoit colony in the cytoplasm. H-E, ×400.