PRESENCE OF LIVER FLUKE *Fasciola jacksoni* IN A SRI LANKAN ELEPHANT

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In 1961, for the first time in Sri Lanka, Professor C.H. Fernando (Faculty of Veterinary Medicine & Animal Science, University of Peradeniya) reported the presence of liver fluke *Fasciola jacksoni*. At that time the only specimen available had been found in a dead elephant and due the circumstances under which it was found the specimen was not in a good state. The presence of this fluke had been recorded many times in India.

In September 1992, for the second time in Sri Lanka, the same parasite was found during a post-mortem of a female baby elephant of about 3 years of age. This animal was brought to the Zoo from Morawewa in September 1992 by Air Force Officers after keeping it at Anuradhapura for a few days. It had been abandoned by a herd. It was found dead within a few hours of arriving.

During the post-mortem, which was held at the Zoo on the same day, the liver was found to be much enlarged and discoloured. Its edges were rounded due to oedema and abscesses were seen on the surface. On incising the abscesses large quantities of pus oozed out. When the liver was cut, chocolate coloured semi-solid material was seen and within this soft material, were a large number of flukes. Bile duct was thickened and fibrosed.

Four specimens were taken to the Faculty of Veterinary Medicine and Animal Science (University of Peradeniya) to be photographed. Using the fact that *Fasciola jacksoni* was found at a post-mortem carried out at the Zoo, the presence of this parasite was reported at the Scientific sessions of the Sri Lanka Veterinary Association under the title "Some record of parasites occurring in free ranging Elephants in Sri Lanka."

The flukes were of the size of a nail of a human for-finger. It was dark brown in colour with a smooth surface to the naked eye on microscopic examination, but was found to be covered with minute dermal spines. It had a narrow cephalic cone at the anterior end. The oral sucker was smaller than the ventral sucker which was situated at the level of broad shoulder. Digestive apparatus had a pharynx, a short oesophagus which bifurcated at the lower end. These two branches thus formed were seen to be branching repetitively and the caecal terminations occupied nearly the whole extent of the body internally on either

side. These canals were separated from each other until they approached the tail end. These parasites were hermaphroditic. In the gap between these canals were both male and female sexual organs.

This baby elephant may have ingested metacercaria most probably by drinking muddy water which they would have infested upon completion of the development in the snail. The encysted form of metacercaria is the most infective stage to the primary host. Success of the metacercaria is dependant on the entry into a suitable primary host. After entering the body, the metacercaria become excysted in the intestine and reach the liver. They migrate all over the organ and thrive on liver parenchyma. They travel along the narrow ducts, irritating them and thus bringing about their thickening and decreasing their calibre.

The essential lesion is progressive cirrhosis which ultimately produces a fibrotic liver. Thus the liver gradually ceases to function. Since the liver is essential for continuance of life these alterations cause death. This is one of the most important of all the parasites infesting elephants.

HEMATOLOGY, PLASMA, AND SERUM BIOCHEMISTRY VALUES IN DOMESTICATED ELEPHANTS *(ELEPHAS MAXIMUS CEYLONICUS)* IN SRI LANKA

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This study was conducted to further strengthen knowledge of hematology and blood chemistry of Asian elephants *(Elephas maximus ceylonicus)*. Blood sample collected from 108 healthy, domesticated elephants, without chemical immobilization and with a male: female ratio of 1.16, were analyzed for cellular and biochemical measures using standard hematologic techniques. The mean values obtained for these measures were comparable to those reported for domesticated Asian elephants in other countries. The ranges of erythrocyte measures were: packed cell volume, 25-45%; erythrocyte count, 1.7-5.0 x 10^6/µl; hemoglobin concentrations, 7.4-15.4 g/dl; mean corpuscular volume, 81-160 fl; mean corpuscular hemoglobin, 24-56 pg; mean corpuscular hemoglobin concentration, 23-39 g/dl; and sedimentation rate, 64-148 mm/hr. A higher mean and a wider range were observed for the erythrocyte count when compared to other reports. The leukocyte count varied from 4 to 21 x 10^3 /µl, and lymphocytes were present in largest proportions (38%). Equal proportions (approximately 25%) of heterophils and monocytes were found in peripheral blood, and both of these leukocyte exhibited peroxidase activity in their cytoplasmic granules, whereas lymphocytes did not. The nuclei of granulocytes were poorly segmented, and heterophils had reddish cytoplasmic granules. Approximately 80% of monocytes had segmented nuclei. The platelet count ranged from 0.8 to 4 x 10^5/µl, a range that was narrower when compared with other reports. Total plasma protein concentration ranged from 6 to 13 g/dl, with a fibrinogen concentration of 0.04-2.8 g/dl. There were no significant differences between values for males and females. Likewise, there were no differences in blood values between these domesticated elephants and the free ranging, chemically immobilized elephants that were studied separately. (source: *Journal of Zoo and Wildlife Medicine* 24(4): 440-444, 1993)