Laboratory Animal Disease in Thailand: Its Occurrence and Importance to Comparative Medicine

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OBJECTIVE: The objective of this study is to detect and investigate spontaneous diseases of laboratory animals. This information will aid in defining and improving the health of laboratory animals maintained in Thailand, and in developing animal models for the study of human diseases.

DESCRIPTION: In order to accomplish the objective, a program of continuous surveillance of the health status of the animal colony has been developed. Four areas are emphasized in this program: 1. the disease screening program conducted in the laboratory animal breeding colony, 2. the recurring clinical and laboratory examination of animals housed in the colony including those procedures performed during the quarantine of newly purchased animals, 3. the post mortem examination of animals that die in the colony, and 4. the development of standards for operation and quality control. When indicated by the findings, experimental studies are initiated to explore in detail the problems that occur.

PROGRESS: The prevalence of spontaneous infectious diseases in the rodent breeding colony remained at a low level during the year. This observation is consistent with findings during the previous reporting period. Annual production of mice, rats, hamsters and guinea pigs was reduced slightly due to a decrease in demand.

Disease screening was conducted quarterly utilizing retired breeders from the mouse, hamster and guinea pig production units. Results of histopathologic findings are summarized in Table 1. All lesions observed were mild and focal in nature and are not uncommon in old animals maintained under conventional conditions. Lesions observed were considered degenerative in nature, except the pulmonary lesions in mice which were consistent with chronic murine pneumonia, and the nematodes in the intestinal tract of mice which were identified as pinworms (*Aspicularis sp.*).

Table 1. Frequency of Histopathologic Findings in the Rodent Breeding Colony—1974.

Species	Number Examined	Pulmonary No. (%)	Gastro—Intestinal No. (%)	Genito—Urinary No. (%)	Hepatic No. (%)
Mouse	50	14 (28)*	5 (10)*	12 (24)	11 (22)
Hamster	30	0	2 (6)	2 (6)	4 (13)
Guinea Pig	35	14 (40)	0	3 (8.5)	6 (17)

* Nematodiasis

Bacteriologic examinations identified organisms similar in type and prevalence to those published in previous annual reports. Virologic screening studies were performed using sera from 50 retired breeder

mice. The hemagglutination–inhibition test (HI) was utilized for detecting antibodies to GD VII, Sendai, Reovirus 3, Minute Virus of Mice, Pneumonia Virus of Mice, K, and Polyoma viruses. Hepatitis, Lymphocytic Choriomeningitis, and Mouse Adenovirus antibodies were detected utilizing the Complement–fixation test (CF). Results of the HI tests are shown in Table 2. Results of the CF tests were not available at the time of publication.

During the period 1 April 1974 through 31 March 1975, 340 rhesus monkeys were imported directly from India. Twelve (3.5%) monkeys died during the quarantine period, primarily from gastrointestinal and respiratory diseases (see Table 3). Intestinal parasitism and measles were prevalent in newly arrived monkeys. One monkey that was sacrificed in February, 1975 after exhibiting clinical signs of a CNS disturbance, had a lobar pneumonia; a *Pneumococcus sp.* was isolated from the lungs.

Three gibbons in the SMRL colony died during the year. One adult male (S–58) died of pneumonia due to migrating *Strongyloides sp.* larvae. Two immature colony–born gibbons (PC 22, PC 23) died this year. Gibbon PC 22 died of a baterial pneumonia; no lesions were seen at necropsy examination which would account for the death of PC 23.

Table 2. Prevalence of Virus HI Antibody in 50 Mice

Virus Antibody	Percent Positive
GD VII	69
Sendai	60
Reovirus 3	60
Minute Virus of Mice	57
Pneumonia Virus of Mice	0
K	0
Polyoma	0

Table 3. Rhesus Monkey Losses During Quarantine
April 1974–March 1975

Month	Number Received	Number Deaths	Intestinal Disease	Pulmonary Disease	Undetermined
Apr 74	85	5 (5.9%)	3	2	0
Jul 74	85	3 (3.5%)	2	0	1
Feb 75	170	4 (2.3%)	1	3	0
Total	340	12 (3.5%)	6	5	1

Between October and December 1974, ten colony rabbits developed a moderate to servere necrotic dermatitis of the limbs. The infection generally began on the paw and progressed proximally. Clinically, the disease was characterized by swelling, redness, pain and loss of hair over the affected areas. Later the skin became necrotic and sloughed. In some rabbits the entire limb was involved, while in others only the distal portion of the limb was affected. Six animals responded to 14 days of Kanamycin therapy (15 mg/kg/day), while four animals did not respond and had to be sacrificed. Histologically, the disease was characterized as a necrotic or pyogranulomatous dermatitis with bacterial colonies visible in the necrotic debris. Bacteriologic examination revealed coagulase positive *Staphylococcus aureus*. Affected tissues were collected at necropsy, ground in a sterile glass Tenbrook grinder and inoculated into the dermis and subcutaneous tissue of the hindpaw of three clinically normal rabbits. One rabbit developed a subcutaneous abscess 12 days after inoculation which persisted until the animal was sacrificed at four weeks. *S. aureus* was recovered in pure culture. The portal of entry has not been clearly established, but may have been through the nail bed following trauma produced during toenail clipping operations.

Mice in the breeding colony were found to be infested with mites in October 1974. Alopecia, pruritus and inflammation were the predominant clinical signs. The mite was identified as *Myobia musculi*. All rooms were contaminated and all ages were affected. The condition was brought under control by whole body immersion of mice in a 2% malathion solution. Pregnant animals were not dipped until after their young were weaned. Baby mice were not dipped until the time of weaning. All bedding and cages were autoclaved before and after use for six weeks. Mortality from the dipping process was less than 0.4%. No evidence of mite infestation has been observed during the last three months.