Obstructive Uropathy in Laboratory Mice.* (30595)

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Obstruction of the neck of the urinary bladder causing extreme urinary retention has been observed rather frequently in our mouse colony, and was apparently the cause of death of many of the animals. This phenomenon has not been reported previously to our knowledge.

The mice were housed in stainless steel cages containing wood shavings. The diet was Purina laboratory chow and water *ad libitum* and there were no known periods of prolonged water deprivation. The mice were under lifelong observation for tumor development after various immunization schedules with "vaccines" prepared from several common transplantable mouse tumors, but the bladder lesion occurred as frequently in the untreated controls as in the experimental groups.

The colony included non-inbred Swiss white mice and inbred lines C57Bl and AkR. Bladder obstruction was noted in all 3 lines. Some indication of the frequency and time of onset of this bladder lesion was obtained by examining the autopsy records of 3 of the groups of mice: 100 male Swiss mice, 65 AkR mice (38 male and 27 female), and 100 C57Bl mice (50 of each sex). The youngest mice which died and were found to have the bladder distention were from 5 to 7 months old, and thereafter the lesion was noted quite regularly in a few mice each month. It occurred without relation to other pathologic findings such as neoplasms or infection and was often the only apparent cause of death. The longest survivals in these 3 groups were 20, 21 and 27 months, and the cumulative incidence of the lesion was 24, 11 and 44% respectively. Since these were casual observations they represent only minimum incidences. Males were afflicted slightly more often than females (13 *vs* 7% in the AkR mice, and 50 *vs* 38% in the C57 Blacks). It cannot be assumed that any of these differences are significant.

On gross examination the bladder was abnormally distended, often to an extraordinary degree. Frequently one or more opaque whitish masses could be seen through the tightly stretched bladder wall (Fig. 1). On opening the bladder such masses were often found lodged in the bladder neck and histologic sections sometimes showed them to extend into the proximal urethra (Fig. 2). The material was completely amorphous and stained a pale pink in hematoxylin-eosin stained sections.

Kidneys of such mice usually appeared normal on gross examination, but were sometimes pale. Microscopic examination often revealed moderate dilatation of excretory and collecting tubules, but extreme hydronephro-

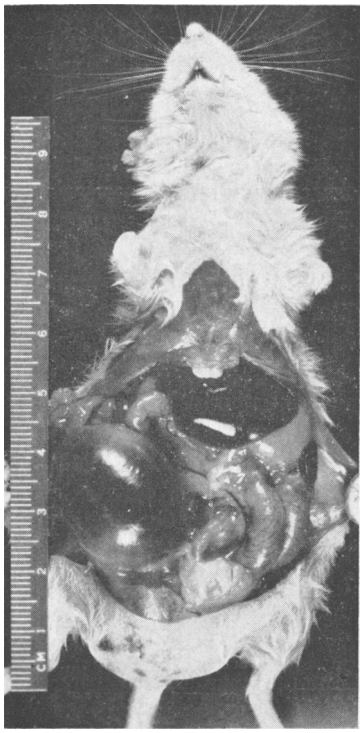

FIG. 1. Mouse with grossly distended urinary bladder due to blockage of urethra. A white intravesicular mass is visible through the bladder wall opposite the 2½ cm point on the scale.

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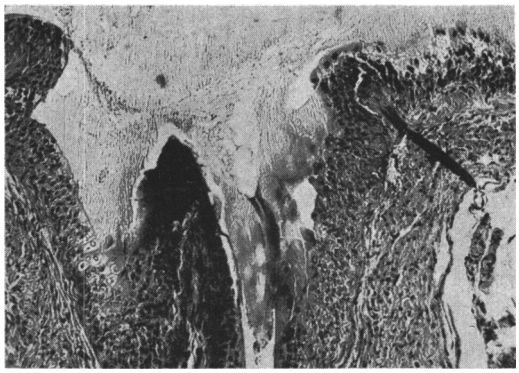

FIG. 2. Photomicrograph of vesicular neck and proximal urethra blocked by proteinaceous plug.

sis was not observed. Interstitial foci of inflammatory infiltrate were seen in many kidneys, and several mice had deposits of amorphous eosinophilic material (presumably amyloid) in glomeruli, spleen and liver. It is not known whether the interstitial nephritis and amyloidosis were related to the urinary obstruction or coincidental. The presumptive cause of death was acute urinary retention.

Several bladder plugs were collected and pooled for chemical analysis. They were negative for calcium, oxylate, phosphate, and uric acid. They were completely digested when left overnight in a 0.2% solution of trypsin and water, indicating that they were composed largely or entirely of protein.

Summary. Proteinaceous bladder plugs are reported as a cause of acute urinary obstruction and death in laboratory mice.

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Examination of Erythrocyte I^{131}-T_4 and I^{131}-T_3 Uptake Test for Thyroid Function in Chickens.* (30596)

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Recently Hamolsky *et al*(1) have devised an *in vitro* test of thyroid function in humans employing I^{131}-labeled triiodothyronine (T_3). This test of thyroid function is a simple and rapid procedure. It requires only a small sample of blood from the subject, and it yields results of diagnostic accuracy comparable to other tests, such as determination of the basal metabolic rate, serum protein bound iodine (PBI) and thyroid uptake of I^{131}.

This test has been extensively employed not only in measuring thyroid function in humans(1,2), but also in rats(3) and cattle (4). Since chicken blood differs from these mammals in that it contains no specific thyroxine binding protein(6,7), and has a low serum PBI(5), it was important to evaluate Hamolsky's method as a test for thyroid function in chickens. A second object of this study was to evaluate the observation made by Heninger and Newcomer(8) that there is a difference in binding affinity for T_3 and thyroxine (T_4) by chicken plasma protein, as reflected by this test.

Materials and methods. White Rock cockerels, ranging in age from 1 day to 1 week, were divided into 3 groups and treated as follows: (a) Group I received desiccated thyroid† in their food (0.1 g per 1 kg of food), (b) Group II served as normal controls and were untreated, (c) Group III received propylthiouracil in their drinking water.

Mean body weights of each group were calculated every 14 days, and at 9 weeks of age the erythrocyte uptake test was conducted. The methods of Hamolsky *et al*(1) were followed throughout, except for certain modifications necessary to adapt them to chickens. Blood was collected by cardiac puncture and 2 ml were placed in each of 2 tubes which contained potassium oxalate. A

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† U.S.P. Nutritional Biochemicals Corporation.