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Dr. A. J. Lehman March 8, 1956

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Pathological changes produced in hens by feeding 0.2% Cellulube 220 or 2% Pydraul 150 for periods up to 47 days.

Path. No.	Hen No.	Test Substance	Per cent in Diet	Duration	Final Weight (kg.)
18596	5612	Cellulube	0.25	16 days	2.1
18597	5024	"	"	"	1.8
19113	4851	Pydraul	2.0	47 days	1.4
19114	5097	"	"	"	1.7

Both compounds are used by the Navy as hydraulic fluids and, excepting for the fact that Cellulube 220 is a tricresyl phosphate, the chemistry is unknown.

The hens receiving Cellulube 220 showed hyperexcitability and slight ataxia on the 12th day of the experiment. Progressive leg weakness developed during the next 4 days and at the termination of the experiment the hens were unable to stand on their feet.

The hens receiving Pydraul 150 ate very little during the experiment and exhibited a progressive weakness. Both animals were alert and bright immediately prior to euthanasia.

GROSS PATHOLOGY

The only gross abnormality was a 2 x 1 1/2 x 1 cm. moderately firm, white tumor in the mesentery, 2 cm from the cloaca, in hen 5097. There was no obvious emaciation.

MICROSCOPIC PATHOLOGY

The following hematoxylin-eosin stained paraffin sections of formalin-fixed tissues were examined: liver, kidney, spleen, duodenum, lower small intestine, pancreas, brain (4 levels), heart, sciatic nerve, and spinal cord of all hens, thyroid and skeletal muscle of 3, and parathyroid, 1. Wright-Giemsa stained marrow smears were made of all chickens, and in one the heart, pancreas, and duodenum were examined with the aldehyde-fuchsin stain. A detailed tabulation of the microscopic findings is filed in the pathology laboratory with a copy of this report.

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Dr. A. J. Lehman--3-8-56

Sciatic nerves of the Cellulube hens show a moderate amount of ballooning and distortion of the neurilemma, and distortion and disintegration of the axons. A small amount of the same type of changes are present in sciatic nerve sections of the Pydraul hens.

The spinal cord sections show a few scattered, round, hyaline foci and in hen 5024 there is also a very slight perivascular mononuclear infiltration. Overall cord damage is considered slight in the Cellulube hens and very slight in those fed Pydraul.

Skeletal muscle sections show a very small number of muscle bundles undergoing necrobiotic changes, and in hen 5612 there is a slight cellular infiltration (mononuclears greatest).

The following incidental lesions, unrelated to treatment, are present singly in the following organs:

Heart of hen 5024 shows a small localized focus of cellular infiltration (mononuclears greatest) in the left ventricle.

Cerebrum of hen 4851 has a slight mononuclear infiltration around a few small arteries.

Liver of hen 4851 has a very small amount of pigment.

Kidney of hen 5612 shows a small number of scattered calcified tubular casts and a very slight localized mononuclear cellular infiltration. Kidney of hen 4851 has a very small number of hyaline casts, very slight localized mononuclear cellular infiltration, and a trace of scattered calcification.

Spleen of hen 5612 shows slight lymphoid atrophy and slight increase in reticulum cells. Spleen of hen 5024 shows a slight decrease in the number of mature lymphocytes and a slight increase in the size of the germinal centers.

Duodenum of hen 5097 has a small number of slightly dilated glands containing a very small amount of albumin and necrotic cellular debris, and there is a very small number of mononuclear cells in the submucosa.

Parathyroid of hen 5097 shows slight hyperplasia.

The tumor of hen 5097 is a fibroma.

SUMMARY

Hens fed Cellulube 220 (0.25% in diet for 16 days) or Pydraul 150 (2.0% in diet for 47 days) developed, respectively, moderate and

slight sciatic nerve damage, slight and very slight spinal cord damage, and a very small number of necrobiotic skeletal muscle bundles. Incidental lesions, unrelated to treatment, are listed.

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