

Exp. 774.

cf 694

Asbestos Inhalation - Long Fibre Chrysotile.

WHITE MICE.Placed in Room #5 and started dusting - NOVEMBER 3, 1938.
20 White Mice.PLAINTIFF'S
EXHIBIT

T-315

Females.

		Exposure		Tumor
1	① Found dead XI/25/38 - no tissue saved. Marked p.m. change.	1 yr		Tumor & abscess
2	② Found dead XI/2/39. - - - - -	1 "	3/4 mo	Fibrosarcoma with extension into lung
3	③ Found dead II-25-39. tissue saved - - -	1 "	6 "	Adenoma lung
4	④ F. J. - 5-28-40. - - - - -	1	7 1/4 "	Golden fibrous tumor
5	⑤ F. D. - VI/12/40. - - - - -	1	8 3/4 "	Adenoma
6	⑥ P. K. - Killed - VII/24/40. - - - - - K	2	3/4 "	Adenoma multi
7	⑦ F. J. - II-27-40 (II-27-40) 2+ years.	2	3/4 "	0
8	⑧ - Killed II-27-40 - 2+ yrs - - - - -	2	3/4 "	0
9	⑨			
10	⑩ missing. -			
11	⑪ died. Nov. 13, '38? No autopsy record or tumor			
12	⑫ " " " " " "			
13	⑬ " " " " " "			
14	⑭ " " " " " "			
15	⑮ - F. J. - 5-11-40	1	6 mo	Adenoma
16	⑯ F. D. - 5-10-40 No autopsy Record	1	7 1/4 "	0
17	⑰ - F. D. - VI/11/40.	1	7 3/4 "	Adenoma at metastasis
18	⑱ - F. D. - VI/27/40.	1	11 1/2 "	Adeno. - benign multiple
19	⑲ - F. D. - X/16/40			
20	⑳ missing -			

Age & Source of these mice not stated
No other inhalation experiments with mice started
during same year

9 out of 11 mice
81.8%

Summary Out of 20 mice. 11 lived a year or more in dust & died or were killed at appreciable degrees of pulmonary infection.

The striking feature was that 9 of these 11 showed pulmonary tumors, usually adenomatous in type. These lesions did not contain dust or CB. 8.1.8.70. See Comparison on appended table, mice & other species.

Asbestos dust fibres were observed inside of free alveolar phagocytes 1 year after starting exposure but no CB had developed. After 1 yr $\frac{3}{4}$ mo. mouse showed a very few such bodies. In all the remaining mice killed between 1 $\frac{1}{2}$ & 2 yrs. CB were numerous.

The bodies were always very short & usually curled up within the cytoplasm of a cell. Rarely they were free. Illustrations occurred but were too fine to be recognized at a magnification < 600 .

Reaction was limited to phagocytosis by mononuclear cells. These were widely scattered thru the air spaces; a limited number of such cells were grouped about the terminal bronchioles, perhaps thickening of their walls. There was no suggestion of,

CB without Fi fibres

11-2-39

found dead.

1 yr.

Thorax - no adhesions.Lungs - Tumor mass in right lung - no metastase
Atelectasis of left lung. -
no gross evidence of dust.Tr. B. & U. Small + softLiver P.M. change, otherwise nothingH. & U.Spleen P.M. changeKidney - no gross change

My - no appreciable dust. Only scattered phagocytosed fibr. no.
Debatable whether a chronic abscess has resulted in
acute + chr. organizing p.m. & epithelial metaplasia &
whether there is a true tumor. It is different at least from
the ordinary mouse adenoma.

Adenoma invaded by abscess

777-#10 - mouse.

11-25-39

found dead -

1 yr 3/4 mo

advanced P.m. change.

lung in atelectasis - no gross evidence
of dust.

mx - Fibrosarcoma? medial tissue c retrograde
lymphatic extensions into lung.

Slight ^{cellular} thickening (fibrous?) along terminal bronchioles
Occasional C.B. inside phagocytes scattered thru air spaces
no concentration in reaction along bronchioles

Lymphosarcoma

PP

-28-40 found dead - cause of death - ? -

Except for P.m. change → there is
nothing significant -

lungs - pink - generally air containing

L.B.H. - no change

liver - P.m. -

Spleen - 2x2 mm - - -

Spleen - P.m. change

Kidneys - nothing significant

Trx - Numerous C.B., well marked epithelial
hyperplasia on terminal bronchioles, one small adenoma
neither fat, particles nor C.B., no fibrosis
L.N. empty pale phagocytes, no C.B.

774-#5

Mouse.

1 yr. 7 1/4 mo.

June 12, 1940. Found dead.

Thorax - no adhesions - no free fluid.

Lungs - Large tumor mass involving almost entire left lung.

Thyroid - large & firm.

Liver - Enlarged - chr. passive congestion - ? amylo.

Spleen - 3.5 x 1 cm - " " " "

H.L.H. - 3 x 5 - firm & injected.

Kidneys - no gross change.

Axillary region - large subcut. tumor on right side.

Max

Large papillary adenocarcinoma replacing 1 lobe of Lt. lung at border
undifferentiated sarcoma
Spleen side - occasional E.B. 5 fibrosis but sl. papif.
epithelium at ends of bronchioles

metastases to liver & spleen distinctive replacement by sarcoma
tissue resembling that at border of lung tissue

Axillary region a hybrid adenocarcinoma.

lymphosarcoma

774 - 6

Mouse.

1 yr. 8 mo. 21 days dehydrated
Long Fibre Chrysothrix.

July 24, 1940. Poor condition - killed.

Partial collapse of hind legs - suggest cerebral accident.

No significant abnormality seen except small localized adenoma in R. lung.

Lungs - generally are containing - pink in color - no dust seen.

W B 44 small + soft

Heart - 0

Liver 2x2 mm - 0

Spleen 1.5x4 cm - 0

2x
Non-fibrous thickening of walls of terminal bronchioles - typical CP
fairly long

774 - # 7 - Neon 2+ years -

11-27-40 - found dead.

Advanced post mortem changes

lung -- shows. Scattered ~~to~~ modules of tumor.
round and white in color. - Resembling
portion of lung is in advanced P.M. State
Just on reaction ~~there is~~ no recognizable -

Other organs - advanced P.M. change

mx
St. focal prolif. of mucus about respiratory bronchioles. Many
minute CB inside mucus widely scattered thru alveoli
No fibrin
Genl. congestion
Rather large ^{localized} adenomatous nodules involving pulmonary parenchyma
Bronchi no metastases
L.N. 0

U/I

174 - # 0

mouse

27 years

1-27-40

K. for Sampling

thorax . . .

lungs - generally air containing - the pleura is everywhere smooth - there again is normally soft. There is no gross evidence of Just on Just reaction

T.B. 44 are small and soft.
4-44 - Small - no gross change
liver
spleen
kidneys } - no gross change.

Tr.

Lungs - focal areas of cellular proliferation (nons) in wall of respiratory bronchioles. Inside of an occasional nons is a smooth walled coated fibre. Minute hamistat visible only at x 600. These C.B. are not numerous & they are not in the air bronchioles thickening but scattered throughout.

L. 4 0

774 - #15 Mouse

5-11-40

found dead.

1 1/2 yrs.

Thorax o

Lungs - no gross evidence of dist -
1 Small localized tumor in apex
of the lower lobe. - (adenoma)

12 B. 124 Small - no change

P.M. change of other organs.

A considerable number of very small typical CB all
inside of phagocytes - Small adenoma

~~main Adeno. carcinoma replacing most of 1 lung
Metastases to liver, spleen - latter not glandular at all but very distinct
Also possibility of another tumor of thyroid origin~~

774- #17.

Mouse.

1 yr 7 mo 8 da

June 11, 1940 - Found dead - advanced P.M. change

Thorax - No adhesions - no free fluid.

Lungs - Generally air-containing - pink in color.

No gross evidence of dust or dust reaction.

BLD - very small.

Liver - no gross change.

H.L.N. - 2 x 1 mm - soft.

Spleen - 0.8 x 2.5 cm - p.m. change.

Kidneys - 0.

Intestines - markedly distended w gas.

Myx

A few scattered small phagocytes occasionally containing

^{short} a smooth yellow-green coated fibre fragment

L.N. - foreign body tubercle & calcified foci but no dust cause

774-#18

Mouse.

1 yr. 7 3/4 mo

June 27, 1940. - Found dead.

Thorax - no adhesions - no free fluid.

Lungs - Generally air-containing, pink in color - no gross evidence of dust or dust reaction. There is one tumor about 2x3 cm in upper portion of lower lobe on right.

H.B.L.N. - embedded and firm.

Abdomen - scattered throughout are many tumor masses of varying size - one of which seems to have surrounded and obstructed the large bowel.

Liver - no gross change.

A.L.N. - 3x4 mm - firm.

Spleen - .5 x 2.0 cm. - no gross change.

Kidneys - several small tumors are seen on surface - and also plugs in tissue section.

mx. no fibrosis. numerous small CB + one very long form (streak)
some hyperplasia? of epithelium in terminal bronchioles.
Adenoma contains no dust or CB.

in lung

lymphocarcinoma in mediastinum
abdomen

774 - #19

Mouse.

Inhalation - Long Fibre & Karyosole

10-16-40. - Found dead.

1 yr 11 1/2 mo.

Thorax. No adhesions - no free fluid.

Lungs. Generally air-containing - pink in color - no effusion seen. One large tumor - like mass in middle third of left lung - well circumscribed & measuring about 6 mm in diameter.

Thy. G. - small.

Liver - pale - otherwise no gross change.

A. L. N. - 1 x 2 mm - clear.

Spleen - 0.5 x 2 cm - no gross change.

Kidneys - 0.

my

Lungs St. cellular thickening about walls of terminal bronchioles. Very numerous small intracellular CB. Widely scattered thin alveoli. No fibrosis. L. 22. small clumps of dust cells.

Adenocarcinoma?