16718 P

Androgenic Secretion by Tumors of the Mouse Adrenal Cortex.

MARTHELLA J. FRANTZ AND ARTHUR KIRSCHBAUM.

*From the Department of Anatomy, University of Minnesota Medical School.**

Tumors of the human adrenal cortex may be responsible for either androgenic or estrogenic activity, although it is more common for such neoplasms to give evidence of androgenic secretion.[1] Adenomas of the adrenal cortex of mice may be induced in certain stocks by gonadectomy,[2,3] and in one stock, the NH, they occur spontaneously, primarily in females.[4†] In contrast to the human, the mouse neoplasms have been found to secrete primarily estrogen in most instances.[1-3] It was consequently of great interest to the authors to find that in the Bagg albino stock the majority of tumors induced in mice of both sexes secreted primarily androgenic hormone, although it is likely that both estrogenic and androgenic substances are produced simultaneously.

All of 10 males castrated at weaning age possessed tumors of the adrenal cortex 2 years following operation. In 5 of the 10, the seminal vesicles were very large and filled with secretion; in 4 others the seminal vesicles were developed beyond the castrate type. Submaxillary glands[5] and renal corpuscles[6] were histologically male in most instances.

Ten months following ovariectomy 3 of 4 Bagg albino females had cortical tumors with which there was an associated androgenic activity. The vaginal epithelium was only 3-4 cell layers thick and the superficial lining cells were high columnar, the cytoplasm being filled with mucous. This picture is indicative of combined estrogenic and androgenic secretion.[7] Seminal vesicle grafts[8] of weanling Bagg albino males had been made into both axillae of 2 of the females 57 days before autopsy. All 4 grafts were greatly hypertrophied, and filled with secretion. The renal corpuscles and submaxillary glands of these females were of the male type. The fourth female of this group had cortical tumors of histologic structure similar to that found in the other 3 ovariectomized mice. In this case, however, the reproductive tract showed signs of estrogenic stimulation, and the renal corpuscles and submaxillary glands had not become masculinized.

Summary. A majority of gonadectomized male and female mice of the Bagg albino stock developed adrenal cortical tumors which secreted androgenic hormone. There is evidence that both androgenic and estrogenic hormone may be produced simultaneously by these tumors.

* This investigation has been aided by grants from the National Cancer Institute, The Jane Coffin Childs Memorial Fund for Medical Research, and the Cancer Fund of the Graduate School of the University of Minnesota.

1 Cahill, G. F., In Endocrinology of Neoplastic Diseases, 1947, Oxford University Press, New York.

2 Gardner, W. U., *Cancer Research*, 1941, **1**, 632.

3 Wooley, G., Fekete, E., and Little, C. C., *Endocrinology*, 1941, **28**, 341.

4 Kirschbaum, A., Frantz, M. F., and Williams, W. L., *Cancer Research*, 1946, **6**, 707.

† The authors have also observed spontaneous tumors of the adrenal cortex in old, intact Bagg albino mice of both sexes and in aged females of the CBA strain.

5 Lacassagne, A., *C. R. Soc. de Biol.*, 1940, **133**, 180.

6 Pfeiffer, C. A., Emmel, V. M., and Gardner, W. U., *Yale J. Biol. and Med.*, 1940, **12**, 493.

7 Korenchevsky, V., and Hall, K., *J. Path. and Bact.*, 1937, **46**, 681.

8 Hill, R. T., *Endocrinology*, 1937, **21**, 633.