CANCER OF THE KIDNEY IN A JACKAL

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The specimen as received was a hard, ball-shaped mass some five centimeters in diameter. Its surface was torn, shaggy and brownish. The specimen had been in formalin for several weeks. The cut surface was grayish, irregular in color and showed no structure to the naked eye.

The tumor is a partly papillary adenocarcinoma. The stroma is thin, containing few blood vessels; the epithelial cells are small, mostly equal in size, their protoplasm being apparently homogeneous; the nuclei are round-ovoid, showing small peripheral thickenings of chromatin. Some of the glandular lumina contain homogeneous masses which stain red with eosin. At many points the tissue is compressed and here the papillary structure is much less outspoken. There are large areas of necrosis, interrupted by blood-vessels which are surrounded by coats of well-preserved adenocarcinoma.

The surrounding kidney tissue is compressed by an increase of connective tissue. No inflammatory reaction is found. The blood vessels give no hint concerning the age of the jackal. It is probable that this tumor originated from the tubules of the kidney, although no proof can be given of this inference.

As far as I have been able to find in the literature, cancer of the kidney is not as rare in domesticated animals as it is in man. It has been found in dogs, cats, rabbits, fowl, horses, sheep and cows. Most of the cases reported have been in dogs (1, 2).

Among twelve primary carcinomata in pigs Sticker (3) found seven cancers of the kidney. Fox (4) has reported a primary tumor in the kidney of a squirrel, composed of irregular acini.

Efforts to find cancer of the kidney described in the animal which has been examined for tumor in the greatest number of cases,—the mouse, yielded but few cases. Ehrlich and Apolant
do not even mention kidney tumors in mice. Maud Slye (6) states that years ago she saw a strain of mice (No. 90) which "carried tumors of kidney," but she refers to sarcoma only, not carcinoma. In a later report, however, one carcinoma and three adenomata are mentioned. Scott (7) has collected five kidney neoplasms in the rabbit, all of the complex or Wilms type. M. Haaland (8) among 353 primary tumors in mice, excluding the adenomata of lung and the lymphomata, has found two kidney tumors. One was an adenocarcinoma which infiltrated and compressed the kidney tissue; tumor material was found in a large vein also. He puts his second case in between adenocarcinoma of the kidney and hypernephroma. Jobling (9) who
saw forty-one primary tumors in mice, found none in the kidney. E. E. Tyzzer (10) describes two malignant adenomatous tumors in mice as hypernephromata. Compared with these figures the number of 11 kidney tumors in 100,000 wild rats, McCoy, (11) is rather high, the more so since the author has excluded from his statistics all doubtful cases. He enumerates four adenomata, three adenocarcinomata, three carcinomata, and one papilloma. Nicholson (12) describes a transplantable carcinoma simplex in an old rat. Bullock and Rohdenburg (13) saw two carcinomata and one hypernephroma of the kidney in rats. Wooley and Wherry (14) claim renal origin for three tumors found in rats. The gross appearance of one of them (No. 19) is similar to that of our jackal tumor.

As would naturally be expected, there are still fewer examples reported in wild animals. In 1152 mammals and birds reported by C. E. Seligmann (15) there are only 6 cases of tumor and no primary kidney tumor; in one bird there was abdominal carcinoma involving the kidneys also.

Schmey (16) saw a large malignant adenoma in the kidney of an eel. Folke and Henschen (17) mention a large papillomatous adenoma in the lynx. In spite of the fact that small numbers cannot prove anything, it remains astonishing that among 5 tumors described in the wolf and the jackal, there are 4 sarcomata of the thyroid, three of them reported by Fox in the prairie wolf and the grey wolf, one by Petit (18) in the jackal; the other tumor in a jackal was a carcinoma of the parotid gland. Fox made his observations in Philadelphia, Petit in Paris.

REFERENCES

(1) JOEST: Specific Pathologische Anatomie der Haustiere, 1924, iii.
(3) STICKER: Arch. f. klin. Chir., 1902, lxv, 616, 1023.
(7) SCOTT: J. Cancer Res. 1917, ii, 367.
(9) Jobling, J. W.: Monographs on Medical and Allied Subjects, Rockefeller Institute, New York, 1910, No. 1, 1.
(17) Folke und Henschcn, Cited in Joest (1) above.