

1; prostatic carcinoma in 1. The histological grades of malignancy were recorded in 54 cases of carcinoma (cases of papilloma were not included, as this tumor was considered as histologically benign): Seven were of grade I, 23 of grade II, 19 of grade III, and 5 of grade IV. The low incidence of adenocarcinoma among aniline tumors agrees well with that generally found—2 per cent (Matthews), as well as with that found in Europe in aniline tumors (Seyberth recorded one case). Aniline tumors are, as evident from the observations in various countries, exclusively of epithelial origin. The aveolar sarcomas (2), recorded by Rehn; Marchand; Wendel; and Leuenberger, were in all probability highly anaplastic carcinomas of sarcomatoid appearance. It may be added that typical squamous cell carcinomas, with or without cornifications, were seldom observed.

X. PATHOLOGICAL RELATIONS

The ratio of benign to malignant aniline tumors is one to three, according to Büttner. Gay calculated for a series of 124 tumors from various German sources a ratio of 1:2 and found a similar ratio in his first American series of 23 cases. In his latest communication, dealing with 61 cases, he has changed the ratio to 1:1. He attributed this discrepancy to the earlier discovery of the tumors in the American workers, because of the routine practice of cystoscopy, and saw in the observation supportive evidence for his contention that there is a transition from benign to malignant lesions with the passage of time. The comparative figures of tumors of unknown cause are: Joseph (1931), 34.3 per cent papilloma and 65.7 per cent carcinoma; Voelcker and Boenninghaus, 76 per cent malignant tumors among 1,472 epithelial neoplasms of the bladder; American Urological Association Registry, 19.5 per cent benign lesions among 851 tumors.

The biological behavior of the aniline tumors varies considerably, depending to a certain extent on their histological structure. Benign villous papilloma may remain stationary or show only progressive local growth for many years, without producing symptoms except those of recurrent hemorrhages, which, however, may be very severe. It may become, on the other hand, rapidly malignant, especially following incomplete removal. Suddenness of appearance and, occasionally, astonishing rapidity of growth may be observed with benign as well as with malignant lesions.

It is asserted generally that bladder tumors, regardless of etiology, metastasize late if at all (Hueckel). Only 23 per cent of cryptogenetic bladder carcinomas in men and 32 per cent in women produced metastases, according to Posner. A similar percentage was cited by Cunningham. Metastases into the regionary lymph nodes were observed by Bilz in 26.3 per cent of his cases, and in remote organs and nodes in 21.1 per cent (cited by Wilinski). Simon (1932) stated that aniline tumors, while histologically identical with bladder tumors of unknown genesis, are biologically more benign than the