

AN HISTOLOGICAL STUDY OF SALIVARY GLAND TUMORS

A. A. THIBAudeau AND E. M. BURKE

*(From the State Institute for the Study of Malignant Disease,
Burton T. Simpson, Director)*

In an investigation of a series of sixty-six cases of tumors of salivary glands reported by Schreiner and Mattick in 1928,¹ in which they record the results of operation and radiation therapy, we find twenty-nine mixed tumors of salivary glands. Histological diagnosis had been made on these cases in the pathological laboratory of the New York State Institute for the Study of Malignant Disease. It was thought that a further review of these cases from the histological standpoint might possibly reveal characteristics in the structure of these tumors which might be of value in the prognosis in a given case.

Of the twenty-nine cases, nine were found in males and twenty in females. Though the age incidence of these tumors is usually said to be low, we found none in the first two decades, five in the third, four in the fourth, eight in the fifth, five in the sixth, four in the seventh, and three above the age of seventy. While it must be admitted that this type of tumor notoriously runs a long course, and that some of the cases presenting themselves for treatment gave a history dating back some years, the age incidence of the tumors in this series seems to correspond with that of other malignant growths.

While more of these tumors were found in the parotid area than elsewhere, a greater number were variously distributed in the lower portion of the face and anterior portion of the neck. The site of the original tumors is shown on the following page.

Of the twenty-nine cases, eighteen are at the present time clinically well; two show improvement; in three the tumors have recurred; while six are dead. Ten of those clinically well are

¹ Schreiner and Mattick: Tumors of salivary glands based on a study of sixty-six cases. *Am. J. Roentgenol.*, 1929, xxi, 541.

Parotid	11
Submaxillary region	8
Hard and soft palate	6
Cheek	2
Naso pharynx	1
Tongue	1
Nose	1
Lip	1
	29

well for over five years; two over four years; three for more than three; two for two years, while one shows no recurrence for a period of fourteen months after treatment. Fourteen of these cases have had the tumor removed and the capsule and surrounding tissues treated by radiation. One well for five and one-half years was treated by operation alone; while two have been treated by radiation therapy without operation. Where possible, removal of the tumor followed by the proper radiation treatment seems to offer the best chances for recovery.

Histological review of sections made from these twenty-nine mixed tumors of salivary gland showed a typical histology in all but two. In these two there was an unusually active proliferation of the epithelial cells with a small amount of connective tissue and no cartilage. The histological picture was not, on the other hand, that of carcinoma of the salivary gland, which type of tumor was definitely excluded from consideration in this series. One of these cases died while the other has been well for three years. While it is not within the scope of this communication to enter into a controversy as to the nature or origin of the mixed tumors of the salivary glands, the present weight of evidence undoubtedly points to their epithelial origin. In our review we have attempted to determine the relative amounts and cellular activities of the epithelial cells, connective tissue elements and cartilage in these tumors, and to see if variations in these component parts might give some clue as to the effect of treatment and the probable clinical outcome of the case. Epithelial activity was established by the relative quantity, cellular activity, infiltration and karyokinesis in the epithelial cells. The connective tissue was examined as to relative quan-

tity, myxomatous change, cellular activity and infiltration; the cartilage when present for relative quantity and cellular activity. Observations were made of the formation of glands.

In seven of the twenty-nine cases no definite cartilage was found in the tumor, though in some fields in each of these cases there seemed to be a partial metaplasia of connective tissue cells into cartilage cells. Of the eighteen cases which showed clinical recovery, eleven showed high epithelial activity, as evidenced by high relative quantity, unusual infiltrative quality and more than the usual number of karyokinetic figures. In five the connective tissue elements exhibited marked growth. There was noted in these cases a relatively high percentage of connective tissue and a great tendency towards myxomatous change. In three cases the proliferation of the cartilage cells was unusually pronounced. The two improved cases showed a moderate growth of epithelial cells with unusual growth of the cartilage in the one; while the second showed a markedly active epithelial proliferation with no definite cartilage growth demonstrable. In both the connective tissue elements were inconsiderable both in amount and in cellular activity.

The histological study of sections from the three cases in which there was a recurrence, showed one with a moderate amount of epithelial activity, one in which the growth of epithelial cells was decidedly low; the third showing a high proportion of actively growing epithelial cells which exhibited marked infiltrative tendencies and a higher percentage of dividing cells than usually found in the epithelial portions of this type of tumor. The case with the low epithelial activity showed an exceptional growth of the connective tissue elements with large areas of myxomatous change—but no cartilage.

Six cases in this series have died. Of these, four cases showed a marked cellular activity in the epithelial portions of the tumor with a high relative quantity of this type of cell. Two of these cases were histologically reported as being highly cellular at the time of the original examination and before the clinical results had been recorded. In three of these cases the connective tissue elements showed unusual growth with much myxomatous

change. In one case only was there noted even a moderate proportion of cartilage in the tumor, while two of these cases showed no definite cartilage whatsoever.

Gland formation was noted in twenty-one of the twenty-nine cases studied; in the remaining eight it was not found. In but two of these cases, however, was it pronounced; in the others it could be recorded as only slight.

CONCLUSION

A consideration of the findings in these cases leads us to believe that in the salivary tumors the histological picture in no way aids us in the determination of the relative malignancy or of the clinical outcome in any given case. The results of treatment would seem to depend rather on the clinical aspects of the case with special reference to the size of the tumor, local infiltration and duration of the lesion.