SURGICAL EXPERIENCES WITH ACOUSTIC TUMORS

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Acoustic tumors rank third in the statistics of brain tumors operated on in our clinic. Out of a total of 3,265 brain tumors verified to Dec. 31, 1946 there were 304 unilateral acoustic tumors, or 9.3 per cent. The total number of neurinomas is somewhat higher as there were 6 cases of bilateral acoustic tumors and 4 cases of neurinomas arising from the 5th nerve.

In previous communications from this clinic, the early and late results up to 1930 and 1939 were reported. In the present paper we shall review the entire material of acoustic tumors from December 1922, when the first case was verified, until the end of 1946. Although the material is fairly homogeneous in that nearly every patient has been examined by the senior author and all except 21 have been operated on by him, a number of new factors have necessarily come into play during this period of 24 years. The technical equipment has been enormously improved since the early twenties by the introduction of suction, the electrosurgical unit, and long-handled silver clip holders, to mention only a few of the many new devices that have been added to our armamentarium. New methods of anesthesia, particularly the intratracheal method, and the unilateral approach introduced by Dandy have relieved the surgeon of a good deal of his burden, lessened the operative shock, and made the operation less of a Marathon procedure than it used to be. These factors all contribute to simplify the technique of operation and have made possible the extensive use of more radical procedures than those in vogue 20 years ago. The realization that in those cases where some considerable portion of the tumor has been left behind few patients survive more than 3–4 years, and that few of the survivors regain their capacity for work, has led to the adoption of radical removal as the method of choice in acoustic tumors. It should not be forgotten, however, that the radical removal of an acoustic tumor carries considerably more risk than the more conservative methods carried out under present day conditions by surgeons of great experience, as shown by Cushing's latest figures. It should be realized, therefore, that our statistics covering the last 24 years reflect the conflicting influences of improved equipment and technique and an increasingly radical attitude towards these tumors.

A sad fact remains to be noted—the diagnosis or rather the ability of the non-specialist to recognize the acoustic tumors in their early stage, has not improved much. We still receive most of our patients with acoustic tumors in a very late stage of development, nearly all of them with choked discs and not a few of them blind or with vision much reduced. Almost without exception a large tumor is found at operation and our records contain only a single instance of a very early tumor where the only symptoms were loss of
hearing and an enlarged porus, and this patient came under neurosurgical observation only because he was fortunate enough to have had a few vertiginous attacks suggesting Ménière's disease.

Among our 304 cases of acoustic tumors there was 1 in which operation was not performed. In 2 cases a suboccipital decompression was made. In 1 of these, where a reliable history could not be obtained, auditory perception was only slightly affected. Ventriculograms showed only a moderate degree of hydrocephalus. This patient died 3 weeks after the suboccipital decompression from pulmonary embolism. Autopsy showed an acoustic tumor on the side of the better ear. In the other case, where the tumor was thought to be too vascular to be attacked, death occurred 3 weeks later from pneumonia. In 1 case where the patient entered the clinic in a comatose condition only a subtemporal decompression was made. The patient died 3 weeks later from the effects of increased intracranial pressure.

The remaining 300 patients were all subjected to total or partial removal. In earlier communications the attempt was made to divide the partially removed tumors into 2 groups: the intracapsular enucleation and subtotal removal. However, on reviewing the case histories it was found that there was no significant difference in the subsequent course of the disease in the 2 groups, and since the division is an arbitrary one and apt to lead to confusion, especially when more than one operator is involved, the division of the incomplete removals into 2 groups was abandoned. All incomplete removals will therefore be treated as a single group regardless of the relative amount of tumor tissue removed. It is recognized, however, that this group is far from homogeneous. Especially in the early cases the intracapsular enucleation, which was the method of choice in those days, frequently amounted to little more than a suboccipital decompression, while with increasing experience relatively more tumor tissue was as a rule removed. It should also be pointed out that during the last 15 years an incomplete removal has rarely been deliberate; in most cases during this time radical removal was attempted, but had to be abandoned short of completion because of technical difficulties, complications occurring during operation and so forth. In many of these cases only a small part of the tumor was left behind. The unilateral approach used almost exclusively during the last 15 years also introduces another variable, as the decompression left after an incomplete removal probably is somewhat less effective than after a bilateral exposure. It is our impression, however, that the subsequent fate of the patient is less affected by the relative amount of tumor tissue removed and the size of the decompression than by the nature of the tumor and particularly its rate of growth.

Altogether 83 cases belong to the group in which the tumor was incompletely removed, while in the remaining 217 cases all visible tumor tissue was extirpated. This latter group may be further subdivided into 2 groups, one where the anatomical continuity of the facial nerve was preserved at the end of the operation (69 cases) and one where efforts in this direction were either unsuccessful or the nerve was deliberately sacrificed (148 cases.)