SURGICAL TREATMENT OF ACOUSTIC TUMORS*

PAUL C. BUCY, M.D.

Department of Neurology and Neurological Surgery, University of Illinois College of Medicine, and the Chicago Memorial Hospital, Chicago, Illinois

(Received for publication April 30, 1951)

I think my description of the mode of operating, and of the anatomy of the parts concerned, clear enough, to enable any good anatomist, possessing the judgment requisite for a surgeon, to operate with safety. I hope no operator of any other description may ever attempt it. It is my most ardent wish, that this operation may remain, to the mechanical surgeon, for ever incomprehensible. Such have been the bane of the science; intruding themselves into the ranks of the profession, with no other qualifications but boldness in undertaking, ignorance of their responsibility, and indifference to the lives of their patients; proceeding according to the special dictates of some author, as mechanical as themselves, they cut and tear with fearless indifference, utterly incapable of exercising any judgment of their own in cases of emergency; and sometimes, without possessing even the slightest knowledge of the anatomy of the parts concerned.

Ephraim McDowell, M.D.—1819.

One of the outstanding advances in the surgical management of intracranial tumors that has occurred in recent years has been in the handling of acoustic neurinomas. These have always been difficult lesions to treat satisfactorily. In the past the surgeon has been particularly disturbed by the high mortality that attended the removal of an obviously benign, encapsulated, well localized tumor. He was if anything even more perturbed by the fact that many of the patients who survived the operation were incapacitatingly disabled and many soon suffered a regrowth of the tumor which demanded another operation with even greater risks to life and well being. The late Walter Dandy, in an effort to improve the poor results that so commonly followed partial removal of these tumors, advocated complete extirpation as long ago as 1922. However, his suggestions did not meet with general acceptance. Many surgeons were dissuaded from following his example by the high mortality that attended his earlier operations and by the fact that a complete facial paralysis always occurred. Olivecrona was one of those who early saw the wisdom of Dandy’s recommendations and published his technical procedures in 1934. Later studies of larger numbers of cases confirmed the feasibility of the total extirpation of these tumors by demonstrating not only that the mortality need not be higher with total extirpations than with partial ones, but that the end-results were distinctly better (Dandy, Horrax and Poppen, Olivecrona). This was true not only because recurrence was impossible but because the postoperative disability was usually less severe with a total extirpation than it was with a partial one.

In spite of the growing number of publications indicating the desirability of total as compared with partial extirpation there are many neurological

surgeons who still cling to the older technic. In the main they are deterred from adopting the more radical procedure because of the operative mortality, which is often quoted as being in the neighborhood of 30 per cent. These surgeons have not stopped to realize that such a high mortality was typical only of the earlier experiences of these pioneers. More recently several surgeons have reported rather large series of cases with operative mortalities of approximately 10 per cent (Dandy, Olivecrona, Horrax and Poppen).

In my own limited experience, since adopting the procedure of total extirpation of acoustic neurinomas in 1939, the operative mortality has not been higher. The operative technic that I have used is not original with me.† I adapted the unilateral linear incision to the removal of these tumors after having learned to use it for section of the 8th or 9th cranial nerves from Dr. Glen Spurling and Dr. Winchell McK. Craig.§ Certainly this technic is used by some other surgeons and yet it is obvious that many are not aware of it and are not giving their patients the benefit of these methods of treatment. It is for no other reason that I have presumed to outline the method that I have found to work most successfully. I shall discuss it briefly and endeavor to present it primarily by means of illustrations.

It has been my practice to place my patients face downward in the cerebellar head-rest designed by Adson and modified by Bailey.⁵ The table is tipped with the head upward to an angle of about 30 to 40° with the horizontal. I have used the sitting or upright position and have not cared for it because of the difficulties of combatting vascular collapse and the dangers of air-embolus. I prefer to anesthetize my patient with ether. Undoubtedly these tumors can be removed under local anesthesia, as Olivecrona advocates. Occasionally I have used such anesthesia, particularly in debilitated patients or others in whom I thought the ether anesthesia too great a risk, but, by and large, operating upon conscious patients in this position and for the long periods not infrequently necessary for the total extirpation of an acoustic neurinoma is a very tiring and painful procedure to which I do not care to subject my patients.

In my opinion the linear incision is of the greatest importance to the success of the operation. Dandy introduced the unilateral approach in 1934⁷ but he always used the curved or inverted “V” incision. This incision produces a flap of scalp and muscle which is in the surgeon’s way when it is turned down and interferes with good visualization of the lower part of the operative field. The transverse incision, both curved and horizontal, and the old cross-bow incision of Cushing provide far more exposure than is needed, and require much more time to make and far more time to close. They are never required when an adequately localized acoustic neurinoma is being operated upon, although the curved incision from mastoid tip to mastoid tip is still very useful in operations upon tumors of the posterior fossa (acoustic neurinomas or otherwise) that can not be localized accurately. Furthermore, as

† Horrax has very recently (1950)³⁸ published a brief outline of his technic. It appears to be practically identical with that which is described here.