Microsurgical Approach to Cerebro-Spinal Lesions

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Editors
H. Krayenbühl, Zürich; P. E. Maspes, Milan; W. H. Sweet, Boston, Mass.

List of Contributors
S. N. Chou, Minneapolis, Minn.; J. Cophignon, Paris; R. C. Crowell, Boston,
D. L. Erickson, Minneapolis, Minn.; U. Fisch, Zurich; C. Gasser, Zurich; O.
Gratzi, Munich; R. Houdart, Paris; M. Hurth, Paris; Y. Le Besnerais, Paris;
A. J. Luessenhop, Washington, D. C; R. G. Ojemann, Boston, Mass.; A. Rey,
Paris; P. Schmiedek, Munich; R. Spetzler, Munich; R. D. Smith, Zurich; Cl.
Thurel, Paris; A. Visot, Paris; M. G. Yasargil, Zurich

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Preface

It has always been the aim of the editors of this series to keep the neurosurgeons up-to-date in areas in which recent progress has occurred. We now wish to provide a useful broad review about the newest technical development during the last decade. The senior editor has pointed out in his Special Lecture at the Fourth International Congress of Neurological Surgery, New York, 1969: ‘Surgery is, and must always remain, an art, but its progress and thus its vitality depend on the maximum application to it of
new methods. The development of the bipolar coagulator, of the binocular surgical microscope with stereoscopic vision, the magnification from 6 to 40 times and the great illuminating power have made these instruments a useful adjunct to neurological surgery. The particular anatomical and physiological features of the central nervous system call not only for especially designed surgical microscopes and microinstruments, but also for new surgical techniques.’

This volume 9 is now an eloquent expression of this new Technical Approach to Cerebro-spinal Lesions and elucidates without any doubt the remarkable operative results with lowering of morbidity and mortality rates. Already in volume 6 of this series (1975), J. Hardy and G. Nicola had demonstrated and convinced the neurosurgeon about the trans-sphenoidal Microsurgical Removal of Pituitary Micro-Adenoma and of Pituitary Adenomas with Extrasellar Extension.

Microvascular surgery is the type with indication par excellence. Gratzi, Schmiedek and Spetzler discuss the extra-intracranial arterial by-pass procedures in the treatment and prevention of Cerebral Ischaemia. Clinical benefit is gained in the prevention of future strokes and the elimination of transient ischaemic attacks. Carotid endarterectomy, not necessarily

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with microsurgical techniques, is evaluated in the reduction of cerebral infarction by Erickson and Chou. In general it must be said that for exact answer to indications one still needs randomized series.

Microsurgery of the Aneurysms of the internal carotid artery and its branches is beautifully described by Yasargil et al. on the basis of 726 personal cases with a mortality rate of 3.8%. Ideally the aneurysm is excluded from the circulation with no retraction or disturbance of brain tissue and atraumatic dissection of the aneurysm from its surrounding vascular structures. The operating microscope allows the surgeon to approach this ideal. And Drake gives his impressive results based on a personal experience on 408 patients with aneurysms on the vertebrobasilar circulation dissected by vision magnification, first with loupes, later with the surgical microscope.

Cerebral and Spinal Arteriovenous Malformations are admirably discussed by the French Groups of Cophignon et al. and Hurth et al. and total surgical excision of the malformation is reported as the ideal treatment. This enthusiasm has been generated by the progress in neuroradiology so well developed by R. Djindjian. These authors also discuss embolization procedures, which subject is critically evaluated by Luessenhop in the chapter on ‘The intravascular approach in neurosurgical management’. The
indications for the catheter techniques are clearly described. The intravascular approach will require a team effort with the neurosurgeon responsible for patient selection and clinical results.

Besides vascular surgery the surgical microscope has proved its worth in the surgical management of large structures such as cerebral tumours at the base of the skull. As an example, two contributions deal with the total removal of Acoustic Neurinomas. Fisch discusses the oto-neurosurgical approach of these tumours and he wisely considers only acoustic neuromas showing symptoms confined to the VIIIth nerve suitable for oto-neurosurgical removal. Intrameatal acoustic neuromas up to 8 mm in diameter were removed by the subtemporal extradural approach to the middle cranial fossa. Tumours penetrating into the cerebellopontine angle, not exceeding 2.5 cm in diameter, were approached through the mastoid and posterior labyrinth. His excellent results were presented. Larger tumours involving other cranial nerves are referred to the neurosurgeon for a suboccipital transmeatal approach. This is in excellent agreement with the contribution of Ojemann and Crowell who describe the microsurgical suboccipital operative technique and the excellent results are given. Other suboccipital approaches by the otologists are shortly mentioned. It is of special interest to compare these two different approaches by very competent otologists and neurosurgeons. In both contributions the very low mortality rate and the high percentage of protection of the facial nerve are remarkable.

This volume is a fine example that the art of surgery has been promoted by a revolutionary approach to surgery and that much original work has been achieved in the last decade.

The Editors