MICROSURGERY FOR STROKE

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Preface

This volume is dedicated to the Third International Symposium on Microneurosurgical Anastomoses for Cerebral Ischemia, which took place in Rottach-Egern, June 28–30, 1976, under the sponsorship of Professor F. Marguth, Director of the Department of Neurosurgery, Ludwig-Maximilians-University of Munich (West Germany). It contains the continuing developments of the extra- intracranial arterial bypass (EIAB) for cerebrovascular occlusive disease since the First International Symposium in Loma Linda, California, in June, 1973, and the Second International Symposium in Chicago, Illinois, in June, 1974.

The EIAB was developed by Donaghy and Yasargil, and it consists of a microsurgical anastomosis of the superficial temporal artery or the occipital branch of the external carotid artery to the middle cerebral artery on the surface of the brain and, very recently, the anastomosis of the occipital artery to the posterior-inferior cerebellar artery for the treatment of vertebrobasilar insufficiency. From the presentations at the symposium it became evident that the greatest potential in the prevention of a stroke in a susceptible patient is the presence of an adequate collateral cerebral blood flow.

The basic diagnostic procedure is cerebral angiography including both carotid and vertebral arteries. Regional cerebral blood flow (rCBF) studies and computerized tomography add further diagnostic information and are particularly important in the selection of potential surgical candidates.

It is now generally agreed that there are two possible factors responsible for cerebral arterial insufficiency. These are: (a) a temporary reduction of blood flow due to a stenosis or occlusion of a major artery and (b) obstruction of the cerebral microcirculation by small emboli. Denny-Brown (1951) pro-

posed the concept of a "hemodynamic crisis": for the first group, i.e., such as a sudden drop in blood pressure rendering an otherwise asymptomatic arterial stenosis "critical," causing a significant decrease in cerebral blood flow resulting in ischemic neurologic symptoms. With the return of normal blood pressure cerebral blood flow improves and the neurologic signs disappear. In the second group Millikan et al. (1955) suggested that "micro-embolization" was the cause, i.e., small thrombi or cholesterol aggregations would dislodge and be swept to the retina and brain. The majority of the speakers at the symposium were of the opinion that the EIAB would be beneficial only if the patients' symptoms were due to hemodynamic insufficiency rather than to emboli.

Three clinical groups are considered surgical candidates: patients with transient ischemic attacks, prolonged reversible ischemic neurologic deficit, and completed mild strokes. Moderate and severe strokes are generally considered to be poor surgical candidates with little to gain from an EIAB.

This volume offers convincing evidence that the EIAB virtually eliminates recurring TIA's, decreases the likelihood of a further stroke, and improves recovery in selected patients with partial strokes. The ultimate effectiveness of the EIAB as compared to other treatment modalities in patients with cerebrovascular occlusive disease will have to await the results of a randomized trial in this group of patients.

Zollikon—Zürich, July 1977.

H. Krayenbühl

Professor Emeritus of Neurosurgery
Honorary Chairman of the Symposium

Contents

I. Basic Problems of Cerebral Ischemia **1**

1. Comments on the History of External-Internal Anastomosis for Cerebral Ischemia 3
Krayenbühl, H.

2. Experimental Ischemia of the Brain 8
Hossmann, K.-A.

3. Thresholds of Cerebral Ischemia 16
Astrup, J., Symon, L., Branston, N. M., Lassen, N. A.

4. Focal Flow and Neuronal Activity in Experimental Cerebral Ischemia 22
Heiss, W.-D., Waltz, A. G., Hayakawa, T.

5. Cerebral Changes During Recirculation following Temporary Ischemia in Mongolian Gerbils, with Special Reference to Blood-Brain-Barrier Change 29
Ito, U., Ohno, K., Tomita, H., Inaba, Y.

6. Simulated Transient Ischemic Attacks in Cat and Man 39
Austin, G., Schuler, W., Haugen, G., Brown, D., Willey, J.

7. Experimental and Clinical Use of Barbiturates in Focal Cerebral Ischemia 57
Hoff, J., Smith, A.

8. Combined Use of Regional Cerebral Blood Flow Measurement and Computerized Tomography for the Diagnosis of Cerebral Ischemia 67

Schmiedek, P., Lanksch, W., Olteanu-Nerbe, V., Kazner, E., Gratzl, O., Marguth, F.

9. Microvascular Bypass for Cerebral Ischemia— An Overview, 1966–1976 79

Chater, N. L., Weinstein, Ph. R, Spetzler, R.

II. Experimental

10. Experimental Middle Cerebral Artery Microsurgical Embolectomy 91

Dujovny, M., Barrionuevo, P. J., Laha, R. K., Osgood, C. P., DeCastro, S., Maroon, J., Hellstrom, R.

11. Cerebral Arterial Spasm: *In Vitro* Contractile Activity of Vasoactive Agents on Human Cortical and Temporal Arteries 98

Allan, G. S., Harris, R. D., Gross, C. J., Chou, S. N.

12. Comparative Merits of Autogenous Arterial and Venous Bypass Grafts as Alternatives to Direct Arterial Anastomosis 105

Bannister, C. M., Mundy, L. A., Mundy, J. E.

13. Endothelial Changes after Vascular Surgery: A Scanning Electron Microscopic Study 119

Auer, L., Gratzl, O., Waltinger, P., Sixl, G., Tritthart, H.

14. Morphologic Changes after Vascular Microanastomoses as a Function of the Technique Used 123

Meyermann, R., Kletter, G., Koos, W. Th.

15. Morphometric Approach to Fine Structural Changes in the Intima of the Common Carotid Artery of the Rat following Microsurgery 128

Meyermann, R., Wismann, H., Kletter, G.

16. Scanning Electron Microscope Studies of Endothelial Injury in Microsurgical Anastomosis 135

Weinstein, Ph. R., Chater, N. L., Maglio, M. T.

17. Importance of the Histologic Structure of the Superficial Temporal Artery for the Function of Extra-Intracranial Bypass 139

Kletter, G., Meyermann, R., Feigl, W., Sinzinger, H.

18. Evaluation of 2-mm Arterial Grafts for Extra- to Intracranial Bypass in Occlusive Cerebrovascular Disease 142
Weinstein, Ph. R., Chater, N. L., Peter, N. D., Popp, A. J.

19. Comparative Evaluation of Conventionally Sutured and Clot-Sutured Microsurgical Anastomoses 149
Kletter, G., Matras, H., Chiari, H., Dinges, N., Witzmann, A.

20. Spontaneous Cerebral Revascularization: An Experimental Study Supporting Microneurovascular Bypass Surgery 154
Conforti, P., Cioffi, F. A., Tomasello, F., Albanese, V.

21. End-to-Side Anastomosis Between Carotid Arteries and Serial Angiographic Controls in Rats 159
Collice, M., Fornari, M., Porta, M.

22. Potential of Reconstructive Vascular Surgery in the Spinal Cord—An Experimental Study 163
Kletter, G., Meyermann, R., Witzmann, A.

III. Clinical

23. A Method to Identify and Treat Reversible Ischemic Alterations of Brain Tissue 169
Holbach, K. H., Wassmann, H., Bonatelli, A. P.

24. Selection of Completed Stroke Patients for STA-MCA Anastomosis Based on Measurements of Somatosensory Evoked Potential and CBF Dynamics 177
Ito, Z., Hen, R., Nakajima, K., Suzuki, A., Uemura, K.

25. Relationship between rCBF Changes and Restitution of Neurologic, Psychopathologic, and Electroencephalographic Disturbances in Patients with Occlusion of Middle Cerebral Artery and Internal Carotid Artery 185
Herrschaft, H.

26. Evaluation of Patients with Cerebral Ischemia Using Computerized Tomography 195
Spetzler, R. F., Wing, S. D., Norman, D.

27. Preoperative Evaluation of STA-MCA Anastomosis Candidates with rCBF Studies 202
Heilbrun, M. P., Anderson, R. E.

28. Some Comments on the Technique of STA-Cortical MCA Anastomoses 214
Schuster, H., Koos, W. Th., Kletter, G.

29. Angiographic Features of the Cortical Extra-Intracranial Anastomosis 218
Deruty, R., Lecuire, J., Dechaume, J. P., Bret, Ph.

30. Results of Multiple Angiographic Studies on Cerebral Revascularization Patients 222
Ausman, J. I., Latchaw, R. E., Lee, M. C., Ramirez-Lassepas, M.

31. Dopplersonographic Control of Microvascular Bypass Function 230
Hopman, H., Gratzl, O., Schmiedek, P., Schneider, I.

32. Cortical Arterial Pressure in Occlusive Cerebrovascular Disease and Results of Bypass Surgery 233
Mizukami, M., Kin, H., Sakuta, Y., Nishijima, M., Araki, G.

33. Cerebral Revascularization for Stroke in Evolution 240
Weinstein, Ph. R., Chater, N. L.

34. STA-MCA Bypass for Acute Focal Cerebral Ischemia 244
Crowell, R. M.

35. Multiple-Vessel Occlusions in Cerebrovascular Disease—a Further Followup of the Effects of Microvascular Bypass on the Quality of Life and the Incidence of Stroke 251
Peerless, S. J., Chater, N. L., Ferguson, G. F.

36. Extra- Intracranial Arterial Anastomosis in Ten Patients with Moya-Moya Syndrome (Occlusion of the Circle of Willis) 260
Kikuchi, H., Karasawa, J.

37. Microsurgical Anastomosis for Cerebral Ischemia in Ninety Patients 264
Mérei, T. F., Bodosi, M.

38. Long-Term Clinical Results following Extra- Intracranial Arterial Bypass Surgery 271
Gratzl, O., Schmiedek, P., Olteanu- Nerbe, V.

39. Late Followup Studies in a Selected Group of Patients with Extra- Intracranial Arterial Bypass 276

Olteanu- Nerbe, V., Schmiedek, P., Gratzl, O., Marguth, F.

40. Bypass Surgery for Vascular Disease of the Carotid and Vertebral Artery Systems 281

Piepgras, D. G., Sundt, Jr., T. M.

Index 287

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