Gamma Knife Radiosurgery for Brain Vascular Malformations
Contents

VII Series Editor’s Note
Lunsford, L.D. (Pittsburgh, Pa.)

1 A Brief History of Arteriovenous Malformation Radiosurgery
Niranjan, A.; Lunsford, L.D. (Pittsburgh, Pa.)

5 Natural History of Cerebral Arteriovenous Malformations and the Risk of Hemorrhage after Radiosurgery
Yen, C.-P.; Schlesinger, D.; Sheehan, J.P. (Charlottesville, Va.)

22 The Technical Evolution of Gamma Knife Radiosurgery for Arteriovenous Malformations

35 Targeting and Conformality in Arteriovenous Malformation Radiosurgery
Paddick, I. (London/Sheffield/Tilburg); Motti, E. (Milano/Ravenna)

49 Dose Selection in Stereotactic Radiosurgery

58 Development and Testing of a Radiosurgery-Based Arteriovenous Malformation Grading System
Pollock, B.E. (Rochester, Minn.)

67 Radiosurgery for Brainstem Arteriovenous Malformation

73 Multistaged Volumetric Management of Large Arteriovenous Malformations

81 Endovascular Embolization in Combination with Radiosurgery for Treatment of Arteriovenous Malformations
Miller, R.A.; Jankowitz, B. (Pittsburgh, Pa.)

89 Stereotactic Radiosurgery after Embolization for Arteriovenous Malformations

97 Long-Term Side Effects of Radiosurgery for Arteriovenous Malformations
Yamamoto, M.; Kawabe, T.; Barfod, B.E. (Ibaraki)
107 Management of Adverse Radiation Effects after Radiosurgery for Arteriovenous Malformations
(Pittsburgh, Pa.)

119 Morphological Observations in Brain Arteriovenous Malformations after Gamma Knife Radiosurgery
Szeifert, G.T. (Budapest); Levivier, M.; Lorenzoni, J. (Brussels); Nyáry, I.; Major, O. (Budapest); Kemeny, A.A. (Sheffield)

130 Stereotactic Radiosurgery Guideline for the Management of Patients with Intracranial Arteriovenous Malformations
Niranjan, A.; Lunsford, L.D. (Pittsburgh, Pa.)

141 Cavernous Malformations and Hemorrhage Risk
Kondziolka, D.; Monaco, E.A., III; Lunsford, L.D. (Pittsburgh, Pa.)

147 Radiosurgery of Brain Cavernomas – Long-Term Results
Liscak, R. (Prague)

157 Radiosurgical Treatment for Epilepsy Associated with Cavernomas
Lévêque, M.; Caron, R.; Bartolomei, F.; Régis, J. (Marseille)

166 Stereotactic Radiosurgery Guidelines for the Management of Patients with Intracranial Cavernous Malformations
Niranjan, A.; Lunsford, L.D. (Pittsburgh, Pa.)

176 Intracranial Dural Arteriovenous Fistulas: Natural History and Rationale for Treatment with Stereotactic Radiosurgery
Pan, D.H.-C.; Wu, H.-M. (Taipei); Kuo, Y.-H. (Taipei/Albany, N.Y.); Chung, W.-Y.; Lee, C.-C.; Guo, W.-Y. (Taipei)

195 Stereotactic Radiosurgery with or without Embolization for Intracranial Dural Arteriovenous Fistulas

205 Dural Arteriovenous Fistulas and the Role of Gamma Knife Stereotactic Radiosurgery: The Stockholm Experience
Söderman, M.; Dodoo, E. (Stockholm); Karlsson, B. (Singapore)

218 Stereotactic Radiosurgery Guidelines for the Management of Patients with Intracranial Dural Arteriovenous Fistulas
Niranjan, A.; Lunsford, L.D. (Pittsburgh, Pa.)

227 Author Index

229 Subject Index
Series Editor’s Note

In the 40 years since radiosurgery was introduced as an option for the management of vascular malformations, an enormous volume of clinical outcome research has substantiated its role in properly selected patients. Across the world, various technologies are available to perform radiosurgery. The unifying feature of each technology is its ability to conformally deliver a high dose of radiation to a small intracranial volume with precision and selectivity (rapid fall-off of the dose in adjacent normal structures). The Gamma Knife® represents the technology most commonly used and is currently a tool available at more than 300 medical centers.

At our own center, we have recently completed a long-term analysis of almost 1,000 patients who had Gamma Knife radiosurgery for arteriovenous malformations (AVMs) during a 20-year interval. Like other centers, many of whom are represented by reports in this volume, the role of radiosurgery expanded to include carefully selected cavernous malformations and dural vascular malformations. I believe that the current volume of Progress in Neurological Surgery will provide additional data that will further define the long-term benefit and risks of radiosurgery for these often complex vascular disorders.

I hope that you will enjoy reading the work of the superb international group of individuals who work with the Gamma Knife in the management of AVMs.

L. Dade Lunsford, MD, FACS
Pittsburgh, Pa.