Radiosurgery

Radiosurgery

Volume Editor

D. Kondziolka  Pittsburgh, Pa.

117 figures, 10 in color, and 49 tables, 2002
Douglas Kondziolka, MD, MSc, FRCS (C)
University of Pittsburgh
Medical Center
Pittsburgh, Pa., USA
Contents

IX Preface
XI The Jacob I. Fabrikant Award

1 The Jacob I. Fabrikant Memorial Address
   Friedman, W.A. (Gainesville, Fla.)

Vascular Malformations

12 Radiosurgery for Arteriovenous Malformations. The University of Florida Experience
   Friedman, W.A. (Gainesville, Fla.)

19 Optimal Radiosurgery Dosages for the Treatment of Arteriovenous Malformations in the Era of Magnetic Resonance Imaging
   Inoue, H.K.; Tezuka, M.; Oda, O. (Numata); Shibazaki, T.; Ohye, C. (Takasaki);

26 The Obliteration Rate of Arteriovenous Malformations after Gamma Knife Radiosurgery

34 Recurrent Hemorrhage in a Radiosurgically Obliterated Cerebral Arteriovenous Malformation
   Szeifert, G.T. (Brussels/Budapest); Vandersmissen, B.; Taib, N.O.B.; Balériaux, D.;
   Rodesch, G.; Salmon, I.; Brotchi, J.; Levivier, M. (Brussels)
42 The Role of Radiosurgery in the Treatment of Giant Arteriovenous Malformations
Chang, S.D.; Levy, R.P.; Marks, M.P.; Marcellus, M.; Steinberg, G.K. (Stanford, Calif.)

54 Comparison of Arteriovenous Vascular Malformation Volumes Obtained from Thin-Slice CT and High-Resolution MRI/MRA for a Stereotactic Radiosurgery Plan

66 Treatment of Brain Stem Cavernomas Using the Gamma Knife
Liščák, R.; Vladyka, V; Vymazal, J.; Šimonová, G. (Prague)

Benign Tumors

73 Management of Pituitary Tumours by Radiotherapy and Radiosurgery. A Review
Smee, R. (Randwick)

87 Endocrine Results of Gamma Knife Radiosurgery in Acromegaly and Prolactinomas
Landolt, A.M.; Lomax, N.; Scheib, S.G.; Wellis, G. (Zürich)

93 Gamma Knife Radiosurgery for Growth Hormone-Secreting Pituitary Adenomas

102 Long-Term Results of Gamma Knife Radiosurgery for Cushing’s Disease
Kobayashi, T.; Kida, Y.; Mori, Y. (Aichi)

116 Adjuvant Radiosurgery for Skull Base Tumors: The Role of Intraoperative MRI
Schulder, M.; Jacobs, A.; Carmel, P.W. (Newark, N.J.)

Malignant Tumors

123 Positron Emission Tomography-Guided Radiosurgery: Early Experience with the Integration of Metabolic Data in the Dosimetry Planning with the Leksell Gamma Knife®

134 Efficacy of 20-Gy Stereotactic Radiosurgery for ≤2 cm Brain Metastases
Regine, W.F.; Reid, B.; Patchell, R.A.; St. Clair, W.H.; Meigooni, A.; Sims, J.; Sanders, M.; Young, A.B. (Lexington, Ky.)
143 Prognostic Factors for Patients with Cerebral Metastases Treated with Stereotactic Radiosurgery: Comparison with the RTOG Recursive Partitioning Analysis of Patients Treated with Whole Brain Irradiation

152 Tumor Control and Growth in a Patient with Two Cerebral Metastases Treated with the Leksell Gamma Knife®
Szeifert, G.T. (Brussels/Budapest); Salmon, I.; David, P.; Devriendt, D.; De Smedt, F.; Rorive, S.; Brotchi, J.; Levivier, M. (Brussels)

162 Stereotactic Radiotherapy in Nasopharyngeal Carcinoma. Preliminary Results

167 Stereotactic Interstitial Radiosurgery and Intraoperative Radiotherapy with a Miniature X-Ray Device in the Treatment of Selected Brain Tumors. Preliminary Results
Gallina, P. (Florence); Francescon, P.; Cavedon, C. (Vicenza); Casamassima, F.; Mungai, R. (Florence); Terrin, G. (Vicenza); Perrini, P.; Pallotta, S.; Capaccioli, L.; Di Lorenzo, N. (Florence)

179 Adrenal Metastases from Lung Cancer and the Results of Body 5-Fraction Stereotactic Radiotherapy
Lederman, G.; Wronski, M.; Silverman, P.; Lowry, J. (Staten Island, N.Y.)

Functional Disorders

186 Differential Radiosurgical Response of V2 and V3 Trigeminal Neuralgia

192 MR Changes after Gamma Knife Radiosurgery for Mesial Temporal Lobe Epilepsy: Evidence for the Efficacy of Subnecrotic Doses
Hayashi, M. (Marseille/Tokyo); Bartolomei, F.; Rey, M.; Farnarier, P.; Chauvel, P.; Régis, J. (Marseille)

Physics and Radiobiology

203 Methodology of Three-Dimensional Dosimetric Dose Verification in Radiosurgery
Scheib, S.G.; Gianolini, S. (Zürich)

213 Verification of Dose Plans Using Film Dosimetry for Quality Assurance in Radiosurgery
Mack, A. (Frankfurt/Tübingen); Mack, G. (Tübingen); Weltz, D. (Metzingen); Czempiel, H.; Kreiner, H.J. (München)
228 Commissioning a System for Stereotactic Radiosurgery/Radiotherapy of the Head and Neck
Clark, B.G.; Robar, J.; Vollans, E.; Audet, C.; Sheehan, F. (Vancouver)

239 A Method for Validating Stereotactic Radiosurgery Dose-Volume Histogram Calculations
Nichol, A.M.; Clark, B.G.; Ma, R. (Vancouver)

245 Comparison of Dose Distribution of Three-Dimensional Conformal Treatment Planning and Stereotactic Radiotherapy for Large Intracranial Lesions

251 Testing and Initial Clinical Experience with an Image-Guided System for Frameless Stereotactic Radiosurgery
Meeks, S.L.; Ryken, T.C.; Pennington, E.C. (Iowa City, Iowa); Bova, F.J.; Friedman, W.A. (Gainesville, Fla.); Buatti, J.M. (Iowa City, Iowa)

262 Three-Dimensional Ultrasound Image Guidance for High-Precision Extracranial Radiosurgery and Radiotherapy
Bouchet, L.G. (Gainesville, Fla.); Meeks, S.L. (Iowa City, Iowa); Bova, F.J. (Gainesville, Fla.); Buatti, J.M. (Iowa City, Iowa); Friedman, W.A. (Gainesville, Fla.)

279 Histology of the 100-Gy Thalamotomy in the Baboon

285 Author Index

287 Subject Index
The International Stereotactic Radiosurgery Society represents a community of colleagues across the world. The 5th meeting of the society was planned for Jerusalem, Israel with Dr. Roberto Spiegelmann and Dr. Raphael Pfeffer as hosts. Because of escalated conflicts and war within that country, Dr. William Friedman and his committee moved the meeting to Las Vegas. This represented an extraordinary effort in reorganizing a successful meeting in a matter of months. Then, as the editorial board reviewed manuscripts for this edition of Radiosurgery, terrorist attacks on the United States emphasized again that the world we live in cannot be taken for granted. In Las Vegas, our international society brought forth members and guests from many nations with the goal of improving the medical care given to our patients. Political, religious or cultural differences were not relevant. I am hopeful that the example we set in medicine can be heard by those who choose to destroy the human body, rather than restore it.

This fourth volume includes evaluations of vascular malformation and pituitary tumor radiosurgery from centers with large clinical experiences, novel imaging techniques for radiosurgery, new malignant tumor approaches, and new insights into device measurements and refinements. I welcome Dr. Kintomo Takakura, Dr. Jean Régis, and Dr. Michael McDermott to the editorial board, and thank outgoing members Christer Lindquist, Jay Loeffler, Eben Alexander, and John Flickinger.

Douglas Kondziolka
The 2001 recipients of the Jacob I. Fabrikant Award: Drs. Frank Bova, Jay S. Loeffler, and William Friedman (left to right).