



Steven D. Chang, MD

Robert C. and Jeannette Powell Neurosciences Professor and, by courtesy, of Otolaryngology-Head and Neck Surgery and of Neurology Neurosurgery

 NIH Biosketch available Online

CLINICAL OFFICES

- **Stanford Neuroscience Health Center**

213 Quarry Rd

4th Fl MC 5958

Palo Alto, CA 94304

Tel (650) 723-6469

Fax (650) 725-5032

ACADEMIC CONTACT INFORMATION

- **Alternate Contact**

Aysha Ali - Administrative Assistant

Email aali@stanford.edu

Tel 650-736-1134

Bio

BIO

Dr. Chang is a Professor and Vice Chairman of Strategic Development and Innovation in the Department of Neurosurgery at Stanford. He is also the inaugural holder of the Robert C. And Jeannette Powell Professorship in the Neurosciences at Stanford University School of Medicine. His clinical work and research focuses on the treatment of brain tumors and cerebrovascular disease.

After receiving his Medical Degree and completing his Neurosurgery residency training at Stanford University, Dr. Chang joined Stanford's Department of Neurosurgery in 2000. He was named full professor in 2008, and that same year was appointed as the Powell Professor in the Neurosciences. Dr. Chang has a national and international reputation as an expert in both microsurgery and radiosurgery for treatment of brain, spine, and skull base tumors, and is the Co-Director of the Surgical Neuro-Oncology Program. His radiosurgery practice focuses on the use of the Cyberknife to treat neoplasms of the brain and spine. He was instrumental in the rapid growth of the Stanford Cyberknife Radiosurgery Program and is currently Co-Director of this program. Dr. Chang also specializes in the treatment arteriovenous malformations and cavernous malformations of the brain and spine, and surgical treatment of intracranial aneurysms. A fellowship trained cerebrovascular neurosurgeon, Dr. Chang specializes in multi-modality therapy for these vascular lesions. He is also an expert in both microsurgery and radiosurgery for treatment of trigeminal neuralgia.

Dr. Chang's research focuses on clinical outcomes for radiosurgery of brain and spine tumors. His lab has active research projects involving genetic analysis of arteriovenous malformation patients. He is the Director of the Stanford Neurogenetics Oncology Program and the Director of the Stanford Neuromolecular Innovations Program. He is the author or co-author of more than 300 peer-reviewed publications and book chapters.

CLINICAL FOCUS

- Cancer > Neuro Oncology
- Brain / Central Nervous System Tumors
- Brain / Central Nervous System Tumors - Neuro Oncology
- Brain / Central Nervous System Tumors - Neurosurgery
- Neurological Surgery
- Neurosurgery
- Skull Base Tumors
- Skull Base Tumors - Head and Neck Surgery
- Spinal Cancer
- Spinal Cancer - Neurosurgery
- Spinal Cancer - Surgery
- Acoustic Neuroma
- Glioma, Astrocytic
- Glioma
- Glioblastoma
- Glioblastoma with Sarcomatous Component
- Astrocytoma
- Ependymoma
- Medulloblastoma
- Meningioma
- Intracranial Aneurysm
- Carotid Stenosis
- Arteriovenous Malformations
- Intracranial Arteriovenous Malformations
- ACTH-Secreting Pituitary Adenoma
- Adenoma, Prolactin-Secreting, Pituitary
- Diabetes Insipidus, Pituitary
- Growth Hormone-Secreting Pituitary Adenoma
- Hypothalamic-Pituitary Neoplasms
- Neoplasms, Hypothalamic-Pituitary
- PRL-Secreting Pituitary Adenoma
- Pituitary ACTH Hypersecretion
- Pituitary ACTH-Producing Cells
- Pituitary ACTH-Secreting Cells
- Pituitary Adenoma, Prolactin-Secreting
- Pituitary Adrenocorticotropin-Secreting Cells
- Pituitary Apoplexy
- Pituitary Diseases
- Pituitary FSH Hypersecretion
- Pituitary Gland
- Pituitary Growth Hormone-Secreting Cells
- Pituitary Irradiation
- Pituitary Neoplasms
- Prolactin-Producing Pituitary Adenoma
- Prolactin-Secreting Pituitary Adenoma
- Vestibular Schwannoma
- brain metastasis
- Cyberknife
- Radiosurgery, Stereotactic
- Stereotactic Techniques
- spinal avm
- spinal tumor
- Spinal Meningioma
- spinal schwannoma
- Trigeminal Neuralgia
- Hemifacial Spasm
- Glossopharyngeal Nerve Diseases
- AVM (Arteriovenous Malformation) Intracranial
- Stroke
- Brain Tumor, Primary
- Brain Tumor, Recurrent
- Brain Tumors
- Malignant Primary Brain Tumors
- Primary Malignant Brain Tumors
- Aneurysm, Cerebral
- Acoustic Neuroma, Cerebellopontine Angle
- Aneurysm, Anterior Cerebral Artery
- Aneurysm, Middle Cerebral Artery
- Aneurysm, Posterior Cerebral Artery
- Anterior Cerebral Artery Aneurysm
- Cerebral Cavernous Hemangioma
- Cerebral Hemorrhage
- Cerebral Vasculitis
- Middle Cerebral Artery Aneurysm
- Posterior Cerebral Artery Aneurysm
- Vascular Malformations, Brain
- Brain Aneurysm
- Brain Neoplasms
- Brain Revascularization
- Neurogenetics
- Neuroprotonomics
- Neurocutaneous Syndromes
- Glomus Tumor
- Craniopharyngioma
- Pituitary tumor

ACADEMIC APPOINTMENTS

- Professor - Med Center Line, Neurosurgery
- Professor - Med Center Line (By courtesy), Otolaryngology - Head & Neck Surgery Divisions
- Professor - Med Center Line (By courtesy), Neurology & Neurological Sciences
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Co-Surgical Director, Pituitary Program, Stanford, (2006-2007)
- Capital Asset Management Committee, Stanford, (2005-2010)
- Topic Review Editor, Editorial Board, Neurosurgery, (2005-2010)
- Editorial Board, World Neurosurgery, (2010-2012)
- Editorial Board, Journal of Radiosurgery and SBRT, (2010- present)
- Neuroscience Service Line Committee, Stanford, (2003- present)
- Co-Director, Stanford Cyberknife Program, Stanford, (2003- present)
- Director, Stanford Neuromolecular Innovation Program, (2009- present)
- Director, Stanford Neurogenetics Program, (2010- present)
- Robert C. and Jeannette Powell Professor in the Neurosciences, Stanford University, (2008- present)
- Vice Chairman, Neurosurgery Strategic Development and Innovation, Stanford University School of Medicine, (2015- present)

HONORS AND AWARDS

- Robert C. and Jeannette Powell Professor in the Neurosciences, Stanford University (2008-)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, Stanford Neurosciences Destination Service Line Committee (2002 - present)

PROFESSIONAL EDUCATION

- Board Certification: Neurological Surgery, American Board of Neurological Surgery (2003)
- Fellowship: Stanford University Cerebrovascular Surgery Fellowship (2000) CA
- Fellowship, Stanford University Stereotactic Radiosurgery Fellowship , CA (1996)
- Residency: Stanford University Neurosurgery Residency (1999) CA
- Internship: Stanford University General Surgery Residency (1994) CA
- Medical Education: Stanford University School of Medicine Registrar (1993) CA
- MD, Stanford University , Medicine (1993)
- AB, Stanford University , Quantitative Economics (1989)
- BS, Stanford University , Biology (1989)

COMMUNITY AND INTERNATIONAL WORK

- Stanford Brain Tumor Support Group
- Neurofibromatosis Support Group
- Stanford Meningioma Support Group, Stanford

- Stanford Acoustic Neuroma Support Group, Stanford

LINKS

- Stanford Neuromolecular Innovation Program: <http://snip.stanford.edu/>
- Stanford Neurogenetic Oncology Program: <http://stanfordhospital.org/clinicsmedServices/COE/neuro/neurogenetics/>
- Stanford Cyberknife Program: <https://stanfordhealthcare.org/medical-clinics/cyberknife-stereotactic-radiosurgery-program.html>
- Stanford Acoustic Neuroma Support Group: http://stanfordhospital.org/clinicsmedServices/COE/cyberknife/acoustic_neuroma.html
- Stanford Meningioma Support Group: <http://stanfordhospital.org/clinicsmedServices/COE/cyberknife/meningiomaSupport.html>
- Get a Second Opinion: <https://stanfordhealthcare.org/second-opinion/overview.html>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

The Stanford Neurogenetic Innovation Program (SNIP) brings together clinical experts with the goal of developing new technologies to improve the diagnosis and treatment of patients affected by neurological conditions. Dr. Steven D. Chang, M.D., Professor of Neurosurgery, is leading SNIP's research efforts, which can be divided into three broad categories: (1) Neural Stem Cells, (2) New Blood Vessel Growth and Response to Radiosurgery, and (3) Nanotechnology and Microfluidic Biochips

1. Neural Stem Cells

SNIP researchers recently found that the ability of stem cells in the brain to regenerate themselves and produce new nerves is a process guided by signals from neighboring cells, in particular the cells that make up our blood vessels. SNIP researchers have succeeded in isolating stem cells from brain tumor tissue. It is possible that errors in the programming of these tumor stem cells may result in abnormal growth of tissue and the development of brain tumors. Similar to neural stem cells, these tumor stem cells are located around the blood vessels that feed the tumor. SNIP researchers are currently studying the stem cells present in brain tumors and vascular malformations to determine what changes occurred in these cells to cause them to produce or promote disease. With this knowledge, it may soon be possible to discover new therapies for affected patients, prevent recurrent tumor growth, identify genetic risk factors, and develop preventative therapies to protect against development of disease.

2. New Blood Vessel Growth and Response to Radiosurgery

Understanding the process by which new blood vessels grow in the brain is important for research on (1) stroke recovery, (2) Blood vascular malformations that are characterized by overgrowth or dysfunction of vascular elements, e.g. arteriovenous malformations, and (3) brain tumors, which grow on the basis of new blood vessel formation to feed the tumor. SNIP researchers have recently found that circulating cells, previously thought only to have functions in our immune system, are recruited to areas of new blood vessel growth in the brain. SNIP researchers hope to develop new therapies that travel through the bloodstream to affect this process in order to directly treat vascular malformations and brain tumors. SNIP researchers are examining genetic variation in key genes responsible for vascular health and response to radiation injury to explain patient variations in response to radiosurgery.

SNIP researchers are also leading efforts in biomarker discovery, a process that focuses on the isolation of circulating factors in the bloodstream of patients that may relate to specific characteristics of their tumor or vascular malformation. These biomarkers are being obtained on all patients undergoing neurosurgery for removal of their tumor or vascular malformation. Differences in biomarkers are being related to characteristics of the specimen obtained from surgery to determine whether these noninvasive measurements can reveal information specific to radiation susceptibility. Dr. Chang hopes to one day offer his patients a simple blood test that he can use to determine whether a particular patient will benefit from neurosurgery versus radiosurgery, i.e. the goal of practicing personalized medicine.

3. Nanotechnology and Microfluidic Biochips

Microfluidic systems can perform conventional chemical and molecular processes on a biochip, allowing for sample metering, mixing, reactions and detection#processes that usually require a laboratory full of equipment to be integrated and miniaturized onto chips no larger than the size of a standard glass slide. SNIP researchers are now focusing on prototyping new biochips to directly isolate specific cell populations and biomarkers using nanotechnology in order to develop tools that can enable SNIP clinicians to improve the diagnostics and treatment options available to patients affected by neurological conditions.

CLINICAL TRIALS

- Panitumumab-IRDye800 in Diagnosing Participants With Malignant Glioma Undergoing Surgery, Recruiting
- Phase I Compare OS in Post-CyberKnife Radiosurgery Tx in 1-3 VS 4 or More Brain Metastases, Recruiting
- Cyberknife Radiosurgery and Quality of Life, Not Recruiting
- Phase 1-2 of Temozolomide and Hypofractionated Radiotherapy in Tx of Supratentorial Glioblastoma Multiform, Not Recruiting
- Phase I Vorinostat Concurrent With Stereotactic Radiosurgery (SRS) in Brain Metastases From Non-Small Cell Lung Cancer, Not Recruiting
- Study of Fractionated Stereotactic Radiosurgery to Treat Large Brain Metastases, Not Recruiting

Publications

PUBLICATIONS

- **Stereotactic radiosurgery for head and neck paragangliomas: a systematic review and meta-analysis.** *Neurosurgical review*
Fatima, N., Pollom, E., Soltys, S., Chang, S. D., Meola, A.
2020
- **Stereotactic Radiosurgery for Benign Spinal Tumors.** *Neurosurgery clinics of North America*
Meola, A., Soltys, S., Schmitt, A., Gerszten, P. C., Chang, S. D.
2020; 31 (2): 231–35
- **Arterial-spin labeling MRI identifies residual cerebral arteriovenous malformation following stereotactic radiosurgery treatment** *JOURNAL OF NEURORADIOLOGY*
Heit, J. J., Thakur, N. H., Iv, M., Fischbein, N. J., Wintermark, M., Dodd, R. L., Steinberg, G. K., Chang, S. D., Kapadia, K. B., Zaharchuk, G.
2020; 47 (1): 13–19
- **A Phase I/II Trial of 5-Fraction Stereotactic Radiosurgery with 5-mm Margins with Concurrent Temozolomide in Newly Diagnosed Glioblastoma: Primary Outcomes.** *Neuro-oncology*
Azoulay, M., Chang, S. D., Gibbs, I. C., Hancock, S. L., Pollom, E. L., Harsh, G. R., Adler, J. R., Harrahar, C., Li, G., Hayden Gephart, M., Nagpal, S., Thomas, R. P., Recht, et al
2020
- **Stereotactic Radiosurgery for Resected Brain Metastases - Does the Surgical Corridor Need to be Targeted?** *Practical radiation oncology*
Shi, S., Sandhu, N., Jin, M., Wang, E., Liu, E., Jaoude, J. A., Schofield, K., Zhang, C., Gibbs, I. C., Hancock, S. L., Chang, S. D., Li, G., Gephart, et al
2020
- **Predictors of visual functional outcome following treatment for cavernous sinus meningioma.** *Journal of neurosurgery*
Fatima, N., Ding, V. Y., Han, S. S., Chang, S. D., Meola, A.
2020: 1–12
- **Local control and toxicity outcomes of stereotactic radiosurgery for spinal metastases of gastrointestinal origin.** *Journal of neurosurgery. Spine*
Sandhu, N., Benson, K. R., Kumar, K. A., Eyben, R. V., Chang, D. T., Gibbs, I. C., Hancock, S. L., Meola, A., Chang, S. D., Li, G., Hayden-Gephart, M., Soltys, S. G., Pollom, et al
2020: 1–8
- **Evaluating Surgical Resection Extent and Adjuvant Therapy in the Management of Gliosarcoma.** *Frontiers in oncology*
Jin, M. C., Liu, E. K., Shi, S., Gibbs, I. C., Thomas, R., Recht, L., Soltys, S. G., Pollom, E. L., Chang, S. D., Hayden Gephart, M., Nagpal, S., Li, G.
2020; 10: 337
- **Long-Term Update of Stereotactic Radiosurgery for Benign Spinal Tumors** *NEUROSURGERY*

- Chin, A. L., Fujimoto, D., Kumar, K. A., Tupper, L., Mansour, S., Chang, S. D., Adler, J. R., Gibbs, I. C., Hancock, S. L., Dodd, R., Li, G., Gephart, M., Ratliff, et al
2019; 85 (5): 708–16
- **Long-Term Hearing Outcomes Following Stereotactic Radiosurgery in Vestibular Schwannoma Patients-A Retrospective Cohort Study**
Santa Maria, P. L., Shi, Y., Gurgel, R. K., Corrales, C., Soltys, S. G., Santa Maria, C., Murray, K., Chang, S. D., Blevins, N. H., Gibbs, I. C., Jackler, R. K.
OXFORD UNIV PRESS INC.2019: 550–59
 - **Stereotactic Radiosurgery for Resected Brain Metastases: Single-Institutional Experience of over 500 Cavities**
Shi, S., Sandhu, N., Wang, E. H., Liu, E., Jaoude, J., Jin, M., Schofield, K., Zhang, C., Gibbs, I. C., Hancock, S. L., Chang, S. D., Li, G., Hayden, et al
ELSEVIER SCIENCE INC.2019: E90
 - **Spinal Cord Tolerance Guided by Stereotactic Radiosurgical Treatment of Intramedullary Arteriovenous Malformations**
Obeid, J. P., Muftuoglu, Y., Chang, S. D., Soltys, S. G.
ELSEVIER SCIENCE INC.2019: E124
 - **Vertebral Compression Fracture Rates after Stereotactic Radiosurgery for Spinal Metastases**
Usoz, M., Dhillon, J., Kumar, K. A., Von Eyben, R., White, E. C., Ho, C. K., Azoulay, M., Fujimoto, D. K., Gibbs, I. C., Chang, S. D., Hancock, S. L., Pollom, E., Soltys, et al
ELSEVIER SCIENCE INC.2019: E126–E127
 - **Factors Associated with Treatment Failure and Radiation Necrosis Following Cavity Radiosurgery for Resected Brain Metastases**
Wang, E. H., Shi, S., Sandhu, N., Liu, E., Jin, M., Schofield, K., Zhang, C., Jaoude, J., Gibbs, I. C., Hancock, S. L., Chang, S. D., Li, G., Hayden, et al
ELSEVIER SCIENCE INC.2019: E92
 - **Stereotactic Radiosurgery for Small Cell Lung Cancer Brain Metastases**
Bagshaw, H. P., Taggarsi, R. S., Moding, E. J., Fawaz, Z. S., Von Eyben, R., Pollom, E., Chang, S. D., Gibbs, I. C., Hancock, S. L., Soltys, S. G.
ELSEVIER SCIENCE INC.2019: E70–E71
 - **Multimodal management of arteriovenous malformations of the basal ganglia and thalamus: factors affecting obliteration and outcome** *JOURNAL OF NEUROSURGERY*
Madhugiri, V. S., Teo, M. C., Westbroek, E. M., Chang, S. D., Marks, M. P., Do, H. M., Levy, R. P., Steinberg, G. K.
2019; 131 (2): 410–19
 - **Ultrasml theranostic gadolinium-based nanoparticles improve high-grade rat glioma survival.** *Journal of clinical neuroscience : official journal of the Neurosurgical Society of Australasia*
Dufort, S., Appelboom, G., Verry, C., Barbier, E. L., Lux, F., Brauer-Krisch, E., Sancey, L., Chang, S. D., Zhang, M., Roux, S., Tillement, O., Le Duc, G.
2019
 - **Commentary: Peritumoral Edema/Tumor Volume Ratio: A Strong Survival Predictor for Posterior Fossa Metastases** *NEUROSURGERY*
Chow, K. H., Meola, A., Chang, S. D.
2019; 85 (1): E18–E19
 - **Stereotactic radiosurgery in large intracranial meningiomas: a systematic review.** *World neurosurgery*
Fatima, N., Meola, A., Pollom, E., Chaudhary, N., Soltys, S., Chang, S.
2019
 - **Adverse Radiation Effect and Disease Control in Patients Undergoing Stereotactic Radiosurgery and Immune Checkpoint Inhibitor Therapy for Brain Metastases** *WORLD NEUROSURGERY*
Koenig, J. L., Shi, S., Sborov, K., Gensheimer, M. F., Le, G., Nagpal, S., Chang, S. D., Gibbs, I. C., Soltys, S. G., Pollom, E. L.
2019; 126: E1399–E1411
 - **Efficacy and toxicity of particle radiotherapy in WHO grade II and grade III meningiomas: a systematic review.** *Neurosurgical focus*
Wu, A., Jin, M. C., Meola, A., Wong, H., Chang, S. D.
2019; 46 (6): E12
 - **Magnetic Particle Imaging in Neurosurgery** *WORLD NEUROSURGERY*
Meola, A., Rao, J., Chaudhary, N., Song, G., Zheng, X., Chang, S. D.
2019; 125: 261–70

- **Adverse Radiation Effect and Disease Control in Patients Undergoing Stereotactic Radiosurgery and Immune Checkpoint Inhibitor Therapy for Brain Metastases.** *World neurosurgery*
Koenig, J. L., Shi, S., Sborov, K., Gensheimer, M. F., Li, G., Nagpal, S., Chang, S. D., Gibbs, I. C., Soltys, S. G., Pollom, E. L.
2019
- **"Magnetic Particle Imaging (MPI) in Neurosurgery".** *World neurosurgery*
Meola, A., Rao, J., Chaudhary, N., Song, G., Zheng, X., Chang, S. D.
2019
- **In Reply: Commentary: Peritumoral Edema to Tumor Volume Ratio: A Strong Survival Predictor for Posterior Fossa Metastases.** *Neurosurgery*
Meola, A., Chow, K. K., Chang, S. D.
2019
- **Stereotactic Radiosurgery for Pediatric and Adult Intracranial and Spinal Ependymomas.** *Stereotactic and functional neurosurgery*
Shi, S., Jin, M. C., Koenig, J., Gibbs, I. C., Soltys, S. G., Chang, S. D., Li, G., Hayden Gephart, M., Hiniker, S. M., Pollom, E. L.
2019: 1–6
- **Milestones in stereotactic radiosurgery for the central nervous system.** *Journal of clinical neuroscience : official journal of the Neurosurgical Society of Australasia*
Mitrasinovic, S., Zhang, M., Appelboom, G., Sussman, E., Moore, J. M., Hancock, S. L., Adler, J. R., Kondziolka, D., Steinberg, G. K., Chang, S. D.
2019; 59: 12–19
- **Arterial-Spin Labeling MRI Identifies Residual Cerebral Arteriovenous Malformation Following Stereotactic Radiosurgery Treatment.** *Journal of neuroradiology. Journal de neuroradiologie*
Heit, J. J., Thakur, N. H., Iv, M., Fischbein, N. J., Wintermark, M., Dodd, R. L., Steinberg, G. K., Chang, S. D., Kapadia, K. B., Zaharchuk, G.
2019
- **Clinical efficacy of frameless stereotactic radiosurgery in the management of spinal metastases from thyroid carcinoma.** *Spine*
Hariri, O., Takayanagi, A., Lischalk, J., Desai, K., Florence, T. J., Yazdian, P., Chang, S. D., Vrionis, F., Adler, J. R., Quadri, S. A., Desai, A.
2019
- **Stereotactic radiosurgery versus stereotactic radiotherapy in the management of intracranial meningiomas: a systematic review and meta-analysis.** *Neurosurgical focus*
Fatima, N., Meola, A., Pollom, E. L., Soltys, S. G., Chang, S. D.
2019; 46 (6): E2
- **Stereotactic radiosurgery for resected brain metastases: single-institutional experience of over 500 cavities.** *International journal of radiation oncology, biology, physics*
Shi, S., Sandhu, N., Jin, M. C., Wang, E., Jaoude, J. A., Schofield, K., Zhang, C., Liu, E., Gibbs, I. C., Hancock, S. L., Chang, S. D., Li, G., Hayden-Gephart, et al
2019
- **Stereotactic Radiosurgery for Large Benign Intracranial Tumors.** *World neurosurgery*
Fatima, N., Meola, A., Pollom, E., Chang, S. D., Soltys, S.
2019
- **Long-term follow up data on difficult to treat intracranial arteriovenous malformations treated with the CyberKnife.** *Journal of clinical neuroscience : official journal of the Neurosurgical Society of Australasia*
Gupta, R., Moore, J. M., Amorin, A., Appelboom, G., Chaudhary, N., Iyer, A., Steinberg, G. K., Chang, S. D., Soltys, S., Gibbs, I.
2018
- **Radiographic Rate and Clinical Impact of Pseudarthrosis in Spine Radiosurgery for Metastatic Spinal Disease.** *Cureus*
Zhang, M., Appelboom, G., Ratliff, J. K., Soltys, S. G., Adler, J. R., Park, J., Chang, S. D.
2018; 10 (11): e3631
- **Toxicity of Radiosurgery for Brainstem Metastases** *WORLD NEUROSURGERY*
Patel, A., Dong, T., Ansari, S., Cohen-Gadol, A., Watson, G. A., de Moraes, F., Nakamura, M., Murovic, J., Chang, S. D., Hatiboglu, M., Chun, C., Miller, J. C., Lautenschlaeger, et al
2018; 119: E757–E764
- **Cavernous malformations are rare sequelae of stereotactic radiosurgery for brain metastases.** *Acta neurochirurgica*
Seiger, K., Pendharkar, A. V., Samghabadi, P., Chang, S. D., Cho, N., Choi, C. Y., Wang, C., Gephart, M. H., Soltys, S. G.

2018

- **Bilateral Vestibular Schwannomas in Neurofibromatosis Type 2.** *The New England journal of medicine*
Meola, A., Chang, S. D.
2018; 379 (15): 1463
- **Long-Term Hearing Outcomes Following Stereotactic Radiosurgery in Vestibular Schwannoma Patients-A Retrospective Cohort Study.** *Neurosurgery*
Santa Maria, P. L., Shi, Y., Gurgel, R. K., Corrales, C. E., Soltys, S. G., Santa Maria, C., Murray, K., Chang, S. D., Blevins, N. H., Gibbs, I. C., Jackler, R. K.
2018
- **Multimodal management of arteriovenous malformations of the basal ganglia and thalamus: factors affecting obliteration and outcome.** *Journal of neurosurgery*
Madhugiri, V. S., Teo, M. K., Westbroek, E. M., Chang, S. D., Marks, M. P., Do, H. M., Levy, R. P., Steinberg, G. K.
2018: 1–10
- **Commentary: Peritumoral Edema/Tumor Volume Ratio: A Strong Survival Predictor for Posterior Fossa Metastases.** *Neurosurgery*
Chow, K. K., Meola, A., Chang, S. D.
2018
- **Quantitative analysis of the safety and efficacy of microvascular decompression for patients with trigeminal neuralgia above and below 65#years of age.** *Journal of clinical neuroscience : official journal of the Neurosurgical Society of Australasia*
Wallach, J., Ho, A. L., Kim, L. H., Chaudhuri, A. A., Chaudhary, N., Vaz-Guimaraes, F., Chang, S. D.
2018
- **Letter: Navigation-Linked Heads-Up Display in Intracranial Surgery: Early Experience.** *Operative neurosurgery (Hagerstown, Md.)*
Meola, A., Chang, S. D.
2018; 14 (6): E71–E72
- **CyberKnife robotic radiosurgery in the multimodal management of acromegaly patients with invasive macroadenoma: a single center's experience** *JOURNAL OF NEURO-ONCOLOGY*
Sala, E., Moore, J. M., Amarin, A., Martinez, H., Bhowmik, A. C., Lamsam, L., Chang, S., Soltys, S. G., Katznelson, L., Harsh, G. R.
2018; 138 (2): 291–98
- **Gold Nanoparticles for Brain tumor imaging: a Systematic Review** *FRONTIERS IN NEUROLOGY*
Meola, A., Rao, J., Chaudhary, N., Sharma, M., Chang, S. D.
2018; 9: 328
- **Brainstem Dose Constraints in Nonisometric Radiosurgical Treatment Planning of Trigeminal Neuralgia: A Single-Institution Experience** *WORLD NEUROSURGERY*
Zhang, M., Lamsam, L. A., Schoen, M. K., Mehta, S. S., Appelboom, G., Adler, J. K., Soltys, S. G., Chang, S. D.
2018; 113: E399–E407
- **CyberKnife Radiosurgery in the Multimodal Management of Patients with Cushing Disease** *WORLD NEUROSURGERY*
Moore, J. M., Sala, E., Amarin, A., Martinez, H., Bhowmik, A. C., Chang, S. D., Soltys, S. G., Harsh, G. R., Katznelson, L.
2018; 112: E425–E430
- **Stereotactic radiosurgery for central nervous system hemangioblastoma: systematic review and meta-analysis** *JOURNAL OF NEURO-ONCOLOGY*
Pan, J., Jabarkheel, R., Huang, Y., Ho, A., Chang, S. D.
2018; 137 (1): 11–22
- **Silicon Valley new focus on brain computer interface: hype or hope for new applications?** *F1000Research*
Mitrasinovic, S., Brown, A. P., Schaefer, A. T., Chang, S. D., Appelboom, G.
2018; 7: 1327
- **Long-Term Update of Stereotactic Radiosurgery for Benign Spinal Tumors.** *Neurosurgery*
Chin, A. L., Fujimoto, D., Kumar, K. A., Tupper, L., Mansour, S., Chang, S. D., Adler, J. R., Gibbs, I. C., Hancock, S. L., Dodd, R., Li, G., Gephart, M. H., Ratliff, et al
2018
- **Impact of CyberKnife Radiosurgery on Median Overall Survival of Various Parameters in Patients with 1-12 Brain Metastases.** *Cureus*
Murovic, J., Ding, V., Han, S. S., Adler, J. R., Chang, S. D.

2017; 9 (12): e1926

- **Phase 1/2 Trial of 5-Fraction Stereotactic Radiosurgery With 5-mm Margins With Concurrent and Adjuvant Temozolomide in Newly Diagnosed Supratentorial Glioblastoma: Health-Related Quality of Life Results.** *International journal of radiation oncology, biology, physics*
Pollom, E. L., Fujimoto, D., Wynne, J., Seiger, K., Modlin, L. A., Jacobs, L. R., Azoulay, M., von Eyben, R., Tupper, L., Gibbs, I. C., Hancock, S. L., Li, G., Chang, et al
2017; 98 (1): 123-130
- **CyberKnife stereotactic radiosurgery for the treatment of symptomatic vertebral hemangiomas: a single-institution experience** *NEUROSURGICAL FOCUS*
Zhang, M., Chen, Y., Chang, S. D., Veeravagu, A.
2017; 42 (1)
- **Vorinostat and Concurrent Stereotactic Radiosurgery for Non-Small Cell Lung Cancer Brain Metastases: A Phase 1 Dose Escalation Trial.** *International journal of radiation oncology, biology, physics*
Choi, C. Y., Wakelee, H. A., Neal, J. W., Pinder-Schenck, M. C., Yu, H. M., Chang, S. D., Adler, J. R., Modlin, L. A., Harsh, G. R., Soltys, S. G.
2017; 99 (1): 16–21
- **Patient Outcomes and Cerebral Infarction after Ruptured Anterior Communicating Artery Aneurysm Treatment.** *AJNR. American journal of neuroradiology*
Heit, J. J., Ball, R. L., Telischak, N. A., Do, H. M., Dodd, R. L., Steinberg, G. K., Chang, S. D., Wintermark, M., Marks, M. P.
2017; 38 (11): 2119–25
- **Impact of CyberKnife Radiosurgery on Overall Survival and Various Parameters of Patients with 1-3 versus # 4 Brain Metastases.** *Cureus*
Murovic, J., Ding, V., Han, S. S., Adler, J. R., Chang, S. D.
2017; 9 (10): e1798
- **Imaging changes over 18 months following stereotactic radiosurgery for brain metastases: both late radiation necrosis and tumor progression can occur.** *Journal of neuro-oncology*
Fujimoto, D., von Eyben, R., Gibbs, I. C., Chang, S. D., Li, G., Harsh, G. R., Hancock, S., Fischbein, N., Soltys, S. G.
2017
- **Single-Cell RNA-Seq Analysis of Infiltrating Neoplastic Cells at the Migrating Front of Human Glioblastoma.** *Cell reports*
Darmanis, S., Sloan, S. A., Croote, D., Mignardi, M., Chernikova, S., Samghababi, P., Zhang, Y., Neff, N., Kowarsky, M., Caneda, C., Li, G., Chang, S. D., Connolly, et al
2017; 21 (5): 1399–1410
- **Comparison of porcine and bovine collagen dural substitutes in posterior fossa decompression for Chiari I malformation in adults.** *World neurosurgery*
Lee, C. K., Mokhtari, T., Connolly, I. D., Li, G., Shuer, L. M., Chang, S. D., Steinberg, G. K., Gephart, M. H.
2017
- **Biopsy versus resection for the management of low-grade gliomas** *COCHRANE DATABASE OF SYSTEMATIC REVIEWS*
Jiang, B., Chaichana, K., Veeravagu, A., Chang, S. D., Black, K. L., Patil, C. G.
2017
- **Image-guided stereotactic radiosurgery for treatment of spinal hemangioblastoma** *NEUROSURGICAL FOCUS*
Pan, J., Ho, A. L., D'Astous, M., Sussman, E. S., Thompson, P. A., Tayag, A. T., Pangilinan, L., Soltys, S. G., Gibbs, I. C., Chang, S. D.
2017; 42 (1)
- **Embolization followed by Radiosurgery for the Treatment of Brain Arteriovenous Malformations (AVMs).** *World neurosurgery*
Marks, M. P., Marcellus, M. L., Santarelli, J., Dodd, R. L., Do, H. M., Chang, S. D., Adler, J. R., Mlynash, M., Steinberg, G. K.
2016
- **Magnetic resonance perfusion image features uncover an angiogenic subgroup of glioblastoma patients with poor survival and better response to antiangiogenic treatment.** *Neuro-oncology*
Liu, T. T., Achrol, A. S., Mitchell, L. A., Rodriguez, S. A., Feroze, A., Kim, C., Chaudhary, N., Gevaert, O., Stuart, J. M., Harsh, G. R., Chang, S. D., Rubin, D. L.
2016
- **Stereotactic radiosurgery for non-vestibular cranial nerve schwannomas.** *Journal of neuro-oncology*
D'Astous, M., Ho, A. L., Pendharkar, A., Choi, C. Y., Soltys, S. G., Gibbs, I. C., Tayag, A. T., Thompson, P. A., Adler, J. R., Chang, S. D.
2016: -?

- **A Phase I/II Trial of 5 Fraction Stereotactic Radiosurgery With 5-mm Margins With Concurrent and Adjuvant Temozolomide in Newly Diagnosed Supratentorial Glioblastoma Multiforme.** *International journal of radiation oncology, biology, physics*
Azoulay, M., Ho, C. K., Fujimoto, D. K., Modlin, L. A., Gibbs, I. C., Hancock, S. L., Li, G., Chang, S. D., Adler, J. R., Harsh, G. R., Nagpal, S., Thomas, R., Recht, et al
2016; 96 (2S): E131-E132
- **The Role of Stereotactic Radiosurgery in the Reirradiation of Metastatic Spinal Tumors.** *International journal of radiation oncology, biology, physics*
Ho, C. K., Kumar, K. A., White, E. C., Azoulay, M., Fujimoto, D. K., Aggarwal, S., Gensheimer, M. F., Gibbs, I. C., Adler, J. R., Chang, S. D., Hancock, S. L., Choi, C. Y., Soltys, et al
2016; 96 (2S): E131-?
- **The Outcome of Hypofractionated Stereotactic Radiosurgery for Large Vestibular Schwannomas.** *World neurosurgery*
Teo, M., Zhang, M., Li, A., Thompson, P. A., Tayag, A. T., Wallach, J., Gibbs, I. C., Soltys, S. G., Hancock, S. L., Chang, S. D.
2016; 93: 398-409
- **Stereotactic radiosurgery for intramedullary spinal arteriovenous malformations** *JOURNAL OF CLINICAL NEUROSCIENCE*
Kalani, M. A., Choudhri, O., Gibbs, I. C., Soltys, S. G., Adler, J. R., Thompson, P. A., Tayag, A. T., Samos, C. H., Chang, S. D.
2016; 29: 162-167
- **CyberKnife Stereotactic Radiosurgery for Atypical and Malignant Meningiomas.** *World neurosurgery*
Zhang, M., Ho, A. L., D'Astous, M., Pendharkar, A. V., Choi, C. Y., Thompson, P. A., Tayag, A. T., Soltys, S. G., Gibbs, I. C., Chang, S. D.
2016; 91: 574-581 e1
- **Multiple Subsets of Brain Tumor Initiating Cells Coexist in Glioblastoma** *STEM CELLS*
Rennert, R. C., Achrol, A. S., Januszyk, M., Kahn, S. A., Liu, T. T., Liu, Y., Sahoo, D., Rodrigues, M., Maan, Z. N., Wong, V. W., Cheshier, S. H., Chang, S. D., Steinberg, et al
2016; 34 (6): 1702-1707
- **Computational Identification of Tumor Anatomic Location Associated with Survival in 2 Large Cohorts of Human Primary Glioblastomas** *AMERICAN JOURNAL OF NEURORADIOLOGY*
Liu, T. T., Achrol, A. S., MITCHELL, L. A., Du, W. A., Loya, J. J., Rodriguez, S. A., Feroze, A., Westbroek, E. M., Yeom, K. W., Stuart, J. M., Chang, S. D., Harsh, G. R., Rubin, et al
2016; 37 (4): 621-628
- **Dose-Response Modeling of the Visual Pathway Tolerance to Single-Fraction and Hypofractionated Stereotactic Radiosurgery** *SEMINARS IN RADIATION ONCOLOGY*
Hiniker, S. M., Modlin, L. A., Choi, C. Y., Atalar, B., Seiger, K., Binkley, M. S., Harris, J. P., Liao, Y. J., Fischbein, N., Wang, L., Ho, A., Lo, A., Chang, et al
2016; 26 (2): 97-104
- **CyberKnife radiosurgery for brainstem metastases: Management and outcomes and a review of the literature.** *Journal of clinical neuroscience*
Liu, S., Murovic, J., Wallach, J., Cui, G., Soltys, S. G., Gibbs, I. C., Chang, S. D.
2016; 25: 105-110
- **Stereotactic radiosurgery for metastasis to the craniocervical junction preserves spine stability and offers symptomatic relief** *JOURNAL OF NEUROSURGERY-SPINE*
Azad, T. D., Esparza, R., Chaudhary, N., Chang, S. D.
2016; 24 (2): 241-247
- **Supracerebellar infratentorial sitting craniotomy for a pinealoblastoma.** *Neurosurgical focus*
Choudhri, O., Chang, S. D.
2016; 40 Video Suppl 1: 2016.1.FocusVid.15417
- **Dose-Response Modeling of the Visual Pathway Tolerance to Single-Fraction and Hypofractionated Stereotactic Radiosurgery.** *Seminars in radiation oncology*
Hiniker, S. M., Modlin, L. A., Choi, C. Y., Atalar, B., Seiger, K., Binkley, M. S., Harris, J. P., Liao, Y. J., Fischbein, N., Wang, L., Ho, A., Lo, A., Chang, et al
2016; 26 (2): 97-104
- **Computational Identification of Tumor Anatomic Location Associated with Survival in 2 Large Cohorts of Human Primary Glioblastomas.** *AJNR. American journal of neuroradiology*
Liu, T. T., Achrol, A. S., Mitchell, L. A., Du, W. A., Loya, J. J., Rodriguez, S. A., Feroze, A., Westbroek, E. M., Yeom, K. W., Stuart, J. M., Chang, S. D., Harsh, G. R., Rubin, et al

2016

- **Magnetic resonance perfusion image features uncover an angiogenic subgroup of glioblastoma patients with poor survival and better response to antiangiogenic treatment.** *Neuro-Oncology*
Liu, T. T., Achrol, A. S., Mitchell, L. A., Rodriguez, S. A., Feroze, A., Iv, M., Kim, C., Chaudhary, N., Gevaert, O., Stuart, J. M., Harsh, G. R., Chang, S. D., Rubin, et al
2016
- **Subfrontal trans-lamina terminalis approach to a third ventricular craniopharyngioma** *NEUROSURGICAL FOCUS*
Choudhri, O., Chang, S. D.
2016; 40
- **Supracerebellar infratentorial sitting craniotomy for a pinealoblastoma** *NEUROSURGICAL FOCUS*
Choudhri, O., Chang, S. D.
2016; 40
- **Subfrontal trans-lamina terminalis approach to a third ventricular craniopharyngioma.** *Neurosurgical focus*
Choudhri, O., Chang, S. D.
2016; 40 Video Suppl 1: 2016.1.FocusVid.15416
- **Stereotactic radiosurgery for metastasis to the craniovertebral junction preserves spine stability and offers symptomatic relief.** *Journal of neurosurgery. Spine*
Azad, T. D., Esparza, R., Chaudhary, N., Chang, S. D.
2015: 1-7
- **Magnetic resonance image features identify glioblastoma phenotypic subtypes with distinct molecular pathway activities.** *Science translational medicine*
Itakura, H., Achrol, A. S., Mitchell, L. A., Loya, J. J., Liu, T., Westbroek, E. M., Feroze, A. H., Rodriguez, S., Echegaray, S., Azad, T. D., Yeom, K. W., Napel, S., Rubin, et al
2015; 7 (303): 303ra138-?
- **Magnetic resonance image features identify glioblastoma phenotypic subtypes with distinct molecular pathway activities.** *Science translational medicine*
Itakura, H., Achrol, A. S., Mitchell, L. A., Loya, J. J., Liu, T., Westbroek, E. M., Feroze, A. H., Rodriguez, S., Echegaray, S., Azad, T. D., Yeom, K. W., Napel, S., Rubin, et al
2015; 7 (303): 303ra138-?
- **Repeat Courses of Stereotactic Radiosurgery (SRS), Deferring Whole-Brain Irradiation, for New Brain Metastases After Initial SRS** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Shultz, D. B., Modlin, L. A., Jayachandran, P., von Eyben, R., Gibbs, I. C., Choi, C. Y., Chang, S. D., Harsh, G. R., Li, G., Adler, J. R., Hancock, S. L., Soltys, S. G.
2015; 92 (5): 993-999
- **Perspective on "the role of adjuvant radiotherapy after gross total resection of atypical meningiomas".** *World neurosurgery*
Veeravagu, A., Azad, T. D., Chang, S. D.
2015; 83 (5): 737-738
- **Persistent trigeminal artery supply to an intrinsic trigeminal nerve arteriovenous malformation: A rare cause of trigeminal neuralgia.** *Journal of clinical neuroscience*
Choudhri, O., Heit, J. J., Feroze, A. H., Chang, S. D., Dodd, R. L., Steinberg, G. K.
2015; 22 (2): 409-412
- **The pathophysiology of cerebral radiation necrosis and the role of laser interstitial thermal therapy.** *World neurosurgery*
Murovic, J. A., Chang, S. D.
2015; 83 (1): 23-26
- **Paraganglioma of the Filum Terminale: Case Report, Pathology and Review of the Literature.** *Cureus*
Kalani, M. A., Chang, S. D., Vu, B.
2015; 7 (10)
- **A case of stereotactic radiation in skull base solitary fibrous tumor: more harm than good?** *Journal of neurological surgery reports*
Santa Maria, P. L., Abuzeid, W. M., Nayak, J. V., Chang, S. D., Blevins, N. H.
2014; 75 (2): e214-6

- **Human brain arteriovenous malformations express lymphatic-associated genes** *ANNALS OF CLINICAL AND TRANSLATIONAL NEUROLOGY*
Shoemaker, L. D., Fuentes, L. F., Santiago, S. M., Allen, B. M., Cook, D. J., Steinberg, G. K., Chang, S. D.
2014; 1 (12): 982-995
- **Human brain arteriovenous malformations express lymphatic-associated genes.** *Annals of clinical and translational neurology*
Shoemaker, L. D., Fuentes, L. F., Santiago, S. M., Allen, B. M., Cook, D. J., Steinberg, G. K., Chang, S. D.
2014; 1 (12): 982-995
- **Outcomes following malignant degeneration of benign vestibular schwannomas after stereotactic radiosurgery.** *World neurosurgery*
Zhang, M., Chang, S. D.
2014; 82 (3-4): 346-349
- **The Role of Radiosurgery for Infratentorial Arteriovenous Malformations** *WORLD NEUROSURGERY*
Iyer, A., Chang, S. D.
2014; 82 (1-2): E85–E86
- **A literature review of key molecular genetic aberrations in meningiomas: a potential role in the determination of radiosurgery outcomes.** *World neurosurgery*
Murovic, J. A., Chang, S. D.
2014; 81 (5-6): 714-716
- **Experience with intraoperative navigation and imaging during endoscopic transnasal spinal approaches to the foramen magnum and odontoid.** *Neurosurgical focus*
Choudhri, O., Mindea, S. A., Feroze, A., Soudry, E., Chang, S. D., Nayak, J. V.
2014; 36 (3): E4-?
- **Experience with intraoperative navigation and imaging during endoscopic transnasal spinal approaches to the foramen magnum and odontoid.** *Neurosurgical focus*
Choudhri, O., Mindea, S. A., Feroze, A., Soudry, E., Chang, S. D., Nayak, J. V.
2014; 36 (3): E4-?
- **Co-occurrence of a cerebral cavernous malformation and an orbital cavernous hemangioma in a patient with seizures and visual symptoms: Rare crossroads for vascular malformations.** *Surgical neurology international*
Choudhri, O., Feroze, A. H., Lad, E. M., Kim, J. W., Plowey, E. D., Karamchandani, J. R., Chang, S. D.
2014; 5: S148-54
- **Risk of Leptomeningeal Disease in Patients Treated With Stereotactic Radiosurgery Targeting the Postoperative Resection Cavity for Brain Metastases** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Atalar, B., Modlin, L. A., Choi, C. Y., Adler, J. R., Gibbs, I. C., Chang, S. D., Harsh, G. R., Li, G., Nagpal, S., Hanlon, A., Soltys, S. G.
2013; 87 (4): 713-718
- **Multi-Session Radiosurgery of Benign Intracranial Tumors** *NEUROSURGERY CLINICS OF NORTH AMERICA*
Yeung, J. T., Karim, S. A., Chang, S. D.
2013; 24 (4): 543-?
- **A critical analysis of the literature review in "Stereotactic radiosurgery for trigeminal pain secondary to benign skull base tumors" by Tanaka et al. and presentation of an algorithm for management of these tumors.** *World neurosurgery*
Murovic, J. A., Chang, S. D.
2013; 80 (3-4): 287-289
- **CyberKnife radiosurgery for the management of skull base and spinal chondrosarcomas.** *Journal of neuro-oncology*
Jiang, B., Veeravagu, A., Feroze, A. H., Lee, M., Harsh, G. R., Soltys, S. G., Gibbs, I. C., Adler, J. R., Chang, S. D.
2013; 114 (2): 209-218
- **Cochlea radiation dose correlates with hearing loss after stereotactic radiosurgery of vestibular schwannoma.** *World neurosurgery*
Hayden Gephart, M. G., Hansasuta, A., Balise, R. R., Choi, C., Sakamoto, G. T., Venteicher, A. S., Soltys, S. G., Gibbs, I. C., Harsh, G. R., Adler, J. R., Chang, S. D.
2013; 80 (3-4): 359-363
- **Volumetric Analysis of Intracranial Arteriovenous Malformations Contoured for CyberKnife Radiosurgery With 3-Dimensional Rotational Angiography vs Computed Tomography/Magnetic Resonance Imaging.** *Neurosurgery*

- Veeravagu, A., Hansasuta, A., Jiang, B., Karim, A. S., Gibbs, I. C., Chang, S. D.
2013; 73 (2): 262-270
- **Pituitary stalk Langerhans cell histiocytosis treated with CyberKnife radiosurgery.** *Clinical neurology and neurosurgery*
Hong, W., Murovic, J. A., Gibbs, I., Vogel, H., Chang, S. D.
2013; 115 (5): 573-577
 - **Literature review of various treatment plans and outcomes for brain metastases from colorectal cancer.** *World neurosurgery*
Murovic, J. A., Chang, S. D.
2013; 79 (3-4): 435-436
 - **Cavity Volume Dynamics After Resection of Brain Metastases and Timing of Postresection Cavity Stereotactic Radiosurgery** *NEUROSURGERY*
Atalar, B., Choi, C. Y., Harsh, G. R., Chang, S. D., Gibbs, I. C., Adler, J. R., Soltys, S. G.
2013; 72 (2): 180-185
 - **Robotic skull base surgery via supraorbital keyhole approach: a cadaveric study.** *Neurosurgery*
Hong, W., Tsai, J., Chang, S. D., Sorger, J. M.
2013; 72: 33-38
 - **Aberrant expression of lymphatic-associated proteins in human brain arteriovenous malformations**
Shoemaker, L., Fuentes, L., Santiago, S., Steinberg, G., Chang, S.
SPRINGER.2013: 269-70
 - **Multisession CyberKnife radiosurgery for post-surgical residual and recurrent pituitary adenoma: preliminary result from one center.** *Journal of radiosurgery and SBRT*
Chen, Y. H., Chang, S. D., Ma, H. I., Chou, Y. C., Chao, H. L., Jen, Y. M., Ju, D. T.
2013; 2 (2): 105-17
 - **Robotic Skull Base Surgery via Supraorbital Keyhole Approach: A Cadaveric Study** *NEUROSURGERY*
Hong, W., Tsai, J., Chang, S. D., Sorger, J. M.
2013; 72: A33-A38
 - **Spontaneous intracranial hypotension secondary to anterior thoracic osteophyte: Resolution after primary dural repair via posterior approach.** *International journal of surgery case reports*
Veeravagu, A., Gupta, G., Jiang, B., Berta, S. C., Mindea, S. A., Chang, S. D.
2013; 4 (1): 26-29
 - **Outcomes After Stereotactic Radiosurgery and Various Adjuvant Treatments for Recurrent Glioblastoma Multiforme: A Current Literature Review and Comparison of Multiple Factors that Impact Outcome** *WORLD NEUROSURGERY*
Murovic, J. A., Chang, S. D.
2012; 78 (6): 588-591
 - **What Is the Optimal Treatment of Large Brain Metastases? An Argument for a Multidisciplinary Approach** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Choi, C. Y., Chang, S. D., Gibbs, I. C., Adler, J. R., Harsh, G. R., Atalar, B., Lieberson, R. E., Soltys, S. G.
2012; 84 (3): 688-693
 - **Risk of Leptomeningeal Disease in Patients Treated With Stereotactic Radiosurgery Targeting the Postoperative Resection Cavity for Brain Metastases** *54th Annual Meeting of the American-Society-for-Radiation-Oncology (ASTRO)*
Modlin, L. A., Atalar, B., Choi, C. Y., Gibbs, I. C., Chang, S. D., Harsh, G. R., Adler, J. R., Soltys, S. G.
ELSEVIER SCIENCE INC.2012: S116-S117
 - **Stereotactic Radiosurgery for the Treatment of Spinal Metastases: Analysis of Tumor Control and Patterns of Failure** *54th Annual Meeting of the American-Society-for-Radiation-Oncology (ASTRO)*
Soltys, S. G., Gibbs, I. C., Adler, J. R., Chang, S. D., Modlin, L. A., Choi, C. Y.
ELSEVIER SCIENCE INC.2012: S195-S195
 - **Stereotactic Radiosurgery of the Postoperative Resection Cavity for Brain Metastases: Prospective Evaluation of Target Margin on Tumor Control** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Choi, C. Y., Chang, S. D., Gibbs, I. C., Adler, J. R., Harsh, G. R., Lieberson, R. E., Soltys, S. G.
2012; 84 (2): 336-342

- **Intracranial hypotension producing reversible coma: a systematic review, including three new cases A review** *JOURNAL OF NEUROSURGERY*
Loya, J. J., Mindea, S. A., Yu, H., Venkatasubramanian, C., Chang, S. D., Burns, T. C.
2012; 117 (3): 615-628
- **Esophageal tolerance to high-dose stereotactic ablative radiotherapy** *DISEASES OF THE ESOPHAGUS*
Abelson, J. A., Murphy, J. D., Loo, B. W., Chang, D. T., Daly, M. E., Wiegner, E. A., Hancock, S., Chang, S. D., Le, Q., Soltys, S. G., Gibbs, I. C.
2012; 25 (7): 623-629
- **CyberKnife stereotactic radiosurgery for the treatment of intramedullary spinal cord metastases** *JOURNAL OF CLINICAL NEUROSCIENCE*
Veeravagu, A., Lieberson, R. E., Mener, A., Chen, Y., Soltys, S. G., Gibbs, I. C., Adler, J. R., Tian, A. G., Chang, S. D.
2012; 19 (9): 1273-1277
- **Management of intracranial and extracranial chordomas with CyberKnife stereotactic radiosurgery** *JOURNAL OF CLINICAL NEUROSCIENCE*
Jiang, B., Veeravagu, A., Lee, M., Harsh, G. R., Lieberson, R. E., Bhatti, I., Soltys, S. G., Gibbs, I. C., Adler, J. R., Chang, S. D.
2012; 19 (8): 1101-1106
- **Neurocognitive Changes in Pituitary Adenoma Patients After Fractionated External Beam Radiotherapy versus Gamma Knife Radiosurgery** *WORLD NEUROSURGERY*
Murovic, J., Chang, S.
2012; 78 (1-2)
- **Multimodality management of Spetzler-Martin Grade III arteriovenous malformations** *JOURNAL OF NEUROSURGERY*
Pandey, P., Marks, M. P., Harraher, C. D., Westbroek, E. M., Chang, S. D., Do, H. M., Levy, R. P., Dodd, R. L., Steinberg, G. K.
2012; 116 (6): 1279-1288
- **Stereotactic Radiosurgery as the Primary Treatment for New and Recurrent Paragangliomas: Is Open Surgical Resection Still the Treatment of Choice?** *WORLD NEUROSURGERY*
Lieberson, R. E., Adler, J. R., Soltys, S. G., Choi, C., Gibbs, I. C., Chang, S. D.
2012; 77 (5-6): 745-761
- **Stereotactic radiosurgery for central neurocytoma: a quantitative systematic review** *JOURNAL OF NEURO-ONCOLOGY*
Park, H., Chang, S. D.
2012; 108 (1): 115-121
- **NORMAL TISSUE COMPLICATION PROBABILITY ESTIMATION BY THE LYMAN-KUTCHER-BURMAN METHOD DOES NOT ACCURATELY PREDICT SPINAL CORD TOLERANCE TO STEREOTACTIC RADIOSURGERY** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Daly, M. E., Luxton, G., Choi, C. Y., Gibbs, I. C., Chang, S. D., Adler, J. R., Soltys, S. G.
2012; 82 (5): 2025-2032
- **Trigeminal neuralgia treatment dosimetry of the Cyberknife** *MEDICAL DOSIMETRY*
Ho, A., Lo, A. T., Dieterich, S., Soltys, S. G., Gibbs, I. C., Chang, S. G., Adler, J. R.
2012; 37 (1): 42-46
- **Junctional Visual Field Loss in a Case of Wyburn-Mason Syndrome** *JOURNAL OF NEURO-OPHTHALMOLOGY*
Liu, A., Chen, Y., Chang, S., Liao, Y. J.
2012; 32 (1): 42-44
- **Clinical Neuroproteomics and Biomarkers: From Basic Research to Clinical Decision Making** *NEUROSURGERY*
Shoemaker, L. D., Achrol, A. S., Sethu, P., Steinberg, G. K., Chang, S. D.
2012; 70 (3): 518-525
- **Intramedullary spinal cord metastasis from prostate carcinoma: a case report.** *Journal of medical case reports*
Lieberson, R. E., Veeravagu, A., Eckermann, J. M., Doty, J. R., Jiang, B., Andrews, R., Chang, S. D.
2012; 6 (1): 139-?
- **Potential application of hydrogen in traumatic and surgical brain injury, stroke and neonatal hypoxia-ischemia.** *Medical gas research*
Eckermann, J. M., Krafft, P. R., Shoemaker, L., Lieberson, R. E., Chang, S. D., Colohan, A.
2012; 2 (1): 11-?

- **Stereotactic radiosurgery for central neurocytoma: a quantitative systematic review.** *Journal of neuro-oncology*
Park, H. K., Chang, S. D.
2012
- **A giant cell tumor of the cranial base treated by stereotactic radiosurgery** *Journal of Radiosurgery and SBRT*
Kim EY, Murovic JA, Gibbs IC, Shuer LM, Chang SD
2012; 1: 333-337
- **Multisession Stereotactic Radiosurgery for Vestibular Schwannomas: Single-Institution Experience With 383 Cases** *NEUROSURGERY*
Hansasuta, A., Choi, C. Y., Gibbs, I. C., Soltys, S. G., Tse, V. C., Lieberson, R. E., Hayden, M. G., Sakamoto, G. T., Harsh, G. R., Adler, J. R., Chang, S. D.
2011; 69 (6): 1200-1209
- **RADIOSURGERY OF GLOMUS JUGULARE TUMORS: A META-ANALYSIS** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Guss, Z. D., Batra, S., Limb, C. J., Li, G., Sughrue, M. E., Redmond, K., Rigamonti, D., Parsa, A. T., Chang, S., Kleinberg, L., Lim, M.
2011; 81 (4): E497-E502
- **CyberKnife stereotactic radiosurgical rhizotomy for refractory trigeminal neuralgia** *JOURNAL OF CLINICAL NEUROSCIENCE*
Tang, C., Chang, S. D., Tseng, K., Liu, M., Ju, D.
2011; 18 (11): 1449-1453
- **A rare case of an aldosterone secreting metastatic adrenocortical carcinoma and papillary thyroid carcinoma in a 31-year-old male.** *Rare tumors*
Wanta, S. M., Basina, M., Chang, S. D., Chang, D. T., Ford, J. M., Greco, R., Kingham, K., Merritt, R. E., Kunz, P. L.
2011; 3 (4)
- **Images in clinical medicine. Orbital and cerebral arteriovenous malformations.** *New England journal of medicine*
Choudhri, O., Chang, S. D.
2011; 365 (13)
- **Stereotactic Radiosurgery Yields Long-term Control for Benign Intradural, Extramedullary Spinal Tumors** *NEUROSURGERY*
Sachdev, S., Dodd, R. L., Chang, S. D., Soltys, S. G., Adler, J. R., Luxton, G., Choi, C. Y., Tupper, L., Gibbs, I. C.
2011; 69 (3): 533-539
- **Management of Pediatric Intracranial Arteriovenous Malformations: Experience With Multimodality Therapy** *NEUROSURGERY*
Darsaut, T. E., Guzman, R., Marcellus, M. L., Edwards, M. S., Tian, L., Do, H. M., Chang, S. D., Levy, R. P., Adler, J. R., Marks, M. P., Steinberg, G. K.
2011; 69 (3): 540-556
- **Successful Repair of a Gunshot Wound to the Head with Retained Bullet in the Torcular Herophili** *WORLD NEUROSURGERY*
Pricola, K. L., Zou, H., Chang, S. D.
2011; 76 (3-4)
- **CyberKnife Stereotactic Radiosurgery for Recurrent, Metastatic, and Residual Hemangiopericytomas** *JOURNAL OF HEMATOLOGY & ONCOLOGY*
Veeravagu, A., Jiang, B., Patil, C. G., Lee, M., Soltys, S. G., Gibbs, I. C., Chang, S. D.
2011; 4
- **Stereotactic Radiosurgery of Cranial Nonvestibular Schwannomas: Results of Single- and Multisession Radiosurgery** *NEUROSURGERY*
Choi, C. Y., Soltys, S. G., Gibbs, I. C., Harsh, G. R., Sakamoto, G. T., Patel, D. A., Lieberson, R. E., Chang, S. D., Adler, J. R.
2011; 68 (5): 1200-1208
- **TOLERANCE OF THE SPINAL CORD TO STEREOTACTIC RADIOSURGERY: INSIGHTS FROM HEMANGIOBLASTOMAS** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Daly, M. E., Choi, C. Y., Gibbs, I. C., Adler, J. R., Chang, S. D., Lieberson, R. E., Soltys, S. G.
2011; 80 (1): 213-220
- **Predictors of Clinical and Angiographic Outcome After Surgical or Endovascular Therapy of Very Large and Giant Intracranial Aneurysms** *NEUROSURGERY*
Darsaut, T. E., Darsaut, N. M., Chang, S. D., Silverberg, G. D., Shuer, L. M., Tian, L., Dodd, R. L., Do, H. M., Marks, M. P., Steinberg, G. K.
2011; 68 (4): 903-915
- **TECHNIQUE FOR TARGETING ARTERIOVENOUS MALFORMATIONS USING FRAMELESS IMAGE-GUIDED ROBOTIC RADIOSURGERY** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*

- Hristov, D., Liu, L., Adler, J. R., Gibbs, I. C., Moore, T., Sarmiento, M., Chang, S. D., Dodd, R., Marks, M., Do, H. M.
2011; 79 (4): 1232-1240
- **ECTOPIC ACROMEGALY DUE TO A PANCREATIC NEUROENDOCRINE TUMOR PRODUCING GROWTH HORMONE-RELEASING HORMONE** *ENDOCRINE PRACTICE*
Weiss, D. E., Vogel, H., Lopes, M. B., Chang, S. D., Katznelson, L.
2011; 17 (1): 79-84
 - **CyberKnife radiosurgery can control recurrent epidermoid cysts of the central nervous system.** *Journal of radiosurgery and SBRT*
Liebersohn, R. E., Mener, A., Choi, C., Kalani, M. A., Soltys, S. G., Gibbs, I. C., Heit, G., Adler, J. R., Chang, S. D.
2011; 1 (3): 247-52
 - **A giant cell tumor of the cranial base treated by stereotactic radiosurgery** *JOURNAL OF RADIOSURGERY AND SBRT*
Kim, E., Murovic, J. A., Gibbs, I. C., Shuer, L. M., Chang, S. D.
2011; 1 (4): 333-37
 - **Cyberknife Stereotactic Radiosurgery for Treatment of Atypical (Who Grade II) Cranial Meningiomas** *NEUROSURGERY*
Choi, C. Y., Soltys, S. G., Gibbs, I. C., Harsh, G. R., Jackson, P. S., Liebersohn, R. E., Chang, S. D., Adler, J. R.
2010; 67 (5): 1180-1188
 - **STEREOTACTIC RADIOSURGERY FOR TREATMENT OF SPINAL METASTASES RECURRING IN CLOSE PROXIMITY TO PREVIOUSLY IRRADIATED SPINAL CORD** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Choi, C. Y., Adler, J. R., Gibbs, I. C., Chang, S. D., Jackson, P. S., Minn, A. Y., Liebersohn, R. E., Soltys, S. G.
2010; 78 (2): 499-506
 - **Frameless image guided robotic radiosurgery of arteriovenous malformation localized on spatially correlated digital subtraction and C-arm CT angiography images** *JOURNAL OF NEUROINTERVENTIONAL SURGERY*
Hristov, D., Adler, J. R., Gibbs, I. C., Dodd, R., Marks, M., Chang, S. D., Do, H. M.
2010; 2 (3): 252-254
 - **Peritumoral edema after stereotactic radiosurgery for meningioma** *JOURNAL OF CLINICAL NEUROSCIENCE*
Hsieh, C., Tsai, J., Chang, L., Lin, J., Chang, S. D., Ju, D.
2010; 17 (4): 529-531
 - **The role of radiosurgery in the treatment of craniopharyngiomas** *NEUROSURGICAL FOCUS*
Veeravagu, A., Lee, M., Jiang, B., Chang, S. D.
2010; 28 (4)
 - **SUCCESSFUL TREATMENT OF METASTATIC BRAIN TUMOR BY CYBERKNIFE: A CASE REPORT** *KAOHSIUNG JOURNAL OF MEDICAL SCIENCES*
Hsieh, C., Chang, C., Liu, M., Chang, L., Hueng, D., Chang, S. D., Ju, D.
2010; 26 (3): 144-149
 - **Survival following Stereotactic Radiosurgery for Newly Diagnosed and Recurrent Glioblastoma Multiforme: A Multicenter Experience** *8th Meeting of the International-Stereotactic-Radiosurgery-Society*
Villavicencio, A. T., Burneikiene, S., Romanelli, P., McNeely, L., Lipani, J. D., Fariselli, L., McIntyre, M., Chang, S. D., Nelson, E. L., Broggi, G., Adler, J. R., Thramann, J. J.
KARGER.2010: 288-299
 - **Stereotactic Radiosurgery of the Post-operative Resection Cavity for Brain Metastases: Optimization of the Treatment Technique** *52nd Annual Meeting of the American-Society-for-Therapeutic-Radiation-Oncology (ASTRO)*
Soltys, S. G., Gibbs, I. C., Chang, S. D., Adler, J. R., Harsh, G. R., LIEBERSON, R. E., Choi, C. Y.
ELSEVIER SCIENCE INC.2010: S7-S7
 - **Radiosurgery of Glomus Jugulare Tumors: A Meta-analysis** *52nd Annual Meeting of the American-Society-for-Therapeutic-Radiation-Oncology (ASTRO)*
Guss, Z. D., Batra, S., Li, G., Chang, S. D., Parsa, A. T., Rigamonti, D., Kleinberg, L., Lim, M.
ELSEVIER SCIENCE INC.2010: S288-S289
 - **Clinical Management of Patients with Temporal Lobe Necrosis** *52nd Annual Meeting of the American-Society-for-Therapeutic-Radiation-Oncology (ASTRO)*
Krakow, T. E., Hara, W., Yun, S., Soltys, S., Chang, S., Fischbein, N., Loo, B., Le, Q.
ELSEVIER SCIENCE INC.2010: S455-S455

- **Radiosurgery for glomus jugulare: history and recent progress** *NEUROSURGICAL FOCUS*
Guss, Z. D., Batra, S., Li, G., Chang, S. D., Parsa, A. T., Rigamont, D., Kleinberg, L., Lim, M.
2009; 27 (6)
- **MULTISESSION CYBERKNIFE STEREOTACTIC RADIOSURGERY OF LARGE, BENIGN CRANIAL BASE TUMORS: PRELIMINARY STUDY** *NEUROSURGERY*
Tuniz, F., Soltys, S. G., Choi, C. Y., Chang, S. D., Gibbs, I. C., Fischbein, N. J., Adler, J. R.
2009; 65 (5): 898-907
- **Survival following stereotactic radiosurgery for newly diagnosed and recurrent glioblastoma multiforme: a multicenter experience** *NEUROSURGICAL REVIEW*
Villavicencio, A. T., Burneikiene, S., Romanelli, P., Fariselli, L., McNeely, L., Lipani, J. D., Chang, S. D., Nelson, E. L., McIntyre, M., Broggi, G., Adler, J. R.
2009; 32 (4): 417-424
- **Non-surgical management of hormone-secreting pituitary tumors** *JOURNAL OF CLINICAL NEUROSCIENCE*
Patil, C. G., Hayden, M., Katznelson, L., Chang, S. D.
2009; 16 (8): 985-993
- **STEREOTACTIC RADIOSURGICAL TREATMENT OF CRANIAL AND SPINAL HEMANGIOBLASTOMAS** *NEUROSURGERY*
Moss, J. M., Choi, C. Y., Adler, J. R., Soltys, S. G., Gibbs, I. C., Chang, S. D.
2009; 65 (1): 79-85
- **Pathogenesis and radiobiology of brain arteriovenous malformations: implications for risk stratification in natural history and posttreatment course** *NEUROSURGICAL FOCUS*
Achrol, A. S., Guzman, R., Varga, M., Adler, J. R., Steinberg, G. K., Chang, S. D.
2009; 26 (5)
- **CYBERKNIFE FOR BRAIN METASTASES OF MALIGNANT MELANOMA AND RENAL CELL CARCINOMA** *NEUROSURGERY*
Hara, W., Tran, P., Li, G., Su, Z., Puataweepong, P., Adler, J. R., Soltys, S. G., Chang, S. D., Gibbs, I. C.
2009; 64 (2): A26-A32
- **CYBERKNIFE STEREOTACTIC RADIOSURGICAL RHIZOTOMY FOR TRIGEMINAL NEURALGIA: ANATOMIC AND MORPHOLOGICAL CONSIDERATIONS** *NEUROSURGERY*
Borchers, J. D., Yang, H., Sakamoto, G. T., Howes, G. A., Gupta, G., Chang, S. D., Adler, J. R.
2009; 64 (2): A91-A95
- **FORAMINAL NERVE SHEATH TUMORS: INTERMEDIATE FOLLOW-UP AFTER CYBERKNIFE RADIOSURGERY** *NEUROSURGERY*
Murovic, J. A., Gibbs, I. C., Chang, S. D., Mobley, B. C., Park, J., Adler, J. R.
2009; 64 (2): A33-A43
- **CYBERKNIFE IMAGE-GUIDED RADIOSURGERY FOREWORD** *NEUROSURGERY*
Adler, J. R., Chang, S. D.
2009; 64 (2): A1-A1
- **NONISOCENTRIC RADIOSURGICAL RHIZOTOMY FOR TRIGEMINAL NEURALGIA** *NEUROSURGERY*
Adler, J. R., Bower, R., Gupta, G., Lim, M., Efron, A., Gibbs, I. C., Chang, S. D., Soltys, S. G.
2009; 64 (2): A84-A90
- **COST-UTILITY ANALYSIS OF THE CYBERKNIFE SYSTEM FOR METASTATIC SPINAL TUMORS** *NEUROSURGERY*
Papatheofanis, F. J., Williams, E., Chang, S. D.
2009; 64 (2): A73-A83
- **CYBERKNIFE RADIOSURGERY FOR TRIGEMINAL SCHWANNOMAS** *NEUROSURGERY*
Sakamoto, G. T., Borchers, D. J., Xiao, F., Yang, H., Chang, S. D., Adler, J. R.
2009; 64 (2): A14-A18
- **Spinal Stereotactic Radiosurgery for Metastatic Tumor Recurrence within a Prior External Beam Irradiation Field** *51st Annual Meeting of the American-Society-for-Radiation-Oncology (ASTRO)*
Soltys, S. G., Gibbs, I. C., Adler, J. R., Chang, S. D., Jackson, P. S., LIEBERSON, R. E., Choi, C. Y.
ELSEVIER SCIENCE INC.2009: S126-S126

- **Stereotactic Radiosurgery Yields Long-term Control for Benign Intradural, Extramedullary Spine Tumors** *51st Annual Meeting of the American-Society-for-Radiation-Oncology (ASTRO)*
Sachdev, S., Dodd, R. L., Chang, S. D., Soltys, S. G., Adler, J. R., Luxton, G., Choi, C. Y., Tupper, L. A., Gibbs, I. C.
ELSEVIER SCIENCE INC.2009: S101–S101
- **Stereotactic radiosurgery for a cardiac sarcoma: A case report** *TECHNOLOGY IN CANCER RESEARCH & TREATMENT*
Soltys, S. G., Kalani, M. Y., Cheshier, S. H., Szabo, K. A., Lo, A., Chang, S. D.
2008; 7 (5): 363-367
- **Predictors of peritumoral edema after stereotactic radiosurgery of supratentorial meningiomas** *NEUROSURGERY*
Patil, C. G., Hoang, S., Borchers, D. J., Sakamoto, G., Soltys, S. G., Gibbs, I. C., Harsh, G. R., Chang, S. D., Adler, J. R.
2008; 63 (3): 435-440
- **Excellent local control with stereotactic radiotherapy boost after external beam radiotherapy in patients with nasopharyngeal carcinoma** *87th Annual Meeting of the American-Radium-Society*
Hara, W., Loo, B. W., Goffinet, D. R., Chang, S. D., Adler, J. R., Pinto, H. A., Fee, W. E., Kaplan, M. J., Fischbein, N. J., Le, Q.
ELSEVIER SCIENCE INC.2008: 393–400
- **Multimodality treatment of posterior fossa arteriovenous malformations** *JOURNAL OF NEUROSURGERY*
Kelly, M. E., Guzman, R., Sinclair, J., Bell-Stephens, T. E., Bower, R., Hamilton, S., Marks, M. P., Do, H. M., Chang, S. D., Adler, J. R., Levy, R. P., Steinberg, G. K.
2008; 108 (6): 1152-1161
- **Radiation therapy and CyberKnife radiosurgery in the management of craniopharyngiomas** *NEUROSURGICAL FOCUS*
Lee, M., Kalani, M. Y., Cheshier, S., Gibbs, I. C., Adler, J. R., Chang, S. D.
2008; 24 (5)
- **The use of TLD and Gafchromic film to assure submillimeter accuracy for image-guided radiosurgery** *MEDICAL DOSIMETRY*
Ho, A. K., Gibbs, I. C., Chang, S. D., Main, B., Adler, J. R.
2008; 33 (1): 36-41
- **Cyberknife radiosurgery for trigeminal neuralgia treatment: A preliminary multicenter experience** *NEUROSURGERY*
Villavicencio, A. T., Lim, M., Burneikiene, S., Romanelli, P., Adler, J. R., McNeely, L., Chang, S. D., Fariselli, L., McIntyre, M., Bower, R., Broggi, G., Thramann, J. J.
2008; 62 (3): 647-654
- **Visual field preservation after multisession cyberknife radiosurgery for perioptic lesions.** *Neurosurgery*
Adler, J. R., Gibbs, I. C., Puataweepong, P., Chang, S. D.
2008; 62: 733-743
- **Neurologic complications of arteriovenous malformation embolization using liquid embolic agents** *AMERICAN JOURNAL OF NEURORADIOLOGY*
Jayaraman, M. V., Marcellus, M. L., Hamilton, S., Do, H. M., Campbell, D., Chang, S. D., Steinberg, G. K., Marks, M. P.
2008; 29 (2): 242-246
- **Treatment of intraorbital lesions using the Accuray CyberKnife system.** *Orbit (Amsterdam, Netherlands)*
Hirschbein, M. J., Collins, S., Jean, W. C., Chang, S. D., Adler, J. R.
2008; 27 (2): 97-105
- **Stereotactic radiosurgery of the postoperative resection cavity for brain metastases** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Soltys, S. G., Adler, J. R., Lipani, J. D., Jackson, P. S., Choi, C. Y., Puataweepong, P., White, S., Gibbs, I. C., Chang, S. D.
2008; 70 (1): 187-193
- **Radiosurgery for glomus Jugulare tumors** *TECHNOLOGY IN CANCER RESEARCH & TREATMENT*
Lim, M., Bower, R., Nangiana, J. S., Adler, J. R., Chang, S. D.
2007; 6 (5): 419-423
- **Cyberknife radiosurgery for lesions of the foramen magnum** *TECHNOLOGY IN CANCER RESEARCH & TREATMENT*
Cheshier, S. H., Hanft, S. J., Adler, J. R., Chang, S. D.
2007; 6 (4): 329-335

- **A 35-year-old woman with a dural-based mass.** *Brain pathology*
Haddix, T., Chang, S., Vogel, H.
2007; 17 (3): 331-332
- **Surgical and endovascular management of symptomatic posterior circulation fusiform aneurysms** *JOURNAL OF NEUROSURGERY*
Coert, B. A., Chang, S. D., Do, H. M., Marks, M. P., Steinberg, G. K.
2007; 106 (5): 855-865
- **Cyberknife targeting the pterygopalatine ganglion for the treatment of chronic cluster headaches.** *Neurosurgery*
Lad, S. P., Lipani, J. D., Gibbs, I. C., Chang, S. D., Adler, J. R., Henderson, J. M.
2007; 60 (3): E580-?
- **CyberKnife targeting the pterygopalatine ganglion for the treatment of chronic cluster headaches** *NEUROSURGERY*
Lad, S. P., Lipani, J. D., Gibbs, I. C., Chang, S. D., Adler, J. R., Henderson, J. M.
2007; 60 (3): 580-581
- **A study of the accuracy of cyberknife spinal radiosurgery using skeletal structure tracking.** *Neurosurgery*
Ho, A. K., Fu, D., Cotrutz, C., Hancock, S. L., Chang, S. D., Gibbs, I. C., Maurer, C. R., Adler, J. R.
2007; 60 (2): ONS147-56
- **Hemorrhage rate in patients with Spetzler-Martin grades IV and V arteriovenous malformations - Is treatment justified?** *STROKE*
Jayaraman, M. V., Marcellus, M. L., Do, H. M., Chang, S. D., Rosenberg, J. K., Steinberg, G. K., Marks, M. P.
2007; 38 (2): 325-329
- **Image-guided robotic radiosurgery for spinal metastases** *RADIOTHERAPY AND ONCOLOGY*
Gibbs, I. C., Kamnerdsupaphon, P., Ryu, M., Dodd, R., Kiernan, M., Chang, S. D., Adler, J. R.
2007; 82 (2): 185-190
- **A study of the accuracy of CyberKnife spinal radiosurgery using skeletal structure tracking** *NEUROSURGERY*
Ho, A. K., Fu, D., Cotrutz, C., Hancock, S. L., Chang, S. D., Gibbs, I. C., Maurer, C. R., Adler, J. R.
2007; 60 (2): 147-156
- **CyberKnife radiosurgical rhizotomy for the treatment of atypical trigeminal nerve pain.** *Neurosurgical focus*
Patil, C. G., Veeravagu, A., Bower, R. S., Li, G., Chang, S. D., Lim, M., Adler, J. R.
2007; 23 (6): E9-?
- **Efficacy and safety of CyberKnife radiosurgery for acromegaly.** *Pituitary*
Roberts, B. K., Ouyang, D. L., Lad, S. P., Chang, S. D., Harsh, G. R., Adler, J. R., Soltys, S. G., Gibbs, I. C., Remedios, L., Katznelson, L.
2007; 10 (1): 17
- **Trigeminal Neuralgia: Treatment with the Cyberknife** *Revista Medica*
Lim M, Bower R, Adler JR, Chang SD
2007; 13 (1): 195-200
- **Efficacy and safety of CyberKnife radiosurgery for acromegaly.** *Pituitary*
Roberts, B. K., Ouyang, D. L., Lad, S. P., Chang, S. D., Harsh, G. R., Adler, J. R., Soltys, S. G., Gibbs, I. C., Remedios, L., Katznelson, L.
2007; 10 (1): 19-25
- **Irradiation of glomus jugulare tumors: a historical perspective.** *Neurosurgical focus*
Li, G., Chang, S., Adler, J. R., Lim, M.
2007; 23 (6): E13-?
- **Cyberknife radiosurgery for arteriovenous malformations** *Rivista Medica*
Chang SD, Adler JR
2007; 13 (1): 71-77
- **Robotic radiosurgery for the treatment of radioresistant brain metastases** *7th Congress of the European-Association-for-Neuro-Oncology (EANO)*
Hara, W., Li, G., Puataweepong, P., Adler, J., Chang, S., Gibbs, I. C.
OXFORD UNIV PRESS INC.2006: 486-86

- **Visual field preservation after multisection CyberKnife radiosurgery for perioptic lesions** *NEUROSURGERY*
Adler, J. R., Gibbs, I. C., Puataweepong, P., Chang, S. D.
2006; 59 (2): 244-253
- **Multisection cyberknife radiosurgery for intramedullary spinal cord arteriovenous malformations** *NEUROSURGERY*
Sinclair, J., Chang, S. D., Gibbs, I. C., Adler, J. R.
2006; 58 (6): 1081-1088
- **Cyberknife radiosurgery for benign intradural extramedullary spinal tumors** *NEUROSURGERY*
Dodd, R. L., Ryu, M. R., Kamnerdsupaphon, P., Gibbs, I. C., Chang, S. D., Adler, J. R.
2006; 58 (4): 674-684
- **Stereotactic radiosurgery using CT cisternography and non-isocentric planning for the treatment of trigeminal neuralgia.** *Computer aided surgery*
Lim, M., Cotrutz, C., Romanelli, P., Schaal, D., Gibbs, I., Chang, S. D., Adler, J. R.
2006; 11 (1): 11-20
- **Visual field preservation after curative multi-modality treatment of occipital lobe arteriovenous malformations** *NEUROSURGERY*
Sinclair, J., Marks, M. P., Levy, R. P., Adler, J. R., Chang, S. D., Lopez, J. R., Do, H. M., Bell-Stephens, T. E., Lim, M., Steinberg, G. K.
2005; 57 (4): 655-666
- **Staged stereotactic irradiation for acoustic neuroma** *NEUROSURGERY*
Chang, S. D., Gibbs, I. C., Sakamoto, G. T., Lee, E., Oyelese, A., Adler, J. R.
2005; 56 (6): 1254-1261
- **Revascularization of the posterior circulation** *SKULL BASE-AN INTERDISCIPLINARY APPROACH*
Coert, B. A., Chang, S. D., Marks, M. P., Steinberg, G. K.
2005; 15 (1): 43-62
- **CyberKnife radiosurgery for idiopathic trigeminal neuralgia.** *Neurosurgical focus*
Lim, M., Villavicencio, A. T., Burneikiene, S., Chang, S. D., Romanelli, P., McNeely, L., McIntyre, M., Thramann, J. J., Adler, J. R.
2005; 18 (5): E9-?
- **Stereotactic radiosurgery using CT cisternography and non-isocentric planning for the treatment of trigeminal neuralgia** *14th Meeting of the World-Society-for-Stereotactic-and-Functional-Neurosurgery*
Romanelli, P., Lim, M., Isidori, A., Chang, S. D., Adler, J. R.
MEDIMOND PUBLISHING CO.2005: 219-223
- **The Cyberknife: Potential in patients with central nervous system tumors** *American Journal of Cancer*
Chang SD
2005; 4 (6): 383-393
- **Efficacy and safety of stereotactic radiosurgery for glomus jugulare tumors.** *Neurosurgical focus*
Lim, M., Gibbs, I. C., Adler, J. R., Chang, S. D.
2004; 17 (2): E11-?
- **Preliminary visual field preservation after staged CyberKnife radiosurgery for perioptic lesions** *NEUROSURGERY*
Pham, C. J., Chang, S. D., Gibbs, I. C., Jones, P., Heilbrun, M. P., Adler, J. R.
2004; 54 (4): 799-810
- **Radiation tolerance of the spinal cord to staged radiosurgery** *Radiosurgery*
Gibbs IC, Chang SD, Pham C, Adler JR
2004; 5: 22-28
- **Temporal pattern of pain relief using cyberknife radiosurgery for trigeminal neuralgia: A preliminary report** *6th Meeting of the International-Stereotactic-Radiosurgery-Society*
Romanelli, P., Chang, S., Gibbs, I. C., Heit, G., Adler, J. R.
KARGER.2004: 181-189
- **Quality assurance of the cyberknife fiducial and skull tracking systems** *6th Meeting of the International-Stereotactic-Radiosurgery-Society*
Ho, A., Cotrutz, C., Chang, S. D., Adler, J. R., Gibbs, I. C.

KARGER.2004: 255-259

- **Radiation tolerance of the spinal cord to staged radiosurgery** *6th Meeting of the International-Stereotactic-Radiosurgery-Society*
Gibbs, I. C., Chang, S. D., Pham, C., Adler, J. R.
KARGER.2004: 22-28
- **Temporal pattern of pain relief using Cyberknife radiosurgery for trigeminal neuralgia: A preliminary report** *Radiosurgery*
Romanelli P, Chang SD, Gibbs IC, Heit G, Adler JR
2004; 5: 181-189
- **Basic quality assurance of the Cyberknife system** *Radiosurgery*
Ho AK, Cotrutz C, Chang SD, Adler JR, Gibbs IC
2004; 5: 255-259
- **Stereotactic radiosurgery for hemangiomas and ependymomas of the spinal cord.** *Neurosurgical focus*
Ryu, S. I., Kim, D. H., Chang, S. D.
2003; 15 (5): E10-?
- **Radiosurgery and radiotherapy for sacral tumors.** *Neurosurgical focus*
Gibbs, I. C., Chang, S. D.
2003; 15 (2): E8-?
- **Improved local control with stereotactic radiosurgical boost in patients with nasopharyngeal carcinoma** *44th Annual Meeting of the American-Society-for-Therapeutic-Radiology-and-Oncology*
Le, Q. T., Tate, D., Koong, A., Gibbs, I. C., Chang, S. D., Adler, J. R., Pinto, H. A., Terris, D. J., Fee, W. E., Goffinet, D. R.
ELSEVIER SCIENCE INC.2003: 1046-54
- **Multimodality treatment of giant intracranial arteriovenous malformations** *NEUROSURGERY*
Chang, S. D., Marcellus, M. L., Marks, M. P., Levy, R. P., Do, H. M., Steinberg, G. K.
2003; 53 (1): 1-11
- **The efficacy of linear accelerator stereotactic radiosurgery in treating glomus jugulare tumors** *TECHNOLOGY IN CANCER RESEARCH & TREATMENT*
Lim, M., Gibbs, I. C., Adler, J. R., Martin, D. P., Chang, S. D.
2003; 2 (3): 261-265
- **The role of radiosurgery for hemangiopericytomas.** *Neurosurgical focus*
Chang, S. D., Sakamoto, G. T.
2003; 14 (5)
- **Parent vessel occlusion for vertebrobasilar fusiform and dissecting aneurysms** *AMERICAN JOURNAL OF NEURORADIOLOGY*
Leibowitz, R., Do, H. M., Marcellus, M. L., Chang, S. D., Steinberg, G. K., Marks, M. P.
2003; 24 (5): 902-907
- **Patterns of patient movement during frameless image-guided radiosurgery** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*
Murphy, M. J., Chang, S. D., Gibbs, I. C., Le, Q. T., Hai, J., Kim, D., Martin, D. P., Adler, J. R.
2003; 55 (5): 1400-1408
- **Extracranial radiosurgery using the CyberKnife** *TECHNIQUES IN NEUROSURGERY*
Romanelli, P., Chang, S. D., Koong, A., Adler, J. R.
2003; 9 (3): 226-231
- **Image-guided spinal stereotactic radiosurgery** *TECHNIQUES IN NEUROSURGERY*
Ryu, S. I., Kim, D. H., Martin, D. P., Chang, S. D., Adler, J. R.
2003; 8 (1): 56-64
- **An analysis of the accuracy of the Cyberknife: A robotic nameless stereotactic radiosurgical system** *NEUROSURGERY*
Chang, S. D., Main, W., Martin, D. P., Gibbs, I. C., Heilbrun, M. P.
2003; 52 (1): 140-146
- **Cyberknife radiosurgery for trigeminal neuralgia** *Meeting of the American-Society-for-Stereotactic-and-Functional-Neurosurgery*
Romanelli, P., Heit, G., Chang, S. D., Martin, D., Pham, C., Adler, J.

KARGER.2003: 105-9

- **Downregulation of cerebrospinal fluid production in patients with chronic hydrocephalus** *JOURNAL OF NEUROSURGERY*
Silverberg, G. D., Huhn, S., Jaffe, R. A., Chang, S. D., Saul, T., Heit, G., Von Essen, A., Rubenstein, E.
2002; 97 (6): 1271-1275
- **Assessment of low-flow CSF drainage as a treatment for AD - Results of a randomized pilot study** *NEUROLOGY*
Silverberg, G. D., Levinthal, E., SULLIVAN, E. V., Bloch, D. A., Chang, S. D., Leverenz, J., Flitman, S., Winn, R., Marciano, F., Saul, T., Huhn, S., Mayo, M., McGuire, et al
2002; 59 (8): 1139-1145
- **Image guided stereotactic radiosurgery for lesions in proximity to the anterior visual pathways: a preliminary report.** *Technology in cancer research & treatment*
Mehta, V. K., Lee, Q., Chang, S. D., Cherney, S., Adler, J. R.
2002; 1 (3): 173-180
- **The role of radiosurgery in the treatment of giant arteriovenous malformations** *5th Meeting of the International-Stereotactic-Radiosurgery-Society*
Chang, S. D., Levy, R. P., Marks, M. P., Marcellus, M., Steinberg, G. K.
KARGER.2002: 42-53
- **Image-guided radiosurgery in the treatment of spinal metastases.** *Neurosurgical focus*
MURPHY, M. J., Chang, S., Gibbs, I., Le, Q. T., Martin, D., Kim, D.
2001; 11 (6)
- **The cerebrospinal fluid production rate is reduced in dementia of the Alzheimer's type** *NEUROLOGY*
Silverberg, G. D., Heit, G., Huhn, S., Jaffe, R. A., Chang, S. D., Bronte-Stewart, H., Rubenstein, E., Possin, K., Saul, T. A.
2001; 57 (10): 1763-1766
- **Image-guided hypo-fractionated stereotactic radiosurgery to spinal lesions** *NEUROSURGERY*
Ryu, S. I., Chang, S. D., Kim, D. H., MURPHY, M. J., Le, Q. T., Martin, D. P., Adler, J. R.
2001; 49 (4): 838-846
- **Posterior cerebral circulation revascularization** *NEUROSURGERY CLINICS OF NORTH AMERICA*
Chang, S. D., Ryu, S. I., Steinberg, G. K.
2001; 12 (3): 519-?
- **Current status and optimal use of radiosurgery** *ONCOLOGY-NEW YORK*
Chang, S. D., Adler, J. R.
2001; 15 (2): 209-216
- **Robotics and radiosurgery - The cyberknife** *STEREOTACTIC AND FUNCTIONAL NEUROSURGERY*
Chang, S. D., Adler, J. R.
2001; 76 (3-4): 204-208
- **Image-guided extracranial radiosurgery** *7th International Meeting on Progress in Radio-Oncology (ICRO/OGRO 7)*
Sattah, M., Guerrero, T., Chang, S., Martin, D., Le, Q. T., Gibbs, I., Adler, J.
MEDIMOND S R L.2001: 153-162
- **Stereotactic radiosurgery and hypofractionated stereotactic radiotherapy for residual or recurrent cranial base and cervical chordomas.** *Neurosurgical focus*
Chang, S. D., Martin, D. P., Lee, E., Adler, J. R.
2001; 10 (3): E5-?
- **AAEM news and comments** *Muscle & nerve*
Chang, Lopez, Steinberg
2000; 23 (9): 1450-1451
- **Reply** *Muscle & nerve*
Chang, Lopez, Steinberg
2000; 23 (9): 1446-?

- **Acquired cerebral arteriovenous malformation induced by an anaplastic astrocytoma: An interesting case** *NEUROLOGICAL RESEARCH*
Harris, O. A., Chang, S. D., Harris, B. T., Adler, J. R.
2000; 22 (5): 473-477
- **Microsurgical resection of brainstem, thalamic, and basal ganglia angiographically occult vascular malformations** *NEUROSURGERY*
Steinberg, G. K., Chang, S. D., Gewirtz, R. J., Lopez, J. R.
2000; 46 (2): 260-270
- **Stereotactic radiosurgery in patients with multiple brain metastases.** *Neurosurgical focus*
Chang, S. D., Lee, E., Sakamoto, G. T., Brown, N. P., Adler, J. R.
2000; 9 (2)
- **The treatment of giant intracranial arteriovenous malformations using multimodality therapy**
Chang, S. D., Lopez, J. R., Levy, R. P., Marks, M. P., Steinberg, G. K.
LIPPINCOTT WILLIAMS & WILKINS.2000: 324-24
- **Image-guided robotic radiosurgery: Clinical and radiographic results with the CyberKnife** *4th International-Stereotactic-Radiosurgery-Society Congress*
Chang, S. D., MURPHY, M. J., Martin, D. P., Hancock, S. L., Doty, J. R., Adler, J. R.
KARGER.2000: 23-33
- **Treatment of intracranial arteriovenous malformations in the elderly population**
Chang, S. D., Lopez, J. R., Marks, M. P., Levy, R. P., Adler, J. R., Steinberg, G. K.
LIPPINCOTT WILLIAMS & WILKINS.2000: 325-25
- **Current treatment of patients with multiple brain metastases.** *Neurosurgical focus*
Chang, S. D., Adler, J. R.
2000; 9 (2)
- **Intraoperative electrical stimulation for identification of cranial nerve nuclei** *45th Annual Meeting of the American-Association-for-Electrodiagnostic-Medicine*
Chang, S. D., Lopez, J. R., Steinberg, G. K.
JOHN WILEY & SONS INC.1999: 1538-43
- **The usefulness of electrophysiological monitoring during resection of central nervous system vascular malformations.** *Journal of stroke and cerebrovascular diseases : the official journal of National Stroke Association*
Chang, S. D., Lopez, J. R., Steinberg, G. K.
1999; 8 (6): 412-422
- **Stereotactic radiosurgical boost following radiotherapy in primary nasopharyngeal carcinoma: Impact on local control** *39th Annual Meeting of ASTRO*
Tate, D. J., Adler, J. R., Chang, S. D., Marquez, S., Eulau, S. M., Fee, W. E., PINTO, H., Goffinet, D. R.
ELSEVIER SCIENCE INC.1999: 915-21
- **Intracranial nasal dermoid sinus cyst associated with colloid cyst of the third ventricle - Case report and new concepts** *PEDIATRIC NEUROSURGERY*
Cheng, M. L., Chang, S. D., Pang, D. L., Adler, J. R.
1999; 31 (4): 201-206
- **Correlation of magnetic resonance characteristics and histopathological type of angiographically occult vascular malformations** *NEUROSURGERY*
Vanefsky, M. A., Cheng, M. L., Chang, S. D., Norbash, A., Snipe, J., Marks, M. P., Steinberg, G. K.
1999; 44 (6): 1174-1180
- **Symptomatic vasospasm after resection of a suprasellar pilocytic astrocytoma: Case report and possible pathogenesis** *SURGICAL NEUROLOGY*
Chang, S. D., Yap, O. W., Adler, J. R.
1999; 51 (5): 521-526
- **Recanalization and rupture of a giant vertebral artery aneurysm after Hunterian ligation: Case report** *NEUROSURGERY*
Chang, S. D., Marks, M. P., Steinberg, G. K.
1999; 44 (5): 1117-1120
- **The use of electrophysiological monitoring in the intraoperative management of intracranial aneurysms** *JOURNAL OF NEUROLOGY NEUROSURGERY AND PSYCHIATRY*

-
- Lopez, J. R., Chang, S. D., Steinberg, G. K.
1999; 66 (2): 189-196
- **Image-guided robotic radiosurgery** *Neurosurgery*
Adler, J. R., Murphy, M. J., Chang, S. D., Hancock, S. L.
1999; 44 (6): 1299-1306; discussion 1306-1307
 - **The use of electrophysiologic monitoring during intracranial cerebrovascular surgery: A cost-benefit analysis**
Chang, S. D., Lopez, J. R., Steinberg, G. K.
LIPPINCOTT WILLIAMS & WILKINS.1999: 257-57
 - **Management of the radiosurgery patient: Causes and treatment of adverse sequelae** *32nd San Francisco Cancer Symposium*
Chang, S. D., Adler, J. R.
KARGER.1999: 155-165
 - **Treatment of cavernous sinus tumors with linear accelerator radiosurgery** *SKULL BASE SURGERY*
Chang, S. D., Doty, J. R., Martin, D. P., Hancock, S. L., Adler, J. R.
1999; 9 (3): 195-199
 - **Correlation of magnetic resonance characteristics and histopathological type of angiographically occult vascular malformations** *Neurosurgery*
Vanefsky, M. A., Cheng, M. L., Chang, S. D., Norbash, A., Snipe, J., Marks, M. P., Steinberg, G. K.
1999; 44 (6): 1174-80; discussion 1180-81
 - **Treatment of nasopharyngeal carcinoma: Stereotactic radiosurgical boost following fractionated radiotherapy** *Meeting of the American-Society-for-Stereotactic-and-Functional-Neurosurgery*
Chang, S. D., Tate, D. J., Goffinet, D. R., Martin, D. P., Adler, J. R.
KARGER.1999: 64-67
 - **Clinical experience with image-guided robotic radiosurgery (the Cyberknife) in the treatment of brain and spinal cord tumors** *NEUROLOGIA MEDICO-CHIRURGICA*
Chang, S. D., Murphy, M., Geis, P., Martin, D. P., Hancock, S. L., Doty, J. R., Adler, J. R.
1998; 38 (11): 780-783
 - **Microsurgical resection of incompletely obliterated intracranial arteriovenous malformations following stereotactic radiosurgery** *NEUROLOGIA MEDICO-CHIRURGICA*
Chang, S. D., Steinberg, G. K., Levy, R. P., Marks, M. P., Frankel, K. A., Shuster, D. L., Marcellus, M. L.
1998; 38: 200-207
 - **Bilateral cavernous malformations resulting from cranial irradiation of a choroid plexus papilloma** *NEUROLOGICAL RESEARCH*
Chang, S. D., Vanefsky, M. A., Havton, L. A., Silverberg, G. D.
1998; 20 (6): 529-532
 - **Clinical uses of radiosurgery** *ONCOLOGY-NEW YORK*
Chang, S. D., Adler, J. R., Hancock, S. L.
1998; 12 (8): 1181-?
 - **Acute hearing loss following fractionated stereotactic radiosurgery for acoustic neuroma - Report of two cases** *JOURNAL OF NEUROSURGERY*
Chang, S. D., Poen, J., Hancock, S. L., Martin, D. P., Adler, J. R.
1998; 89 (2): 321-325
 - **Stereotactic radiosurgery of angiographically occult vascular malformations: 14-year experience** *NEUROSURGERY*
Chang, S. D., Levy, R. P., Adler, J. R., Martin, D. P., Krakovitz, P. R., Steinberg, G. K.
1998; 43 (2): 213-220
 - **Treatment of hemangioblastomas in von Hippel-Lindau disease with linear accelerator-based radiosurgery** *NEUROSURGERY*
Chang, S. D., Meisel, J. A., Hancock, S. L., Martin, D. P., McManus, M., Adler, J. R.
1998; 43 (1): 28-34
 - **Arteriovenous malformations after radiosurgery** *JOURNAL OF NEUROSURGERY*
Chang, S. D., Steinberg, G. K.
1998; 89 (1): 170-170
-

- **LINAC radiosurgery for cavernous sinus meningiomas** *STEREOTACTIC AND FUNCTIONAL NEUROSURGERY*
Chang, S. D., Adler, J. R., Martin, D. P.
1998; 71 (1): 43-50
- **Cranial nerve nuclei monitoring during resection of brainstem cavernous malformations: Preliminary results**
Chang, S. D., Lopez, J. R., Steinberg, G. K.
LIPPINCOTT WILLIAMS & WILKINS.1998: 276-76
- **Management of intracranial aneurysms.** *Vascular medicine*
Chang, S. D., Steinberg, G. K.
1998; 3 (4): 315-326
- **Treatment of cranial base meningiomas with linear accelerator radiosurgery** *NEUROSURGERY*
Chang, S. D., Adler, J. R.
1997; 41 (5): 1019-1025
- **Mixed arteriovenous malformation and capillary telangiectasia: A rare subset of mixed vascular malformations - Case report** *JOURNAL OF NEUROSURGERY*
Chang, S. D., Steinberg, G. K., Rosario, M., Crowley, R. S., Hevner, R. F.
1997; 86 (4): 699-703
- **Stereotactic radiosurgery of arteriovenous malformations: Pathologic changes in resected tissue** *CLINICAL NEUROPATHOLOGY*
Chang, S. D., Shuster, D. L., Steinberg, G. K., Levy, R. P., Frankel, K.
1997; 16 (2): 111-116
- **The cyberknife: A frameless robotic system for radiosurgery** *XIIth Meeting of the World Society for Stereotactic and Functional Neurosurgery*
Adler, J. R., Chang, S. D., MURPHY, M. J., Doty, J., Geis, P., Hancock, S. L.
KARGER.1997: 124-28
- **The use of electrophysiologic monitoring during resection of arteriovenous malformations and angiographically occult vascular malformations**
Chang, S. D., Lopez, J. R., Steinberg, G. K.
LIPPINCOTT WILLIAMS & WILKINS.1997: 172-72
- **Surgical resection of large incompletely treated intracranial arteriovenous malformations following stereotactic radiosurgery** *JOURNAL OF NEUROSURGERY*
Steinberg, G. K., Chang, S. D., Levy, R. P., Marks, M. P., Frankel, K., Marcellus, M.
1996; 84 (6): 920-928