KANWALJEET GARG, MBBS, M.Ch., FACS

ACADEMIC NEUROSURGEON

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PROFESSIONAL PROFILE

Academic neurosurgeon with more than 15 years of clinical, research, and surgical education experience, including approximately 10 years as faculty at the All India Institute of Medical Sciences (AIIMS), New Delhi. Fellowship-trained in complex spine surgery at the University of Calgary, currently completing advanced complex spine training at Washington University in St. Louis, with additional fellowship training in stereotactic and functional neurosurgery at Indiana University. Interests include complex spine surgery, neuromodulation, epilepsy surgery, focused ultrasound, and Gamma Knife radiosurgery. More than 3,500 independent procedures; 276 publications; editor of two cervical-spine books. Available for a faculty appointment beginning mid-2027.

CLINICAL EXPERTISE

- Complex and cervical spine surgery; degenerative cervical myelopathy; craniovertebral junction pathology
- Spinal trauma, deformity, complex reconstruction, minimally invasive and motion-preserving spine surgery
- Functional neurosurgery and neuromodulation: DBS, radiofrequency lesioning, MR-guided focused ultrasound, SCS, intrathecal pumps
- Movement-disorder surgery: Parkinson disease, dystonia, tremor; pallidotomy and DBS
- Epilepsy surgery: RNS, VNS, LITT, SEEG, ECoG-guided resection
- Gamma Knife radiosurgery (more than 1,000 cases performed) and stereotactic procedures

FELLOWSHIP & ADVANCED TRAINING

Washington University in St. Louis, St. Louis, Missouri, USA — Complex Spine Surgery Fellowship | 2026–2027

- Advanced training in complex reconstruction, motion-preserving, minimally invasive, robotic-assisted and image-guided techniques, including LLIF, ALIF, cervical/lumbar disc arthroplasty and MIS decompression.

Indiana University School of Medicine, Indianapolis, Indiana, USA — Stereotactic & Functional Neurosurgery Fellowship | 2025–2026

- Dedicated training in DBS, MR-guided focused ultrasound, epilepsy surgery and neuromodulation, including RNS, VNS, LITT, SEEG and ECoG-guided procedures.

Foothills Medical Centre / University of Calgary, Calgary, Alberta, Canada — Complex Spine Surgery Fellowship | 2014–2015

- Dedicated complex spine training under R. John Hurlbert with approximately 400 spine procedures and exposure to advanced reconstructive, motion-preserving and minimally invasive techniques.

ACADEMIC APPOINTMENTS

All India Institute of Medical Sciences (AIIMS), New Delhi, India — Department of Neurosurgery | 2015–Present

- Professor of Neurosurgery, 2025–Present (on leave for fellowship training, 2025–2027); Additional Professor (senior Associate Professor level), 2021–2025; Associate Professor, 2018–2021; Assistant Professor, 2015–2018.
- High-volume tertiary and trauma referral practice at AIIMS and the JPN Apex Trauma Centre.
- Clinical practice spanning spine, functional neurosurgery and radiosurgery, with extensive resident/fellow education and clinical research leadership.

SPINE SURGERY EXPERIENCE

- Approximately 200 spine operations annually as faculty at AIIMS, New Delhi, following complex spine fellowship training at Calgary (approximately 400 procedures).
- Case mix spanning degenerative cervical myelopathy, craniovertebral junction and atlantoaxial pathology, basilar invagination, cervical and lumbar trauma including spondyloptosis and burst fractures, extradural craniovertebral junction tumors, spinal deformity and Hirayama disease.
- Surgical innovation and outcomes research: expansile duraplasty for complete cervical spinal cord injury (PI, randomized study); first author of the AIIMS Cervical Myelopathy Score; co-author of a randomized trial of virtual reality simulation for lumbar pedicle screw training.

FUNCTIONAL NEUROSURGERY EXPERIENCE

- More than 250 primary-surgeon movement-disorder procedures before fellowship, including DBS and radiofrequency pallidotomy for Parkinson disease, dystonia and tremor.

- Experience with DBS (frame-based, robotic, and Starfix), MR-guided focused ultrasound, RNS, VNS, LITT, SEEG, ECoG-guided epilepsy surgery, and modern stereotactic techniques.
- Experience with trigeminal neuralgia procedures, DREZ lesioning, intrathecal pumps and spinal cord stimulation.
- Research involvement in Parkinson disease, DBS, dystonia, pallidotomy, neuromodulation and focused ultrasound.

GAMMA KNIFE RADIOSURGERY EXPERIENCE

- Performed more than 1,000 Gamma Knife radiosurgery cases at AIIMS, New Delhi, as part of the Department of Neurosurgery and Gamma Knife.
- Treatment experience spanning vestibular schwannoma, pituitary adenoma, meningioma, glioma, vascular malformations and trigeminal neuralgia.
- Extensive peer-reviewed publication record in Gamma Knife radiosurgery.

GENERAL NEUROSURGERY EXPERIENCE

- Level 1 trauma center practice: emergency and on-call neurosurgical care for cranial and spinal trauma at the JPN Apex Trauma Centre, AIIMS, New Delhi.
- Tumor surgery: experience with brain and spinal tumors
- Neurotrauma research and editorial leadership, including service as Associate Editor of the Indian Journal of Neurotrauma.

SELECTED SPINE & COMPLEX SPINE PUBLICATIONS

- Mishra S, Sadhwani N, Kumar A, Garg K, et al. Surgical management and outcomes analysis of lower lumbar (L3–L5) burst fractures: A single-center experience and meta-analysis. J Craniovertebr Junction Spine. 2026;17(5):560–569. doi:10.4103/jcvjs.jcvjs_208_26.
- Rai HIS, Mishra S, Bansal T, Garg K, et al. Traumatic cervical spondyloptosis: A comprehensive analysis of 16 cases at a Level 1 trauma center in a developing nation. Neurol India. 2025;73(3):454–462. doi:10.4103/neurol-india.Neurol-India-D-24-00116.
- Garg K, Mishra S, Vibha D, Chandra PS. Hirayama disease beyond the collar: Imaging evidence of surgical stabilization. J Clin Neurosci. 2025;137:111306. doi:10.1016/j.jocn.2025.111306.
- Kale SS, Mishra S, Garg K, et al. Surgical management of extradural tumors at the craniovertebral junction: Insights from a tertiary care center. World Neurosurg. 2024;189:e652–e661. doi:10.1016/j.wneu.2024.06.139.
- Alam I, Garg K, Kumar AG, et al. Beyond traditional training: Exploring the benefits of virtual reality simulator in lumbar pedicle screw insertion—A randomized controlled trial. World Neurosurg. 2024;189:e61–e68. doi:10.1016/j.wneu.2024.05.163.
- Garg K, Agrawal D, Hurlbert RJ. Expansile duraplasty—Simple technique with promising results in complete cervical spinal cord injury: A preliminary study. Neurol India. 2022;70(1):319–324.
- Sarat Chandra P, Bajaj J, Singh PK, Garg K, Agarwal D. Basilar invagination and atlantoaxial dislocation: Reduction, deformity correction and realignment using the DCER technique with customized instrumentation and implants. Neurospine. 2019;16(2):231–250.

SELECTED FUNCTIONAL NEUROSURGERY PUBLICATIONS

- Garg K, Singh M, Samala R, Rajan R, Gulati S, Goyal V. Bilateral pallidotomy for acquired or heredodegenerative generalized dystonia in children. Neurosurg Focus. 2022;53(4):E12. doi:10.3171/2022.7.FOCUS22332.
- Rajan R, Garg K, Srivastava AK, Singh M. Device-Assisted and Neuromodulatory Therapies for Parkinson's Disease: A Network Meta-Analysis. Mov Disord. 2022;37(9):1785-1797. doi:10.1002/mds.29160.
- Garg K, Ranjan M, Krishna V, Singh M, Rezai A. A scientometric analysis of the 100 most cited articles on magnetic resonance guided focused ultrasound. Front Hum Neurosci. 2022;16:981571. doi:10.3389/fnhum.2022.981571.
- Rajan R, Garg K, Saini A, Radhakrishnan DM, Carecchio M, Bk B, Singh M, Srivastava AK. GPi-DBS for KMT2B Associated Dystonia: Systematic Review and Meta-Analysis. Mov Disord Clin Pract. 2022;9(1):31-37. doi:10.1002/mdc3.13374.
- Garg K, Samala R, Agrawal M, Rajan R, Singh M. Pallidotomy for Dystonia. Neurol India. 2020;68(Suppl):S322-S324. doi:10.4103/0028-3886.302460.
- Singh M, Shabari Girishan KV, Bajaj J, Garg K. Deep brain stimulation for movement disorders: Surgical nuances. Neurol India. 2018;66(Suppl):S122-S130. doi:10.4103/0028-3886.226461.
- Agrawal M, Garg K, Samala R, Rajan R, Singh M. A Scientometric Analysis of the 100 Most Cited Articles on Pallidotomy. Stereotact Funct Neurosurg. 2021;99(6):463-473. doi:10.1159/000516237.
- Kaur R, Radhakrishnan DM, Rajan R, Garg K, Srivastava AK. A Neurologist's Guide to Deep Brain Stimulation in Parkinson's Disease. Ann Indian Acad Neurol. 2026. doi:10.4103/aian.aian_93_26.

SELECTED GAMMA KNIFE RADIOSURGERY PUBLICATIONS

- Mahajan VB, Mishra S, Garg K, Garg A, Singh M, Chandra PS. Gamma Knife radiosurgery for endolymphatic sac tumors: a single-institution experience. Neurol India. 2026;74(5):864–869. doi:10.4103/neurol-india.Neurol-India-D-25-00986.
- Mishra S, Shah H, Singh P, Garg K, Agrawal D, Singh M, Kale SS. Integrating gamma knife radiosurgery into multimodal treatment of advanced juvenile nasopharyngeal angiofibroma. Neurosurg Rev. 2025;48(1):755. doi:10.1007/s10143-025-03903-5.
- Pandey K, Mishra S, Garg K, Garg A, Singh M, Kale SS. Patterns of response following gamma knife radiosurgery for tectal plate gliomas. J Neurooncol. 2025;174(1):77–84. doi:10.1007/s11060-025-05034-9.
- Singh P, Mishra S, Garg K, Kale SS. Acromegaly with kissing carotids – is gamma knife radiosurgery the answer? J Clin Neurosci. PMID: 40267595.
- Garg K, Singh M. Volume fractionation stereotactic radiosurgery for large volume intracranial arteriovenous malformations. Neurol India. 2023;71(Suppl):S82–S89. doi:10.4103/0028-3886.373641.

RESEARCH & ACADEMIC HIGHLIGHTS

- 276 peer-reviewed publications; h-index 28; more than 3.000 citations; 190 first-author or corresponding-author publications.
- 28 book chapters; editor of AIIMS Neurosurgery Case Book – Cervical Spine Trauma and Degenerative Diseases of Cervical Spine: AIIMS Neurosurgery Case Series.
- Research interests: cervical myelopathy, spine outcomes, craniovertebral junction disorders, neurotrauma, functional neurosurgery, DBS, Parkinson disease/dystonia, neuromodulation, focused ultrasound and Gamma Knife radiosurgery.

SELECTED RESEARCH PROJECTS

- Molecular signatures of Parkinson disease in vivo: a deep brain stimulation approach (Co-PI).
- Posterior cervical fixation versus long-term cervical collar for management of Hirayama Disease: prospective randomized PROBE phase III study (PI).
- Expansile duraplasty in patients with complete cervical spinal cord injury: prospective randomized PROBE study (PI).
- MRI findings in cervical spondylotic myelopathy and outcome following surgery (PI).
- Gold-standard medical imaging datasets of dural-based lesions for development of artificial intelligence tools (Co-PI).

TEACHING, LEADERSHIP & EDITORIAL EXPERIENCE

- Directed neurosurgery seminars, journal clubs and morbidity and mortality conferences for residents and fellows; supervised resident theses and research dissertations.
- Faculty instructor and surgical demonstrator at national spine surgery workshops; organized educational courses through the Neurological Society of India.
- Section Editor, World Neurosurgery; Associate Editor, Neurology India; Associate Editor, Indian Journal of Neurotrauma; Associate Editor, Frontiers in Surgery.
- Reviewer for Spine, European Spine Journal, Journal of Clinical Neuroscience, British Journal of Neurosurgery, World Neurosurgery, and Journal of Neurology, Neurosurgery and Psychiatry.

EDUCATION

M.Ch. Neurosurgery (6-year direct-entry neurosurgery residency, equivalent to US residency), All India Institute of Medical Sciences, New Delhi, India | 2008–2014

Internship, All India Institute of Medical Sciences, New Delhi, India | 2006

MBBS, All India Institute of Medical Sciences, New Delhi, India | 2001–2005

ADDITIONAL TRAINING & LICENSURE

- Leksell Gamma Knife Clinical Course, Marseille, France | 2023
- Neuromodulation Observership, West Virginia University | 2024
- Commonwealth of Virginia medical license (independent, unrestricted); Delhi Medical Council registration
- ECFMG Certified

REFERENCES

- **Jason M. Schwalb, MD, MBA, FCNS, FAANS, FACS, FAES**
  Betsey Barton Professor of Neurological Surgery; Director of Functional Neurosurgery, Indiana University School of Medicine | schwalbmd@gmail.com

- **Thomas C. Witt, MD, FAANS**
  Associate Professor of Neurological Surgery; Co-Director, Movement Disorder Surgery Program and Indiana Comprehensive Epilepsy Program, Indiana University School of Medicine | tcwitt@iu.edu
- **Wilson "Zack" Ray, MD, MBA**
  Henry G. & Edith R. Schwartz Professor of Neurological Surgery; Chief, Division of Spine Surgery, Washington University in St. Louis | rayz@wustl.edu
- **Daniel M. Hafez, MD, PhD**
  Assistant Professor of Neurological Surgery; Associate Program Director, Neurosurgery Residency, Washington University in St. Louis | hafezd@wustl.edu
- **Shashank S. Kale, MBBS, MS, M.Ch.**
  Former Professor and Head, Neurosurgery, AIIMS, New Delhi (2017–2025) | skale67@gmail.com
- **Kenneth Thomas, MD**
  Research Director, Calgary Spine Program, University of Calgary | kthomas@ucalgary.ca

PROFESSIONAL MEMBERSHIPS

AANS • AO Spine • International Parkinson and Movement Disorder Society • North American Neuromodulation Society • Neurological Society of India • Association of Spinal Surgeons of India • Indian Society of Stereotactic and Functional Neurosurgery