

Dr. Mohana Rao Patibandla Presents Cylinder Surgery Paradigm for Safer Deep White Matter Brain Surgery at NSIPPFCON 2026

Dr. Rao explains how Cylinder Surgery, white matter-sparing techniques, and precision neurosurgery reduce complications in deep brain lesion surgery.

GUNTUR, ANDHRA PRADESH, INDIA, July 22, 2026 /EINPresswire.com/ -- USA-Trained Neurosurgeon Dr. Mohana Rao Patibandla Presents the Emerging Paradigm of Cylinder Surgery for Safer Deep White Matter Brain Surgery at 1st NSI Complication Conference 2026

Dr. Rao Highlights White Matter-Sparing Strategies, Connectomics, and Precision Technologies That Are Transforming Deep-Seated Brain Lesion Surgery

GUNTUR, ANDHRA PRADESH, INDIA – July 20, 2026 – Deep-seated brain tumors have traditionally represented one of the greatest challenges in neurosurgery due to the need to traverse healthy brain tissue to reach the lesion. At the First National Meeting on Complications in Neurosciences (NSIPPFCON 2026), Dr. Mohana Rao Patibandla, internationally fellowship-trained neurosurgeon and Founder & Chairman of Dr. Rao's Hospital – International Institute of Neurosciences (IIN), presented the evolving concept of Cylinder Surgery during his invited lecture, "Complication Avoidance in Deep-Seated Lesions: Current Concepts in a White Matter Sparing Paradigm." The presentation was delivered during the Tumors and Cranioplasty scientific session at the conference held at the NIMHANS Convention Centre, Bengaluru.

The conference, organized under the auspices of the Neurological Society of India (NSI) and the Private Practitioners Forum, focused on preventing complications in neurosurgery, sharing

FOR IMMEDIATE RELEASE




NSIPPFCON 2026
NIMHANS CONVENTION CENTRE, BENGALURU
17th – 19th July 2026

**DR. RAO PRESENTS
CYLINDER SURGERY PARADIGM
FOR SAFER DEEP WHITE MATTER
BRAIN SURGERY AT NSIPPFCON 2026**

USA-trained neurosurgeon Dr. Rao highlights white matter-sparing strategies, connectomics, and precision technologies that are transforming deep-seated brain lesion surgery.



KEY CONCEPTS HIGHLIGHTED

WHITE MATTER-SPARING APPROACHES	CONNECTOMICS AND DTI TRACTOGRAPHY	PRECISION NEURONAVIGATION & MICROSURGERY	TUBULAR CORRIDOR TECHNIQUES	INTRAOPERATIVE NEUROPHYSIOLOGICAL MONITORING	MINIMALLY INVASIVE SOLUTIONS	COMPLICATION AVOIDANCE STRATEGIES
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“ The future of deep brain surgery is defined not by how much brain we expose, but by how much normal brain we preserve. Every white matter tract protected represents neurological function safeguarded. Cylinder Surgery combines advanced imaging, connectomics, minimally invasive corridors, and precision microsurgery to help us reach deep lesions while respecting the brain's remarkable architecture. **– DR. RAO**

ABOUT DR. RAO
Dr. Mohana Rao Patibandla (Dr. Rao) is a USA fellowship-trained neurosurgeon and Founder & Chairman of Dr. Rao's Hospital – International Institute of Neurosciences (IIN), Guntur, India. He specializes in minimally invasive brain surgery, skull base surgery, cerebellovascular & endovascular neurosurgery, neuro-oncology, pediatric neurosurgery, and advanced spine surgery.

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Dr. Mohana Rao Patibandla (Dr. Rao), Founder & Chairman of Dr. Rao's Hospital – International Institute of Neurosciences (IIN), presents his invited lecture on "Complication Avoidance in Deep-Seated Lesions: Current Concepts in a White Matter Sparing Para

lessons from complex cases, and improving patient outcomes through innovation and evidence-based practice.

A New Philosophy: Preserve the Brain, Not Just Remove the Tumor

For decades, neurosurgeons focused primarily on safely reaching and removing deep brain lesions. Today, advances in neuroscience have shifted attention toward preserving the intricate white matter pathways that connect different regions of the brain.



The advanced biplane cath lab at Dr. Rao's Hospital, designed for precision neurovascular procedures and minimally invasive surgeries, first in Andhra Pradesh and Telangana in India.

Dr. Rao explained that Cylinder Surgery—also known internationally as parafascicular tubular retractor surgery or neuroendoport-assisted surgery—represents a fundamental shift in surgical philosophy. Instead of creating large operative exposures or prolonged brain retraction,

surgeons establish a carefully planned cylindrical corridor that gently separates white matter fibers along their natural anatomical orientation.

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The future of deep brain surgery lies in preserving normal brain, not increasing exposure. Cylinder Surgery enables safer access through white matter-sparing precision corridors.”

*Dr. Mohana Rao Patibandla,
Neurosurgeon & Founder, Dr.
Rao's Hospital*

This approach is designed to reduce collateral injury while maintaining excellent visualization of deep-seated lesions.

Understanding White Matter-Sparing Surgery

Modern brain function depends not only on cortical centers but also on the integrity of the white matter tracts that connect them. Injury to these neural networks can significantly affect movement, speech, vision, cognition, and other neurological functions.

Dr. Rao emphasized that modern surgical planning increasingly integrates advanced technologies, including:

Diffusion Tensor Imaging (DTI) tractography
 Connectome-based surgical planning
 Neuronavigation
 Tubular retractor systems
 High-definition operative microscopy
 Neuroendoscopy
 Intraoperative neurophysiological monitoring (IONM)
 Advanced microsurgical instrumentation

Together, these technologies help surgeons identify the safest surgical corridor while minimizing disruption of healthy brain tissue.

The Evolution of Cylinder Surgery

Cylinder Surgery has become an important minimally invasive option for selected patients with:

Deep-seated gliomas
 Brain metastases
 Thalamic tumors
 Basal ganglia lesions
 Intraventricular tumors
 Colloid cysts
 Cavernous malformations
 Selected epilepsy-associated lesions
 Deep intracerebral hemorrhages

By using a narrow cylindrical working channel, surgeons can access deep pathology through natural anatomical corridors while preserving surrounding white matter structures whenever feasible.

Complication Avoidance Starts Before Surgery



The high-tech neurosurgery operating room at Dr. Rao's Hospital, Guntur featuring advanced imaging and navigation systems for precise brain and spine surgeries.

INTERNATIONALLY PUBLISHED RESEARCH, USA-TRAINED EXPERTISE, PATIENT-CENTERED CARE.

NOT EVERY MENINGIOMA NEEDS OPEN BRAIN SURGERY

Understanding When **Stereotactic Radiosurgery (SRS)** May Be the Right Choice

Dr. Rao
 USA-TRAINED NEUROSURGEON
 Fellowship-Mastered in Stereotactic Radiosurgery & Advanced Fellowships in:

- Skull Base Surgery
- Minimally Invasive Neurosurgery
- Pediatric Neurosurgery
- Neuro-Oncology
- Cerebrovascular & Endovascular Neurosurgery

WHAT IS STEREOTACTIC RADIOSURGERY (SRS)?
 A non-invasive treatment that delivers highly focused radiation to the tumor with sub-millimeter accuracy—minimizing damage to surrounding healthy brain tissue.

COMMON INDICATIONS FOR SRS

BRAIN METASTASES Excellent tumor control with preservation of cognition.	VESTIBULAR SCHWANNOMA High control rates & cranial nerve preservation.	MENINGIOMA Ideal for small skull base lesions, residual or recurrent lesions.	ARTERIOVENOUS MALFORMATIONS (AVMs) Definitive cure rate, especially in deep or eloquent areas.	TRIGEMINAL NEURALGIA Effective relief for medically refractory patients.
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THE SRS PROCESS

- 1. CONSULTATION & EVALUATION**
Divided assessment by an expert neurosurgical team.
- 2. PRECISE PLANNING**
Advanced imaging & treatment planning.
- 3. SRS TREATMENT**
Highly focused radiation delivered in a single session (or few sessions).
- 4. FOLLOW-UP & CARE**
Regular monitoring to ensure long-term tumor control.

USA TRAINING, GLOBAL EXPERTISE.
 Dr. Rao completed advanced fellowship training in the United States in Stereotactic Radiosurgery and multiple neurosurgical subspecialties.

INTERNATIONALLY PUBLISHED RESEARCH
 Dr. Rao's peer-reviewed publications in international journals have contributed valuable evidence on SRS outcomes for complex meningiomas in challenging locations.

“Every meningioma is unique. The best treatment isn't always surgery—it's the treatment that offers the safest, most effective outcome for each patient.”
 — Dr. Rao

SCAN TO KNOW MORE ABOUT SRS & MENINGIOMA

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USA-trained neurosurgeon Dr. Rao explains how stereotactic radiosurgery (SRS) offers a precise, non-invasive treatment option for carefully selected meningiomas. Backed by internationally published research and advanced fellowship training in stereotactic

According to Dr. Rao, preventing neurological complications begins long before entering the operating room.

Successful surgery depends upon:

- Appropriate patient selection
- Detailed MRI interpretation
- Functional imaging when indicated
- DTI tractography
- Connectomic analysis
- Choosing the safest trans-sulcal entry corridor
- Precise neuronavigation
- Gravity-assisted positioning
- Continuous intraoperative monitoring
- Meticulous microsurgical technique

Rather than relying solely on surgical skill during tumor removal, modern neurosurgery increasingly emphasizes comprehensive preoperative planning aimed at preserving neurological function.



Dr. Mohana Rao Patibandla - the best Neurooncologist in India

Precision Neurosurgery Is Changing Patient Care

As minimally invasive cranial surgery continues to evolve, tissue-preserving approaches are increasingly being adopted worldwide for carefully selected patients.

Potential benefits reported in the literature include:

- Reduced approach-related brain injury
- Less white matter disruption
- Smaller craniotomies
- Reduced brain retraction
- Faster postoperative recovery
- Shorter hospitalization
- Earlier rehabilitation
- Lower risk of neurological deficits in appropriately selected cases

Dr. Rao noted that treatment decisions remain individualized and depend on lesion type, anatomical location, size, surrounding eloquent structures, and the patient's overall condition.

Innovation at Dr. Rao's Hospital – International Institute of Neurosciences (IIN)

Dr. Rao highlighted that Dr. Rao's Hospital – International Institute of Neurosciences (IIN) has invested in advanced technologies that support precision brain surgery, including neuronavigation, intraoperative neurophysiological monitoring, high-definition microscopy, endoscopy, and minimally invasive surgical platforms.

These technologies help surgeons plan individualized approaches aimed at maximizing surgical precision while preserving neurological function.

Scientific Contribution at NSIPPFCON 2026

Dr. Rao's invited lecture formed part of the scientific session dedicated to complications in tumor surgery.

His presentation, "Complication Avoidance in Deep-Seated Lesions: Current Concepts in a White Matter Sparing Paradigm," emphasized how advances in imaging, connectomics, minimally invasive access techniques, and precision technologies are reshaping the management of deep brain lesions.

The presentation aligned closely with the conference's overarching objective of improving patient safety by understanding, preventing, and managing complications in neurosurgical practice.

"The future of deep brain surgery is defined not by how much brain we expose, but by how much normal brain we preserve. Every white matter tract protected represents neurological function safeguarded. Cylinder Surgery combines advanced imaging, connectomics, minimally invasive corridors, and precision microsurgery to help us reach deep lesions while respecting the brain's remarkable architecture."

— Dr. Rao

About Dr. Mohana Rao Patibandla

Dr. Mohana Rao Patibandla is a USA fellowship-trained neurosurgeon and the Founder & Chairman of Dr. Rao's Hospital – International Institute of Neurosciences (IIN), Guntur, India. Following his formal introduction, he is professionally known as Dr. Rao. His clinical practice encompasses minimally invasive brain surgery, skull base surgery, cerebrovascular and endovascular neurosurgery, pediatric neurosurgery, neuro-oncology, functional neurosurgery, stereotactic radiosurgery, and advanced spine surgery. His interests include white matter-sparing surgery, BrainPath-assisted neurosurgery, neuronavigation-guided surgery, intraoperative neurophysiological monitoring, and precision technologies for complex brain and spine disorders.

About Dr. Rao's Hospital – International Institute of Neurosciences (IIN)

Dr. Rao's Hospital – International Institute of Neurosciences (IIN) is a dedicated quaternary neurosciences center in Guntur, Andhra Pradesh, India, providing comprehensive care in neurology, neurosurgery, spine surgery, cerebrovascular surgery, neuro-oncology, pediatric neurosurgery, endovascular neurosurgery, epilepsy surgery, stereotactic radiosurgery, neurocritical care, and rehabilitation. The institute integrates advanced technologies—including hybrid operating rooms, neuronavigation, high-definition microscopy, endoscopy, and intraoperative neurophysiological monitoring—to deliver evidence-based, patient-centered care.

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[Cylinder Surgery](#), [White Matter Sparing Surgery](#), [Deep White Matter Surgery](#), Deep Brain Surgery, [BrainPath Surgery India](#), [Neuroendoport Surgery](#), [Brain Tumor Surgery India](#), Connectomics, Parafascicular Surgery, Deep-Seated Brain Tumors, Diffusion Tensor Imaging, DTI Tractography, Neuronavigation, Intraoperative Neurophysiological Monitoring, Minimally Invasive Brain Surgery, Neurosurgery India, [Best Neurosurgeon in India](#), [Best Neurosurgeon in Guntur](#), [Brain Tumor](#) Specialist, White Matter Preservation, NSIPPFCON 2026, Neurological Society of India,

Complication Avoidance in Neurosurgery, Precision Neurosurgery, BrainPath Neurosurgery.

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