

# **DR. SARANG ROTE**

**MCh. (Neurosurgery), Bangur Institute of Neurosciences,  
Institute of Post Graduate Medical Education & Research,  
SSKM Hospital (Established in 1707) , Kolkata.  
MS (General Surgery), MBBS**

## **Consultant Neurosurgeon & Neurovascular Interventionist**

Specialist:

*Cerebrovascular & Endovascular Neurosurgeon*

*Microscopic & Endoscopic Skull Base Neurosurgeon*

*Minimally Invasive Endoscopic Neurosurgeon*

*Stroke Interventionist*

- Fellowship in Interventional Neuroradiology (Neurointervention/ Endovascular Neurosurgery) Zurich, {Switzerland}
- International visiting Fellowship in Interventional Neuroradiology, at Harvard University, Massachusetts General Hospital, Boston, USA.
- Visiting Scholar for Intervention Neuroradiology at Hirslanden Klinik, Zurich, Switzerland.
- Fellowship in Minimally Invasive Endoscopic Brain and Skull Base Neurosurgery Weill Cornell Medical College, New York. {USA}
- Clinical Observership Endomin College, Zurich, Switzerland.
- Cerebrovascular Neurosurgery International visiting Scholar, Barrow Neurological Institute (BNI), Phoenix, USA
- Cerebrovascular Neurosurgery Observer Fellowship, Helsinki, Finland.
- Visiting Fellow in Skull Base and Cerebrovascular Surgery at University of Washington, Harborview Medical center, Seattle, USA
- Special Training for Skull Base Neurosurgery International Neurosciences Institute (INI), Hannover, Germany.
- Clinical Observership at Memorial Sloan Kettering Neurosurgery Dept., New York, USA
- Visiting Scholar for Brainstem lesion International Neurosciences Institute (INI), Hannover, Germany.

### **Other Areas of Interest:**

- Cerebrovascular Neurosurgery
- Carotid Endarterectomy/ Stenting
- Vascular Bypass surgery
- Stroke Intervention
- Complex Brain Tumors
- Brainstem Tumors & other Lesions

- Complex skull base tumors
- Pituitary surgery
- Tumor embolization

**Worked in Neurosurgery at:**

- MCh Neurosurgery– Bangur Institute Of Neurosciences (BIN), Institute of Post Graduate Medical Education & Research (IPGMER), Kolkata, India.
  - All India Institute of Medical Sciences (AIIMS), New Delhi, India.
  - Seth G S Medical College, King Edward Memorial (KEM) Hospital, Mumbai, India.
  - Ass Consultant- Hinduja Hospital Mumabi.
  - At present Consultant Neurosurgeon at :
    1. Jehangir hospital,
    2. KEM hospital,
    3. Ruby Hall Clinic Sassoon road,
    4. Jupiter hospital
- Panel consultant at:
1. Aditya Birla hospital,
  2. Poona Hospital
  3. Inamdar hospital
  4. Inlaks & Budhrani hospital

- **Specialty Advanced training/Fellowships/Clinical Observership / Visiting Scholar:**

In Prestigious University Hospitals like –

- 1) Harvard University, MGH, Boston, USA,
- 2) Zurich\_University, USZ, Zurich, Switzerland,
- 3) Washington University, HBV, Seattle, USA,
- 4) Cornell University, NYP, New York City, USA.

And Renowned Neurosurgical Centers like-

- 1) International Neurosciences Institute (INI), Hannover, Germany,
- 2) Barrow Neurological Institute (BNI), Phoenix, USA,
- 3) Helsinki Central hospital, Helsinki, Finland.

And Referral Cancer (Tumor) Center-

- 1) Memorial Sloan Kettering Neurosurgery Dept., New York City, USA.

## **In Cerebrovascular Neurosurgery:**

1. With Prof Dr Robert Spetzler at Barrow Neurological Institute (BNI), St. Joseph's hospital and medical center, Phoenix, USA. (As Cerebrovascular Neurosurgery International visiting Scholar)
2. With Prof Dr Juha Hernesniemi at Helsinki University Central hospital, Helsinki, Finland. (As Observer Fellowship)
3. With Prof Dr Laligam Sekhar at University of Washington, Harborview Medical center, Seattle, USA (As visiting Fellow in Skull Base and Cerebrovascular surgery)
4. With Prof Dr Basant Misra at Hinduja Hospital, Mumbai, India. (As Associate Consultant)
5. With Prof Dr Helmut Bertalanffy at International Neurosciences Institute (INI), Hannover, Germany. (As visiting Scholar)
6. With Dr Aman Patel, at Harvard University, Massachusetts General Hospital, Boston, USA. (As Clinical Observership)
7. With Prof Dr Luca Regli at Zurich University Hospital, Zurich, Switzerland. (As Clinical Observership)
8. With Prof Dr Sumit Deb at Bangur Institute Of Neurosciences (BIN), IPGMER, Kolkata, India. (As Post Doctoral Trainee)
9. With Dr Louis Kim, at University of Washington, Harborview Medical center, Seattle, USA. (As Clinical Observership)

## **In Neurointervention (Endovascular Neurosurgery /Interventional Neuroradiology):**

1. With Prof Dr Anton Valavanis at Zurich University Hospital, Zurich, Switzerland. (For International Clinical Fellowship in Interventional Neuroradiology)
2. With Prof Dr Daniel Rufenacht at Hirslanden Klinik, Zurich, Switzerland. (As visiting Scholar)

3. With Prof Dr Gerasimos Baltasvias at Zurich University Hospital, Zurich, Switzerland. (For International Clinical Fellowship in Interventional Neuroradiology)
4. With Dr Joshua Hirsch, at Harvard University, Massachusetts General Hospital, Boston, USA. (For International Visiting Fellowship)
5. With Dr Aman Patel, at Harvard University, Massachusetts General Hospital, Boston, USA. (For International Visiting Fellowship)
6. With Dr Thabele Leslie-Mazvi, at Harvard University, Massachusetts General Hospital, Boston, USA. (For International Visiting Fellowship)
7. With Dr Isabel Wanke at Hirslanden Klinik, Zurich, Switzerland. (As visiting Scholar)
8. With Dr Louis Kim, at University of Washington, Harborview Medical center, Seattle, USA. (As Clinical Observership)
9. With Prof Dr Dibyendu Kumar Ray, at Bangur Institute Of Neurosciences (BIN), IPGMER, Kolkata, India. (As Post Doctoral Trainee)

### **In Skull Base Neurosurgery:**

1. With Prof Dr Majid Samii at International Neurosciences Institute (INI), Hannover, Germany. (For Special Training)
2. With Prof Dr Laligam Sekhar at University of Washington, Harborview Medical center, Seattle, USA. (As visiting Fellow in Skull Base and Cerebrovascular surgery)
3. With Prof Dr Helmut Bertalanffy at International Neurosciences Institute (INI), Hannover, Germany. (As visiting Scholar)
4. With Prof Dr Atul Goel at Seth G S Medical College, KEM Hospital, Mumbai, India. (As Senior Resident)
5. With Prof Dr Suniti Kumar Saha at Bangur Institute Of Neurosciences (BIN), IPGMER, Kolkata, India. (As Post Doctoral Trainee)

### **In Complex Brain Tumors:**

1. With Prof Philip Gutin at Memorial Sloan Kettering Neurosurgery Dept., New York, USA. (As Clinical Observership)
2. With Prof Dr Mark Souweidane at Memorial Sloan Kettering Neurosurgery Dept., New York, USA. (As Clinical Observership)
3. With Prof Dr Theodore Schwartz at Cornell University, Weill Cornell Medical College, New York Presbyterian Hospital, Manhattan, New York, USA (for Fellowship in Minimally Invasive, Endoscopic Brain and Skull Base Neurosurgery)

### **In Brainstem Lesions:**

1. With Prof Dr Laligam Sekhar at University of Washington, Harborview Medical center, Seattle, USA. (As visiting Fellow in Skull Base and Cerebrovascular surgery)
2. With Prof Dr Helmut Bertalanffy at International Neurosciences Institute (INI), Hannover, Germany. (As visiting Scholar)
3. With Prof Dr Robert Spetzler at Barrow Neurological Institute (BNI), St. Joseph's hospital and medical center, Phoenix, USA. (as International visiting Scholar)

### **In Endoscopic Brain And Skull Base Neurosurgery:**

1. With Prof Dr Theodore Schwartz at Cornell University, Weill Cornell Medical College, New York Presbyterian Hospital, Manhattan, New York, USA (for Fellowship in Minimally Invasive, Endoscopic Brain and Skull Base Neurosurgery)
2. With Prof Dr Mark Souweidane at Cornell University, Weill Cornell Medical College, New York Presbyterian Hospital, Manhattan, New York, USA (for Fellowship in Minimally Invasive, Endoscopic Brain and Skull Base Neurosurgery)

3. With Prof Dr Peter Nakaji at Barrow Neurological Institute (BNI), St. Joseph's hospital and medical center, Phoenix, USA. (As Clinical Observership)
4. With Prof Dr Robert Reisch, Endomin College, Zurich, Switzerland. (As Clinical Observership)
5. With Dr Harminder Singh from Stanford University, Stanford, California, USA. (As Clinical Observership)

### **In Minimal Invasive Trans Tubular and Keyhole Neurosurgery:**

1. With Prof Dr Theodore Schwartz at Cornell University, Weill Cornell Medical College, New York Presbyterian Hospital, Manhattan, New York, USA (for Fellowship in Minimally Invasive, Endoscopic Brain and Skull Base Neurosurgery)
2. With Dr Harminder Singh from Stanford University, Stanford, California, USA. (As Clinical Observership)
3. With Prof Dr Robert Reisch, Endomin College, Zurich, Switzerland. (As Clinical Observership)

### **In Cranio-Vertebral Junction Anomalies:**

1. With Prof Dr Atul Goel at Seth G S Medical College, KEM Hospital, Mumbai, India. (As Senior Resident) (Goel's Procedure)
2. With Prof Dr Theodore Schwartz at Cornell University, Weill Cornell Medical College, New York Presbyterian Hospital, Manhattan, New York, USA. (Endoscopic Endonasal Odontoidectomy)

## **In Head Injury Cases:**

1. At SSKM Hospital, Bangur Institute Of Neurosciences (BIN), Institute of Post Graduate Medical Education & Research (IPGMER), Kolkata, India. (As Post Doctoral Trainee)
2. At Jai Prakash Narayan Apex Trauma Center (JPNATC), All India Institute of Medical Sciences (AIIMS), New Delhi, India. (As Senior Resident)
3. At University of Washington, Harborview Medical center, Seattle, USA. (As visiting Fellow)

## **In Stroke Intervention:**

1. With Prof Dr Anton Valavanis at Zurich University Hospital, Zurich, Switzerland. (For International Clinical Fellowship in Interventional Neuroradiology)
2. With Prof Dr Gerasimos Baltasvias at Zurich University Hospital, Zurich, Switzerland. (For International Clinical Fellowship in Interventional Neuroradiology)
3. With Dr Joshua Hirsch, at Harvard University, Massachusetts General Hospital, Boston, USA. (For International Visiting Fellowship)
4. With Dr Aman Patel, at Harvard University, Massachusetts General Hospital, Boston, USA. (For International Visiting Fellowship)
5. With Dr Thabele Leslie-Mazvi, at Harvard University, Massachusetts General Hospital, Boston, USA. (For International Visiting Fellowship)
6. At SSKM Hospital, Bangur Institute Of Neurosciences (BIN), Institute of Post Graduate Medical Education & Research (IPGMER), Kolkata, India. (As Post Doctoral Trainee)
7. With Dr Louis Kim, at University of Washington, Harborview Medical center, Seattle, USA. (As Clinical Observership)

## **Didactic Laboratory Training:**

1. Cadaveric Endoscopic Brain And Skull Base approaches at Weill Cornell Brain & Spine Center Surgical Innovation Lab.
2. Cadaveric Minimally Invasive and Microscopic approaches at Weill Cornell Brain & Spine Center Surgical Innovation Lab.
3. Training on neurovascular models in Angio-laboratory at Zürich university hospital, Zurich, Switzerland.
4. Neurointervention practice on simulator at Zürich university hospital, Zurich, Switzerland.
5. Cadaveric microscopic Brain And Skull Base approaches at Kem Hospital, Mumbai, India.
6. Barrow Neurological Institute Neurosurgery Research Laboratory, Phoenix, USA as observer.

## **Advanced Skill Courses:**

1. Cerebrovascular Bypass surgery live demonstration and Hands on course, Helsinki, Finland.
2. ACNS Microscopic cerebrovascular Bypass surgery course, Nepal.
3. Zurich course on Interventional Neuroradiology, Switzerland.
4. ACNS Endovascular Neurosurgery course, Nepal
5. LINNC, Paris, France.
6. Zurich course on Diagnostic Neuroradiology, Switzerland.
7. Surgical approaches to the Skull base course, WCMC, New York, USA.
8. Skull base surgery course KEM Hospital, Mumbai, India.
9. ACNS Skull Base Neurosurgery course, Nepal
10. Endoscopic & microscopic approaches to the skull base and vascular anatomy course Zurich, Switzerland
11. Endoscopic neurosurgery course KEM Hospital, Mumbai, India.
12. Microsurgical dissection of the Human White matter dissection course Zurich, Switzerland.
13. Medtronic High speed Drill training Park clinic, Kolkata, India.

## **Awards/Grants:**

1. Young Neurosurgeon travel scholarship from Baidyanath Neurosurgery Charitable Trust for WFNS 2013 Seoul, South Korea
2. Young Neurosurgeon for ACNS 2015 Bharatpur, Nepal
3. Young Neurointerventionist grant for LINNC 2015 Paris, France
4. SINCH Grant for WFNS interim meeting 2015 Rome, Italy
5. Stroke interventionist trainee grant for STROKE 2015 Vienna, Austria
6. Selected for EANS 2016 grant Athens, Greece.

## **International Conference Presentations:**

1. International Skull Base Conference, Mumbai, India 2012- Skull Base Tumors
2. WFNS Congress, 2013 Seoul, South Korea –Rare VPS Complications.
3. LINNC 2015 Paris, France – Carotico-cavernous fistula embolization
4. WFNS interim meeting 2015 Rome, Italy- Cervical spine

## **Intraoperative use of advanced technology:**

- Microscopic Neurosurgery
- Endoscopic Neurosurgery
- Endoscopic assisted Microscopic Neurosurgery
- Intraoperative Neuronavigation
- Frameless Stereotactic Neuronavigation Biopsy
- Intraoperative MRI for tumors
- Intraoperative CT (AIRO) for odontoid
- Intraoperative USG for tumors
- Use of Intra operative indocyanine green video-angiography
- Use of 5-Aminolevulinic Acid Fluorescence for tumors

- Exoscopic Biopsy
- Intraoperative Doppler use
- Intraoperative Neurophysiological monitoring use
- Intraoperative cortical mapping and monitoring
- Awake craniotomy
- High speed bone drilling

**Education:**

**Six months from March 2015 Fellowship in Interventional Neuroradiology (Neurointervention/Endovascular Neurosurgery) {Switzerland}.**

**November 2015 to Jan 2016, Fellowship in Minimally Invasive Endoscopic Brain and Skull Base Neurosurgery {USA}.**

Feb 2016 For International Visiting Fellowship, at **Harvard University**, Massachusetts General Hospital, Boston, USA.

October 2015 at Barrow Neurological Institute (BNI), St. Joseph's hospital and medical center, Phoenix, USA. (As Cerebrovascular Neurosurgery International visiting Scholar)

September 2015 at University of Washington, Harborview Medical center, Seattle, USA (As visiting Fellow in Skull Base and Cerebrovascular surgery)

July 2015 At Helsinki University Central hospital, Helsinki, Finland. (As Observer Fellowship)

May-June 2015 At International Neurosciences Institute (INI), Hannover, Germany. (For Special Training)

Feb 2015 to March 2015 as associate consultant at Hinduja hospital. Mahim, Mumbai.

August 2014 to January 2015 Dept of Neurosurgery KEM hospital, Mumbai.

August 2011 to July 2014: MCh Neurosurgery Residency in Department of Neurosurgery, at Bangur Institute of Neurosciences, I.P.G.M.E.R, Kolkata.

Jan 2010 to July 2011 worked in a private setup.

July 2009 to Dec 2009: worked as senior resident in department of Neurosurgery, A.I.I.M.S., New Delhi.

July 2008 to June 2009: worked as Lecturer in Department of General Surgery, Dr D Y Patil Medical college, Pimpri, Pune.

May 2005 to June 2008: M.S. General Surgery at Dr D Y Patil Medical college, Pimpri, Pune.

Jan 2003 to Jan 2004: did Internship at Rural Medical College, Loni.

August 1998 to Jan 2003: M.B.B.S from Rural Medical college, Loni (M.U.H.S)

**Publications:**

- 1) Endoscopic Endonasal Odontoid resection with real time intraoperative image guided Computed Tomography. Harman Singh, Sarang Rote et al. Weill cornell medical college New York. Journal of Neurosurgery. June 2017
  - 2) Contralateral supraorbital keyhole approach to medial optic nerve lesions. Harman singh, Walid Essayed, Nelson Moussazadeh, Sarang Rote. Weill cornell medical college New York. Journal of Neurosurgery. March 2017
  - 3) Hedgehog signaling pathway is active in GBM. Vikas Chandra, Tapjyoti Das, Puneet Gulathi.....Sarang Rote. PLos. One 2015;10(3)
  - 4) Rote, S.; Deb, S.; Ghosh, S.; Biswas, N. Intraparenchymal meningioma: a diagnostic dilemma. International Journal of Neuro & Spinal Sciences Vol. 1, Issue 1, Oct-Dec. 2013
  - 5) Sarang Rote, Sanjiv Atri, Dibyendu Ray, Samarendranath Ghosh, Intracranial Epidural hematoma following CSF shunting Procedure, Accepted in IJNSS.
  - 6) Preoperative Dopamine Agonist Therapy In Prolactinoma Patients & Increases Risk Of Postoperative Diabetes Insipidus In Review as first author.
  - 7) Unusual complications of v p shunt in review
  - 8) Case report on Epithelioid hemangioendothelioma in review
- 3 case report awaited:
- 9) Intracystic hemorrhage in sylvian fissure subarachnoid cyst
  - 10) Cerebellar Vermis agenesis syndrome
  - 11) Isolated intestinal segment in meningomyelocele sac.

**Book Chapter:**

- 1) The art of neuroendocrinology : Case based approach to pituitary tumors.

**Research:**

- 1) Project: Morphometric analysis of cervical spine
- 2) MCh thesis: Anterior skull base tumors: our experience
- 3) MS thesis: Immediate outcome of head injury in our institute
- 4) PSM Project: malnutrition in under 5 years of age group in this village.
- 5) Working on project on Acute Ischemic Stroke at University of Zurich

## **Memberships of neurosurgical societies:**

- **FOUNDER AND PRESENT SECRETARY OF PUNE NEUROSURGICAL ASSOCIATION**
- NEUROLOGICAL SOCIETY OF INDIA (NSI)
- NEUROLOGICAL SURGEONS SOCIETY OF INDIA (NSSI)
- ASIAN CONGRESS OF NEUROLOGICAL SURGEONS (ACNS)
- AMERICAN ASSOCIATION OF NEUROLOGICAL SURGEONS (AANS)
- CONGRESS OF NEUROLOGICAL SURGEONS (CNS)
- WALTER E. DANDY NEUROSURGICAL SOCIETY
- NEUROTRAUMA SOCIETY OF INDIA
- ASSOCIATION OF SPINE SURGEON OF INDIA
-