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### Introduction:

I was born in Sausar, a small town near Nagpur, capital of the erstwhile state of CP & Berar on 31<sup>st</sup> August, 1954. This day happened to be one of the biggest festivals in the region, the birthday of Lord Ganesh or Ganesh *Chaturthi*. This is celebrated with great fanfare with installation of the Ganesh idols in many Marathi households as well as public places as initiated by Bal Gangadhar Tilak during the freedom struggle to aggregate and energize the youth in Maharashtra. Primary education was in the ancestral house in Sausar Municipal School, many a times under the



*In ancestral house in Sausar  
 just before going to school*

trees and secondary education was also in a Government school with evenings devoted to outdoor sports. After matriculation (10<sup>th</sup> Standard), I moved to Nagpur and joined the M M College of Science which was well known for its discipline, and studied for the pre-university biology course and passed with merit. A decent score in BSc part I (pre-medical year) enabled me to get admission in the Nagpur based Government Medical College. No other qualifying or entrance exams existed in those days.

### Family Background:

The State of CP & Berar eventually got divided between Madhya Pradesh and Maharashtra during the reorganization of states in 1960 and Sausar became part of M.P. However, all the family links of both the parents were in Nagpur, the nearest big city which happened to become a part of Maharashtra. My father was a General Medical Doctor (RMP) and was a

busy family practitioner while mother was a homemaker and also shared the responsibility of looking after our ancestral farms. By the end of general surgery residency, I was married to Rajshree Chaturvedi, a colleague resident who was pursuing her MD in Anesthesia.



*With Rajshree, soon after our marriage*

### **Undergraduate Medical Education:**

Ragging was a big nuisance in those times and the first year of college was very difficult. However, the clinical subjects in later years made the medical school more interesting. Towards the end of MBBS, I decided to join a surgical specialty because of some very good teachers, notably Prof. Vikram Marwah, Prof. M.L.Gandhe and the dashing young assistant professor Dr. V.K. Diwekar who had rejoined the department after his return with FRCS from UK, where he trained in cardiovascular surgery. His teaching made a big impact on our young minds and a desire to do a specialty course flourished thereafter. This was also strengthened by Prof. Gandhe who was my official guide for the Master of Surgery course.

Unfortunately, Dr. Diwekar developed a cervical intramedullary tumor which resulted in quadriparesis. While he strived to work with this handicap, he boosted me to take up neurosurgery as a career which was not so popular then in Nagpur. His encouragement largely shaped the further course of my career as he also introduced me to Prof. SN Bhagwati who became my mentor in Neurosurgery from 1981. I secured admission at the Grant Medical College & Sir J.J. Group of Hospitals on the basis of a good performance at M.S. (General Surgery) examination. Dr. G. M. Taori, senior neurologist in Nagpur was a family friend and convinced my parents to allow me to join neurosurgery.

### **Postgraduate medical education and initial training:**

Neurosurgical residency involved not only clerking the patients but also to do a lot of lab investigations in the ward. The most interesting was the radiology work. With no in house CT scan, we had to do Ultrasound to detect brain shifts, direct carotid puncture angiography, Pneumoencephalography (PEG) and Ventriculography regularly and help

radiologists to do myelography. Mumbai residents were not very charitable towards outside residents and one had to constantly prove himself while going through the grind. Microsurgery had just started in the unit. This transition period in neurosurgery is therefore imprinted in our minds.

I completed my thesis (for MCh) on evaluation of trauma patients by the newly introduced Glasgow Coma Scale and its correlation with clinical outcome. MCh examination was conducted at the B Y L Nair hospital with Dr. Umesh Vengasarkar as the convener and P S Ramani as the second internal examiner. We had never interacted with them as there were very few academic activities in the city at that time and it was almost 4 external examiners for us. Prof. V K Kak and P Narenthran were our official external examiners. It was a pleasant surprise for me to sail through and get my MCh degree.

Though Dr. Bhagwati got me to work as an Associate at the Bombay Hospital for a short period of time after my M.Ch he encouraged me to do further training abroad. I managed to secure a neurosurgical training post at Newcastle upon Tyne in England and left Mumbai within a year. Rajshree had joined GMC and JJ hospital in Mumbai as lecturer during this time and we were blessed with a daughter (Aditi).

### **Neurosurgical training in England:**

England was a completely new experience. Several images of England are imprinted in mind while learning the nursery rhymes and reading stories during childhood. But what hit me first was the weather during the Christmas week on joining work there. The warm hospitality of the hospital colleagues as well as my brother in law's family (who were working in the adjacent hospital) made it easier. This really gave us a chance to live as a family together for the first time after the long years of residency and living in hostels.

Training at the general hospital in Newcastle upon Tyne was extremely satisfying with all the equipment and facilities one craved during one's residency in India being available and ready to be used. I was blessed with very good seniors who not only accepted me readily but pushed me to work harder by allotting more work as well as several teaching assignments for the local residents. In a way, this was my chance to learn contemporary neurosurgery in an extremely good setting, comprising all neurosciences

branches with big names like John Foster in Neurology and Hankinson in Neurosurgery, apart from my immediate seniors Drs. Sengupta, Kalbag, Peter Crawford and David Mendelow.

Microsurgery practice was the biggest gain and aneurysm surgery was the icing on the cake. As I was drafted to a senior cadre of residents due to my prior training in India, a large share of surgical work came my way and helped me to develop surgical skills as well as help the juniors. In New Castle, though not so well known, cervical and lumbar spinal surgeries were frequent and this gave a chance to learn micro discectomies. Surgery for spinal lipomas was also frequently practiced (by Dr. Lassman) and this gave me confidence in performing minimally invasive spine surgery as well as complicated cases like Tethered Cord Syndrome which were not so well described in literature at that time.

It also opened a research opportunity for me at the University to study CBF (cerebral blood flow) with the newly introduced transcranial Doppler. I had an opportunity to present this work in the CME program of the NSI annual conference. I also collaborated with the radiology department for a study on myelography to broaden my knowledge and also published the same. We also wrote about Microvascular decompression for cranial rhizopathies which was a favorite operation of R P Sengupta but was not accepted well and hardly practiced in England.

### **Neurosurgical training in the USA:**

Towards the end of my 3<sup>rd</sup> year in Newcastle, a clinical fellowship opportunity in microvascular neurosurgery, supported by Mr. Sengupta, came to me at the Henry Ford Hospital headed by Dr. James Ausman. This afforded not only an opportunity to observe the American way of neurosurgery but also gave an impetus to develop critical reading and writing skills. Plethora of vascular surgery including various revascularization procedures were performed every week and was a specialty of the department. This opened my eyes to the various surgical possibilities to treat ischemic cerebrovascular disease. A very active interventional department also meant controversies and aggressive discussions. This fellowship also involved 2 days in the laboratory to develop proficiency in micro dissection and anastomosis and easy availability of cadaver brains in Detroit made it possible to collaborate in

anatomical studies. This helped me to write up again on cerebral blood flow by the NIR technique (in a Cat ischemia model), anatomy of the posterior communicating artery (in cadaveric injected specimens) and two clinical papers on carotid endarterectomy and role of revascularization in giant aneurysms. The work of Dr. James Ausman, Ghaus Malik and Fernando Diaz was really impressive and contributed immensely to refine my own surgical techniques.

A brief return to the United Kingdom to complete my thesis on transcranial Doppler and cerebral blood flow studies in aneurysmal sub arachnoid hemorrhage helped me to get a Masters degree at the Newcastle University. Though opportunities were available in UK as well as USA, a firm resolve to return to India made earlier prevailed after completing the various tasks undertaken.

**Return to India** was exciting for the opportunity to be with the family and old friends though difficulties were faced with initial appointment as pool officer at the Nagpur Medical College Superspeciality hospital (as earlier planned) as well as at the newly opened Central India Institute. This brought me back to Mumbai as I was offered the opportunity to work with Dr. Sanat Bhagwati at the Bombay Hospital as an Associate consultant. Those 3-4 years went well to adapt to the Indian conditions and get more acquainted with the tumors and pediatric surgery which was more frequently practiced.

Two opportunities came in 1995 which changed the scope of my work because of accepting a senior consultant post at the Hinduja Hospital as well as Associate Professor post at the Wadia Children's Hospital. This also allowed me to take a 3 months break to train in pediatric neurosurgery at the Hospital for Sick Children in Toronto with Harold Hoffman. I enjoyed the challenge and opportunity to start pediatric neurosurgery service at the Wadia Children's Hospital. Hinduja Hospital was more involved in vascular neurosurgery which gave me an opportunity to serve many patients with Aneurysms and AVMs. It also opened the door to endoscopic transnasal surgery for pituitary tumors with my senior ENT colleague Dr. M.V.Kirtane. The introduction of Gamma knife radiosurgery was a first in India and gave me an opportunity to learn the principles of radiation physics and serve several patients with this new treatment modality.

Another important association formed at Hinduja Hospital with my pediatric neurology colleague Vrajesh Udani, encouraged me to train in pediatric epilepsy surgery at Miami Children Hospital. In 2000, I had an opportunity to shift back to Bombay Hospital as a teaching faculty when the University sanctioned the MCh course and I was offered an Associate Professor position with a separate unit with two trainees. I had the fortune to have a good colleague in Dr. Rajan Shah as my associate and we were able to develop a very busy unit dealing with vascular surgery and brain tumors.

As I had started working with the newly acquired gadgets, I felt the need to train further in endoscopy and refine my work in pediatric hydrocephalus and pituitary surgery. During the transit period from Hinduja to Bombay Hospital I took this opportunity to learn minimally invasive surgery with the use of navigation and endoscopic surgery with Dr. Axel Perneckzy in Germany. It has been extremely useful to treat children with hydrocephalus and cysts and opened the door for creating an endoscopic skull base unit with the enthusiasm and efforts of my new ENT colleague Dr. Nishit Shah. Our work has continued in the same fashion over the last 17 years. Dr. Rajan Shah left our group in 2011 and two other younger colleagues joined me. Presently I work with a group of two younger colleagues, Drs. Vikram Karmarkar and Chandan Mohanty and head the department after Dr. Turel retired from academic unit in 2010. We conduct 2 workshops every year, the Ginde oration with a theme based program on various aspects of neurosurgery and a second workshop dedicated to Skullbase endoscopy with Neurosurgery and ENT participation. A galaxy of international neurosurgeons including Madjid Samii and Gazi Yasargil have graced these programs.

### **Association with NSI:**

As Prof. Bhagwati was in the Executive Committee of the Neurological Society of India (NSI), my induction into the society happened during my second year of residency at the J J Hospital when I attended the NSI conference at Cuttack in 1982. It was a wonderful experience to see all the Indian neurosurgery giants and a great learning opportunity (in absence of the many CMEs we have today). I have since considered these meetings to be a rich resource of knowledge about Indian neurosurgery. I became a full member when I passed my exam in 1983 and presented my first award

paper at the Madurai meeting the same year (1983) on “Immunotherapy for recurrent gliomas”. During my stay in U.K, I also had an opportunity to participate in the 1986 NSI meeting of Delhi where I presented my work on cerebral blood flow (CBF) in subarachnoid hemorrhage.

On return from overseas training, the big event of the World Congress (WFNS1989) was being arranged and I was roped in by Prof. Bhagwati to organize the satellite meeting of ISPN (International Society for Pediatric Neurosurgery) as a post congress program. This was a great experience to interact with many pioneers in the field of neurosurgery and it also gave us an impetus to consider specialized training. This was soon followed by formation of Indian Society for Pediatric Neurosurgery. I became a founder member at the behest of Prof. Bhagwati and was entrusted with the job of secretary after 3 years. I decided to host the 10<sup>th</sup> annual meeting of the society which was an enjoyable experience with a good international faculty and over 150 delegates. This was my first experience of working in organized neurosurgery and served the pediatric society till 2009 when I finished my term as President.

A critical remark by colleagues about NSI made me feel that I should probably join the organization and see how it worked. I applied for the post of executive committee member in the year 2006. I was elected to the committee at the conference in Vizag but came to know about it only a couple of months later as I could not attend the meeting that year. Thereafter I tried to understand the functioning of the Society and hoped to contribute. I successfully brought about some reforms during my tenure as Treasurer, to be in line with the new regulations. I was ably supported by Prof. Rajshekhar (Secretary) and rest of the committee. Another contribution I consider important was the starting of education courses in neurosurgery for senior residents twice a year. There is great disparity in teaching across the country, especially for DNB students and the course will give them an idea about the preparation required. I was greatly helped by Prof. Rajshekhar and Banerji, who shared the same vision and helped to design and run the courses. We could get unrestricted academic grant from the industry which made the courses self-sustaining. Over the years, this has become more refined with inputs from our members as well as students and considered the flagship activity of the society. Prof. Rajshekhar mooted the idea of a “foundation course” for beginners in neurosurgery which has been

added to the “instructional course” since 2014 and has become an equally popular activity. Senior members of society have supported the activity by devoting their time and energy to organize and participate in these courses

I had the fortune of being elected President for the year 2012-13. The NSI meeting in 2013 was held in Mumbai and I had the unique honor of being President of the meeting in my own working city. We created two new programs for “private practice neurosurgeons” and “young neurosurgeons” during that meeting which have now become very popular and regular activity during the annual NSI meetings. Public awareness program of the meeting on head injury awareness (heads we win) was beautifully conducted by our colleague neuropsychologist, Dr. Urvashi Shah and was attended by several celebrities and was received very well by the members and the audience. A film made for the occasion by us has become a resource for several public awareness programs. Thereafter, I gave the presidential oration on “organized neurosurgery in India” based on the history of the society so far and its future role in light of its existence as a comprehensive neurosciences organization. This meeting also hosted the “Congress of Neurological Surgeons (CNS)” and the “Pan Arab Neurosurgical Society” as guest societies. The only regret was the demise of Prof. Sanat Bhagwati during the conference.

I also served as the Convener of the “NSI Instructional courses” from 2011-2014. We formed a more formal “Education Board” in 2014 to co-ordinate all such activities and Prof. Rajshekhar took over as convener. We realized that the young neurosurgeons after qualifying have very few learning opportunities. Dr. Rajshekhar and V.P. Singh initiated “the young neurosurgeons mid year course” to fill up this lacuna. I had the privilege to be the course director for the first such NSI course held in Coorg with the theme of Pediatric Neurosurgery.

### **Contribution to Neurosciences in India and overseas:**

I became a member of the *International Society for Pediatric neurosurgery (ISPN)* in 1998 as I was impressed by their CME courses in India and encouragement from many senior members to attend and present. I was drafted first in their education courses as a teacher and later in the Executive board (in 2005) as a member of nominating committee. I later chaired the liaison and education committees. This gave me opportunity to



conduct educational courses all over the world for next 3 years and it was very gratifying to see the hunger of learning in many developing countries. I had the privilege of hosting the Annual meeting of ISPN in 2011 at Goa which was one of the best attended meetings of the society. Over 400 international and 150 Indian neurosurgeons participated in the meeting with special courses on hydrocephalus, epilepsy surgery and Neurooncology. It was a pleasure working with this group with honest discussions. I was nominated the president of the ISPN for 2014-15 and had the honour of delivering the presidential oration in Turkey during the 2015 meeting. I chose to address the society with some glimpses from the past Indian history and learning possibilities in India (Published in annual issue of Childs Nervous System, 2016)

*International Society for Pituitary surgery (ISPS)* has been a small forum of neuroscientists involved in this area and attracted me because of my interest in the field. It has also been easy to attend their meetings as they are organized near the venue of some other big meetings. I managed to attend and present at these meetings, notably in Agra, Vienna, Sonoma Valley and then was given the responsibility along with Deepu Banerjee to host one. We organized this in 2013 at Mumbai as a preconference event to the NSICON. A galaxy of specialists in this field attended the meeting with good scientific contribution.



*After receiving the President's Medallion at the Valedictory function in NSICON Delhi 2012*

Due my interest in neuroendoscopy, I have also been attending and presenting at the meetings of *International Federation of Neuroendoscopy (IFNE)* since 2000. During one of these meetings in Germany, I was invited to join the executive board and have served the organization till 2013. I had the opportunity to host the 6<sup>th</sup> world congress of neuroendoscopy in 2013 which was conducted at Mumbai and attended by over 150 international and 100 Indian neurosurgeons. Soon thereafter the Indian group founded

the Indian Society of Neuroendoscopy and I was nominated its first president. This small group has since flourished and is very active in various workshops I have had the opportunity to teach regularly at courses locally as well as at the WFNS meeting in Rome, AANS and CNS meetings on several occasions and also in Nepal, Pakistan, Germany and Russia. I have been recently given the task of committee chairman by World Federation of Neurosurgical Societies (WFNS) for Neuroendoscopy and Neuroendocrine committee.

Apart from these organizational activities, I have been an invited speaker at the Romanian society of Neurosurgery, Korean Society of Pediatric Neurosurgery, Japanese Society of Neuroendoscopy, Nepalese society, Bangladesh society, Asian Australasian Society of Neurosurgery and the American Association of Neurological surgeons. I have been the Iftekhar Ali Raja orator of Pakistan society of Neurosurgeons in Lahore. During my presidency of the Bombay Neurosciences Association, I have cherished the honour of releasing the last Neurology book by Prof. N.H.Wadia.

It has been a very busy but satisfying life filled with neurosurgical work which continues to be challenging. My wife, Rajshree is a busy anesthetist at the local Jaslok hospital and pursues her special interest in neuroanesthesia. Though it has made it easier for them to understand, it has always been difficult to give enough time to family. My daughter has probably kept away from medicine for this reason and is presently making a career in India after graduating in Environmental studies and working in USA for a few years.

Training young neurosurgeons who are becoming increasingly more knowledgeable is a big challenge. My recent appointment as Convener of Neurosurgical Fellowship program in the Maharashtra Health University has given me an opportunity to formally start super specialty courses and am also helping to expand more neurosurgery departments within the state. I am looking forward to that challenge.

The four people who followed me as NSI Presidents aptly represent my vision for NSI in future very well. Dr. Rajshekhar is one of the most academically accomplished neurosurgeon from the prestigious CMC, Vellore. B.S. Sharma is a very pragmatic neurosurgeon from the biggest neurosurgical centers in the country, viz., AIIMS, New Delhi ready to

venture into a private medical college. R.C. Mishra is a completely private practicing neurosurgeon from Agra & Deepu Banerji is in a new age corporate setup in India. NSI has not only been relevant to all these four sectors of neurosurgery in the country, it has also given them a chance to create platform for expression in various new activities created during the NSI Annual conference as well as other activities during the year. I hope NSI will remain a forum for sharing academic achievements with your fellow members, sharing technical knowledge, developing friendships and also guiding its members to fulfill their demands from organized neurosurgery.

If I had a chance to relieve the situation, the major changes I will seek will be in the training. I was lucky to have training in busy Government Medical Colleges followed by opportunity to train abroad before I settled into an institution which gave me a chance to pursue teaching and other academic activities as well as allow a decent earning through private practice. But we owe it to the new generation to allow them all kinds of learning during their residency and fellowships. We have many centers with specialized interest and fellowships will soon become a major part of training for young people interested in academic career. NSI can probably facilitate that. With so much information being readily available, we have to find different methods of teaching and examining them. I would look at a less personalized approach in teaching but still maintaining the personal touch by the senior faculty to get the right message across to the young generation. ■