It was on a September afternoon that I took the decision to go to Nepal. When Dr. Mathai (who is now the senior most Neurosurgeon in India) asked me over a cup of coffee at his home, even he did not expect me to say yes. And along with him, and my wife, I was also shocked at my response. We had two little children, I had a good job as a consultant Neurosurgeon at my hometown, we were earning good and we had nothing better to ask for. Nepal was a foreign country, and the place was in turmoil, with the last phase of the king being deposed by the Maoist rebels (1). At home, everybody tried to persuade me out of the decision, but I stood firm.

We landed in Kathmandu in the height of winter in December. I had never seen that type of cold and at that time there was 16 hours of power outage and absolute water shortage. We wanted to go back the very next day. But we had almost uprooted ourselves, sold the cars, transported the household things to Delhi (We later discovered that it was very costly bringing it to Nepal and we were not sure as to the period of our stay) and got the children out of their school. So we thought we will battle it out for some time and then get back to India. I started work in a corporate Hospital owned by Nepal’s premier Neurosurgeon.

Thing were going good, but I was not happy. We were seeing only the rich and famous of Nepal and this was not precisely what I came for. We were very well looked after and the Neurosurgeon was doing a good job along with the other ten Neurosurgeons in the Kathmandu valley (which was the total number of Neurosurgeons at that time in Nepal). I thought, I was not really needed there. So we decided to go back to India.

However, we wanted to visit Pokhara, before we go back since it was a very beautiful place and we were not sure as to whether we will ever comeback. By sheer chance, we met somebody who told us about a Hospital which was run by an Indian group and we decided to visit it. The hospital was huge and located at one of the most beautiful places that I could imagine. (Fig 1)

The health scenario of western Nepal is bleak and especially the Neurosurgical facilities are poor. We started the Department of Neurosurgery in April 2008 and has been improvising to do various cases with good success rate. Although not very well equipped, we have tried to do our best and the results have been encouraging.

Keywords: Western Nepal, microscope, Neurosurgery, improvisation
It was a 700 bedded multispecialty hospital and they had been on the lookout for a Neurosurgeon for quite a while. There was no Neurosurgeon for the whole western region of Nepal with about 20 million population (2). I knew I was going to take up a difficult job. The administration agreed to provide free treatment for poor patients and we started the Department of Neurosurgery on the 18th of April 2008.

We were not equipped at all and we had to gather instruments from other surgical specialties. Thankfully there was a primitive Hudsons brace and we could do craniotomies. I assembled a team of two interns and we started work. It was pretty busy and it started getting busier. Initial cases were all trauma and I was continuously on call.

Then the tumours started coming…and the first one which came was a shocker, to say the least. The 12 year old boy was dying (Fig 2, 3, 4) and his relatives wanted to take him home. The scan showed a huge multicompartimental craniopharyngioma with gross hydrocephalus. I explained the possible poor prognosis and

![Fig 2. Pre-operative images of the 12 year old boy with a multicompartimental craniopharyngioma.](image)

![Fig 3. Post operative Images of the same patient. The calcifications were not removed and the patient did not have any evidence of hypothalamic dysfunction in the postoperative period](image)

![Fig 4. Post operative Images MRI at 1 year for the same patient showing no tumour.](image)
operated on the child. We did a frontotemporal craniotomy, opened the sylvian and took out the tumour through the optico carotid and interoptic corridors. We also opened the lamina terminalis. The child did well and later came to us with the post op MRI at one year showing no evidence of tumour. His vision did not improve considerably though.

Then we had a spate of cases, a mixed bag of spine, vascular, skull base, pediatric and neuro oncological cases. Our instruments were limited and the microscope was a uni axial ENT microscope. But we managed to have good results, using pre-operative planning and improvisation for every other case. I do think that the God factor was with us, since he knew we had so many lacunae. I would wish to acknowledge Him as the main factor that brought about good results in such difficult conditions.

Over the next one year we had more than a few interesting cases. I know I have done nothing new, but it was a challenge doing these cases with primitive instruments, an uniaxial microscope and most often a Nurse and an intern to assist.

There was a ventrally placed large C2 meningioma in a 65 year old lady which we excised totally using a far lateral approach. She improved from Nuricks grade 4 to Nuricks grade 13 and the postoperative scans show no tumour. (Fig 5 and 6)

Fig 5. Showing Pre-operative images of a ventrally place C2 meningioma in a 65 year old lady.
Fig 6. showing the postoperative images after total excision of the C2 ventrally placed meningioma

Fig 7. Preoperative images of a ruptured MCA aneurysm. The patient was WFNS grade 3 and we went in without an angiogram. (We do not have a DSA in our centre and opt for a carotid stick angiogram on the Fluoroscope with a camcorder recording by one of the residents)
We do not have an angiogram and so we do the direct carotid angio, recording it with a video cam and later looking for the aneurysm. And the first aneurysm that we operated was an emergency. We did not have clips and we had to clip the bleeding aneurysm with laparoscopic clips. I guess we have moved on and we have good results now with aneurysms and we have Sugita clips.

We also had a few skull base cases like a giant olfactory groove meningioma which we completely excised, a planum sphenoidale meningioma, and a few craniopharyngiomas. There were a lot of spine cases. We did quite a lot of microlumbar discectomies with good results and traumatic spine cases were common in this place. We successfully did an odontoid screw, transpedicular screws, instrumented and uninstrumented corpectomies, posterior fusions, lateral mass screws and lateral extracavitatory approaches for the thoracic spine.
There were a few giant CP angle tumours which we did in sitting position (Fig. 12, 13). We have been able to get a House and Brackmann grade 3-4 facial in these tumours with total resection. We operate with the patient in the sitting position and the microscope is placed over two standing stools taped together for the height adjustment. We also did a few posterior fossa tumours and a brainstem cavernoma with radical excision and good preservation of neurological function.

**Fig 10.** Post operative images showing total excision, reconstruction of Anterior cranial fossa floor

**Fig 11.** Pre and post op images of a type 2 odontoid fracture and the odontoid screw.
Fig 12. Preoperative images – Left CP angle tumour.

Fig 13. Post Operative images showing total excision along the retromastoid approach. The patient had a grade 3 House and Brackmann facial paresis and did not require tarsorraphy.
Fig 14. Lateral mass screws done for a C5-6 Subluxation

Fig 15. Pre operative and postoperative images of a Medulloblastoma in a 13 year old child excised in a radical fashion using the telovelar approach.
In April 2008, Dr. Garnette Sutherland from the University of Calgary visited the hospital and was very helpful with his suggestions to improve the Department.

In June 2008, I had the chance to be in Fujita and learn vascular neurosurgery from the team there. I consider it as a great honor to learn from and assist Dr. Sano and Dr. Kato. The vascular surgery at our center has improved by leaps and bounds after the visit.

In January, 2010, I was able to visit Nanjing and spend some time with Professor Tan, which was very helpful in cementing the concepts of epilepsy surgery.

The Mountain Trust UK a charitable NGO, and its Chairman, Mr. Charles Malcolm Brown had been very helpful in trying to help the poor patients of Western Nepal. At times we have patients who cannot pay even for a scan and the Trust has been very helpful in financing these patients as well as paying for the food and rehabilitation for deserving patients. They are trying to arrange an ambulance for the remote areas, where patients has to be carried on their backs to the places where there are roads.

We hope to start a residency programme in 2 years and once we train a couple of dedicated Nepali Neurosurgeons, we hope to run the department in a better way. It had been an
uphill struggle, but it has been very rewarding. We hope to improve as the years go by and fulfill the dream of having a centre of excellence for Neurosurgery in Nepal.

**Conclusion**

It has been a very rewarding experience to be working in Western Nepal for two years trying to establish a Neurosurgical unit. The conditions, although deplorable at the beginning has improved a lot and we hope to get a residency programme and then a department which is more than a one-man unit as it is at present. We would like to thank everybody involved in helping us to attain what we have done and we hope to continue improving.

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