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MCNS TIMES

"Official newsletter of Mid-west chapter of neurological surgeons"

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"President's Message"

Dr Dattaprasanna Katikar
President MCNS

Respected teachers, seniors and friends , By the time you are reading this issue of "MCNS Times"we will be meeting each other in person at Latur, for our 14th MCNS conference. With the conference i will be completing my presidency tenure. I would like to thank all of you to give me the opportunity to serve MCNS. During this year we started our newsletter, "MCNS Times" and this is the fourth issue. It was possible because of diligent work and perseverance of our editor, Dr Sudheer Ambekar. I would also like to express my gratitude to all stalwarts and colleagues who contributed by giving their articles for our newsletter. Logical conclusion to the newsletter should be starting our own scientific journal. It gives me immense pleasure to share that we have signed with reputed publishers, Wolters and Kluwer to bring out our own journal, " MCNS Journal of Neurosurgery." This will be published quarterly, we are trying our best to get first issue published by June 2024. I fully understand that it is a formidable task to start,run constitently and reach the indexation goal for any new journal. I will request Resp.teachers, seniors and colleagues to wholeheartedly help and I support by giving suggestions and active contribution to make this " MCNS Journal Neurosurgery" a reputed publication. Such a graet neurosurgical work is going on in Maharashtra and Goa,i am sure we will never fall short of clinical material. Looking forwad to meet in person at Latur in our 14th MCNS conference.

With warm regards,

Dr. Dattaprasanna Katikar

"Secretary's Message"

Dr. Milind Dunakhe
Secretary MCNS

Dear Friends,

I feel delighted to handover this fourth issue of the newsletter to you

This is the basement work for upcoming MCNS journal of Neurosurgery, the contract is signed with well known publisher Medknow and I am proud to feel to be part of this

Friends our Annual Conference is on the corner and will be publishing this issue in the conference only

Now this organisation is going strong day by day and will be one of the great associations of the World Neurosurgery

Every association needs some caregivers and because of their continuous efforts this takes some shape and size we should be grateful to them always

This year we have many plans to bring together for the young neurosurgeons , if you have any suggestions, ideas please feel free to contact us.

Thank you

Dr. Milind Dunakhe

"From the Editor"

Dr. Sudheer Ambekar
Editor MCNS

Dear members,

We are happy to present to you the fourth issue of MCNS newsletter. Going forward, we would transition to the journal format. The last one year has been encouraging and we were able to publish many valuable articles. I request you all to continue to publish research work in the MCNS journal of neurosurgery. We, in the editorial team, will strive relentlessly to improve the quality of articles published. The instructions relating to the MCNS journal of neurosurgery will be sent to you all in a separate email. I sincerely thank all the members for their support and wish that the MCNS 2024 conference is a grand success

Thank you

Dr. Sudheer Ambekar
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CONTENTS

“We thank Dr. Sachin Borkar, Professor of Neurosurgery, AIIMS, New Delhi for his contribution of the cover photo”

“Laser Interstitial Thermo Therapy”

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Laser Interstitial Thermo Therapy (LITT) has been around for more than a decade now and has been used in Neurooncology for treating deep difficult to access tumors/recurrances/metastases. It is nothing but thermal ablation of the lesion with Laser energy which is guided by realtime MR thermography. It was described in 1983 by Bown as phototherapy, in which he had described use of laser as high intensity light delivered precisely to small well defined areas. The effect on the tissue is thermal damage causing vapourisation or necrosis with inflammation leading to fibrosis locally. Animal studies followed and later in 1990 Sugiyama et al reported the first brain tumor treated with Laser energy. Despite availability of laser and MRI there were limitations of colling systems and intraop imaging technology limiting the use of laser in brain tumor ablation till a decade ago. Currently the systems available use e fiberoptic laser probe to be inserted stereotactically into the precise area to be ablated under MRI guidance with realtime MRthermography monitoring. Thus the thermal energy is delivered in a predictable and controlled fashion, achieving targeted ablation and sparing damage to normal surrounding tissue. As these laser have good penetration larger target volumes can be achieved and use of MR imaging and thermography helps to be precise and keep the damage limited. This modality had become approved for use in Brain tumors like metastases , recurrant gliomas and radiation necrosis. The indications are increasing and has also extending to elileptic foci ablation too. The advantage being the abitlity to deliver ablative energy to difficult to access deep regions through minimally invasive approaches.

Two systems are available commercially for this purpose and they are FDA approved. Visualase is by Medtronic, and NeuroBlate is by Monteris. The former uses a saline cooled diode laser with 980nm wavelength while the later uses a CO2 cooled Nd:YAG laser with 1064nm wavelength. The NeuroBlate has more penetration due to its longer wavelength and can achieve slightly larger volumes of ablation. Fiberoptic catheters are used to deliver the Laser in both systems , which are placed stereotactically using navigation guided burr holes. The thermal energy delivered causes protein denaturation, melting of membrane lipids, sclerosis of vessels and coagulative necrosis occurring at 60 C temperature. Apoptosis is triggered between the temperature range of 43C to 60C. The varying tissue optical characteristics between the tumor and surrounding brain tissue help in conforming the damage to the boundaries of the targer tissue. Following the procedure 3 zones can be identified on the MRI. The innermost zone of coagulative necrosis, the second zone of nonviable tissue with increased interstitial fulid and the outermost edematous zone which contains normal brain parenchyma.

In a consensus position statement on MR guided LITT the AANS and CNS have recommended usage of the technique which is installed in over 150 centres in US with more than 8000 treated patients in a 10 year period since commercial availability and FDA approvals. The recommendations include for use in brain tumors which are inaccessible to open surgery/resection, primary or recurrant, including both gliomas and metastases, and also radiation necrosis. The recommendations have been a result of various peer reviewed publications on the safety and efficacy of the intracranial procedure, showing acceptable progrersssion free and overall survival in these patients. The short length of stay, quick recovery time, and fewer readmission rates, makes expedited adjuvant treatments feasible. The NCCN also has included LITT in its recommendation for treatment in patients who are not

suitable candidates for surgical resection, and also for metastases and radiation necrosis. It is also increasingly being accepted in patients who are not surgical candidates with these tumors due to severe medical comorbidities.

Role in Primary Brain Tumors.

There are numerous case series published on its use in primary brain tumors. In s systematic review assessing open resection for new or recurrent High Grade Gliomas in eloquent and deep seatd areas, and comparing them head to head with LITT, showed extent of ablation was more extensive than extent of tumor resection achieved (85.4%+/- 10% vs 77.0% +/-40%). Chance of major complication was 5.7% in LITT vs 13.8% in open resections. Direct comparative studies being difficult, these results do have their limitations. In studies with LITT being administered directly for newly diagnosed Gliomas where resective surgery was not opted for and biopsy was offered as alternative before adjuvant therapy it was concluded that LITT with adjuvant therapy was an equally effective alternative option.

Role in Cerebral Metasatses.

Focal disease control in metastases in achieved best with surgical resection followed by Stereotactic Radiosurgery and /or Whole Brain RT with tumor specific targeted therapy in some tumors. Still there are those deep to resect lesions or recurrances where repeat RT is not an option. In these cases LITT has become a credible option in achieving good local controls. The size of the lesions in most studies did not exceed 30mm.

Role in Radiation Necrosis.

Post treatment radiation necrosis has been a major clinical problem with advent of powerful adjuvant treatments. It occurs almost in one out of two cases with does between 16 to 22 Gy for metastases. Vitamin E and pentaxifylline with steroids were the main stay of treatment. With the understanding of VEGF in the pathogensis Bevacisumab is helpful in these cases. The peri necrotic region prodcing the VEGF contributing to severe edema. The use of LITT in targeting not only the necrotic region but also involving about 0.5 cm margin of the VEGF generating periphery seems to have favourable results in treating these patients.

Increasing role in other applications.

There are increasing indication being reported including in pediatric tumors, dural based tumor recurrances despite radiation thrapy, spinal metastasis, treatment in chronic pain with cingular gyrus ablations, ablation of tumors in eloquent areas and ablating foci of Drug Resistant Epilepsy which maybe difficult to resect.

Despite the increasing popularity among neurosurgical centres in US suing this technology its application is still limited due to cost issues especially outside of the US. The average estimated cost is @ 50,000 USD per patient per procedure. The cost of the consummables makes it more difficult for patients in developing countries to afford even if the tcapital expenditure for the technology is made with government or organisational support. With more indications and more usage hopefully the prices would be more affordable. It has earned a place in management of recurrant and new brain tumors both primary and metastatic disease and also in the difficult to manage radiation necrosis. The decision to use the right modality has to be taken in a multidisciplinary team meeting with a patient centric approach, combining all available technology to benefit the patient most clinically.

"The Mechanism of Brain cooling is how the brain swells in trauma and how gliomas spread ? – Maybe" – Some Interesting Physics to ponder on.

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Abstract – The cooling of the brain is done by the system of paranasal sinuses acting like a radiator, and thus cooling the CSF in the adjacent suprasellar cistern. This CSF is pumped into the brain through the Virchow Robin spaces around the arteries. This happens by the pulsatility of these vessels which traverse from the cisterns into the brain.

The mechanism of the sinuses cooling is by simple physics with the Bernoulli s principle and with the loss of latent heat of evaporation. We had described this before and now we propose that the spread of GBMs may also be through these pathways which if proven, may have implications that will change the current management of these tumors.

Introduction

After starting Cisternostomy in 2007, we were at a loss to describe how it works and we hypothesized that it works because the CSF shift edema was being reversed. We subsequently published on Cisternostomy, CSF shift edema and hypothesized how the brain is cooled and cleaned by the CSF flow inside the brain through Virchow Robin spaces.

Here , we would like to ponder on the physics principles that would explain how these phenomena happen and open a completely different avenue to have a look at some of the common problems that have not yielded an answer for many years.

How the sinuses work as a Radiator

As we breathe in and out, the airflow also enters the paranasal sinuses. However, since the entry points are small, the velocity of the air entering the sinuses through these pores are at a higher velocity. This can be explained by the Bernoullis principle (Figure 1).

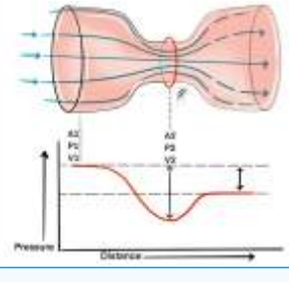

Figure 1. Simplified representation of the Bernoullis principle. Shows how a fluid going from a big tubular space to a smaller tubular space change dramatically the velocity and pressure of the fluid. Initial volume (A1); initial pressure (P1); Initial velocity (V1); secondary same volume (A2); secondary low pressure (P2); secondary high velocity (V2); difference of pressure at beginning and at the end (Bidirectional arrow). Using the axiom of preservation of energy where those variables are the total sum of kinetic and static energy

This high velocity of flow falling on the mucosa within the sinuses can lead to evaporation of the water content in the Mucosa and this would lead to the cooling of the sinuses because this evaporation would lead to loss of latent heat of evaporation. Thus, all the sinuses are cooled in the same way that we cool ourselves wearing a sweaty shirt and stay under the fan or just like how any other radiator works.

How the brain cools

The sinuses are strategically located such that the suprasellar cistern is in the center of the sinuses (Figure 2). The cooling of the sinuses would lead to a cooling of the CSF in the suprasellar cisterns as well. In fact, it is interesting that deep breathing patterns like in Yoga would cool the sinuses more and cause more cooling of the brain. And single sided breathing techniques like the Anulom Vilom, may cool selectively one side more.

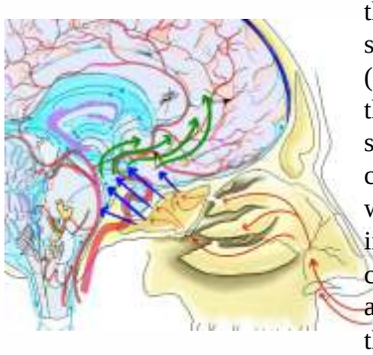

Figure 2. Air flow pathway from the ambient into the endonasal structures, cornets and meatus (red thick arrows) going throug the ostium sphenoid into the sphenoid sinus (red thin arrows), cooling th sinus and evaporating water of the mucosa and going into the basal cisterns and cooling the CSF (blue arrows), and finally from the cisterns to the cerebrl parenchima throug the perivascular spaces (green arrows).

One must note that the arteries that provide the major blood supply to the basal brain structures enter from the cisterns and around these vessels are the Virchow robin spaces which are spaces through which the CSF can potentially enter into the brain. The pulsatility of these arteries traversing from the cisterns to the brain drives the cooled CSF from the supra sellar cisterns up into the brain through

an Archimides screw principle.

How the brain swells in head trauma

The same pathway can be implicated in this as well as the subarachnoid hemorrhage which happens in trauma leads to increased pressure within the cisterns and this would cause the CSF in the cisterns amounting to about 120 ml to shift within the Virchow Robin space network in the brain causing rise in intraparenchymal pressure. This is called CSF shift edema and this is what Cisternostomy does address. A decompressive hemicraniectomy leads to 120 ml of brain shifting out of the craniectomy thus distorting and damaging the fibers while decreasing the ICP and preserving CPP to an extent. However, a DC is hardly a physiological solution to the problem at hand like the Cisternostomy and therefore the results of both surgeries has considerable difference

How high-grade gliomas may spread?

GBM and high-grade gliomas seem to be systemic within the CNS and instead of spreading through the glial pathways as is conventional thought, maybe spreading through CSF. The origin and spread of high-grade gliomas mostly in the lenticulostriate pathways maybe a supporting factor to this hypothesis and recurrent gliomas in remote locations and even on the other side while the connecting fibers are spared may support this speculation. This would mean that one should look at the CSF for GBM markers and target these tumors with medicines which can enter the VRS from the CSF.

Conclusion

The CSF changes 3 to 4 times a day with almost 500 ml being secreted and this unlike earlier concept of just providing buoyancy to the brain does the job of cleaning and cooling the brain which is a highly active in terms of metabolism producing ample heat and by-products. The cleaning happens during sleep while the cooling happens all the time. The implications in trauma and glioma have been hypothesized, and while there is mounting evidence for the former, the latter is still to be explored. We also think that there would be implications in post-traumatic syndromes, degenerative diseases and many more. This does really open a box full of wonders and we hope Neuroscientists all over the world do think about these implications and move forward to prove these.

As a Neurosurgeon with no basic science facilities, the author used extensive reading and discussions with like-minded friends to come to these hypotheses and in the last 15 years there has been a lot of change and acceptance to many of these. The author would like to emphasize to the young Neuroscients that the human mind is still the greatest lab and imagination, knowledge and a keen sense of wonder are the best research tools. Infrastructure is only needed to confirm or disprove the hypotheses.

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“Anterior skull base schwannoma- A Rare Mimic in the Clinical Arena”

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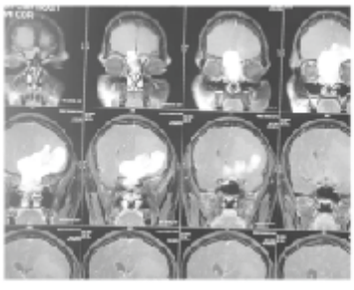
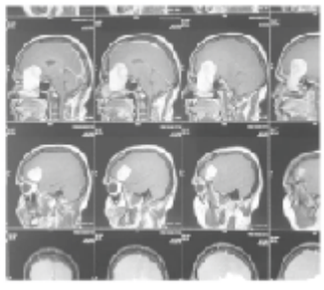
Introduction-

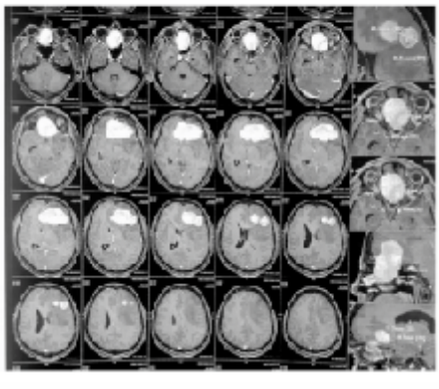
Extra-axial enhancing mass lesions of the anterior fossa eroding calvaria and extending to paranasal sinuses are most frequently diagnosed as meningioma, adenoid cystic carcinoma, or seldom as esthesioneuroblastoma [1]. Finding olfactory bulb/tract Schwannoma is extremely rare,(1) We present an example of an olfactory groove schwannoma (OGS) and provide a synopsis of the literature.

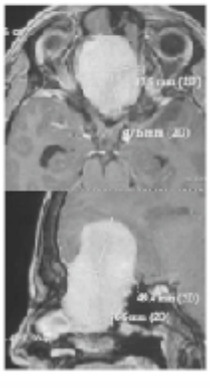
Case Report-

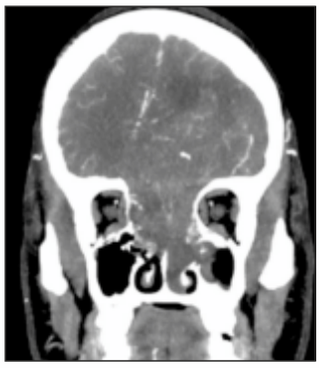
37 years old photographer with no known concomitant conditions presented with c/o loss of smell perception since 1.5 years.He had headache with blurred vision since 1 month which was subtle around the frontal and brow regions of sporadic frequency. The intensity of headache increased with multiple episodes of vomiting at the time of final presentation with increased blurring of vision. A local examination of the nose and throat revealed a bleeding polypoidal tumor in the right nasal cavity for which the patient had consulted a local ENT surgeon who had biopsied the lesion.

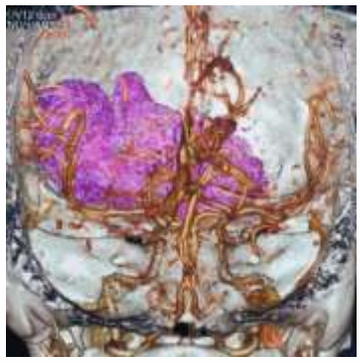












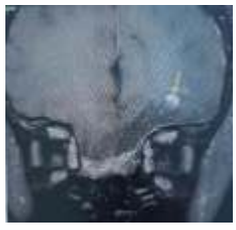
Radiology -

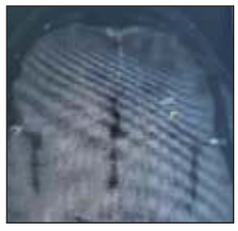
MRI brain showed a large intensely enhancing mass lesion (87mm x 75mm x 49mm) with lobulated outlines in the LT anterior skull base extending through a large ant. cranial fossa floor defect into the upper portion of the nasal cavity with destruction of the ethmoid air cells and occupying the upper paranasal sinuses. Mass effect was seen in the form of effacement of the left sided convexity sulci and compression on the left lateral ventricle and Genu of the corpus callosum. Possibility of a neoplastic lesion like Esthesioneuroblastoma (olfactory neuroblastoma) / aggressive meningioma was considered.

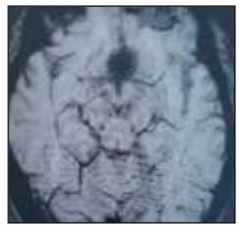
Intraoperative findings:

Patient was operated in supine position via a bicoronal incision. Left Frontal craniotomy was done and a firm hypovascular well delineated tumor was debulked and excised till the cranial defect wasreached. The large defect in the cribriform plate allowed the resection to be carried forward and eventually the entire paranasal component of the tumor was delivered. This presented with the challenge of successfully reconstructing the closure of the anterior skull base defect base from crista galli to Planum Sphenoidale without further injury to the rt olfactory nerve and the optic apparatus. Multilayerd repair was done using dural substitute with fascia lata graft which were anchored to the margin of the dural defect. The repair was reenforced using glue and gelfoam. skull base was done.

Positive postoperative recovery was uneventful. Symptoms of nasal obstruction were relieved over the follow-up period without CSF leak. recurrence. 3 years follow up with serial MRI brain contrast did not show ant recurrence.







POST OPERATIVE FOLLOW UP SCANS

Histopathology -

The biopsy showed a Spindle cell tumor with ill circumscribed margins and is composed of ovoid or Spindle shaped cells with round to oval or elongated, vesicular nuclei and eosinophilic cytoplasm, arranged predominantly diffusely or focally ill formed fascicles or storiform pattern. At places the cells are arranged arranged around vessels. The tumor shows many slit - like spaces or stag - horn pattern. At places the tumor cells show crowding of the nuclei and mild nuclear pleomorphism. There are a fair number of blood vessels and areas of collagenization, seen. Focal areas of hemorrhage & focal dense collections of foamy macrophages seen.

Discussion -

Olfactory nerve sheath schwannoma is a rare type of tumor that can mimic other conditions, such as olfactory groove meningioma or olfactory neuroblastoma (Timothy 1999, Choe 2007). It is important for clinicians to be aware of this possibility in order to provide appropriate management (Choe 2007). These schwannomas are typically benign and slow-growing, and can be successfully treated with surgical resection (Taha 2018). However, their rarity and the potential for misdiagnosis highlight the need for further research on their pathogenesis and origin (Mićović 2015).

Conclusion-

The possibility of a benign tumor entity in face of an overwheminh radiological picture need to kept in mind with an aim to provide complete relief to the patient. OGS is a benign condition which can destroy the anterior skull base and mimic far sinister pathologies. The need to plan total excision and a watertight closure of the skull base defect should be the final goal.

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Title: Every extra-axial tumor need not be meningioma : A case report with 3 recurrences & metastasis

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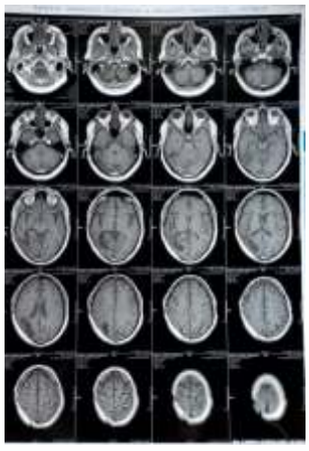
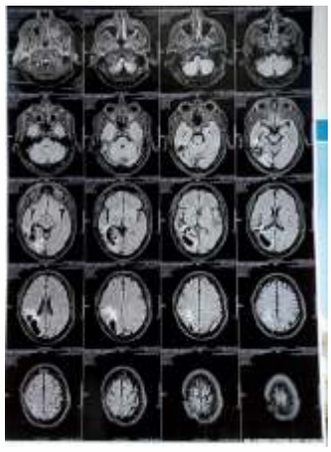
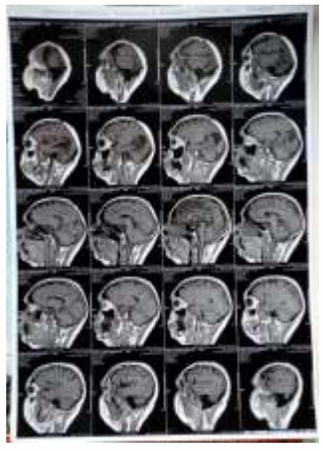
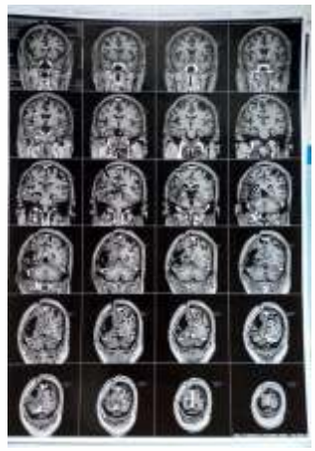
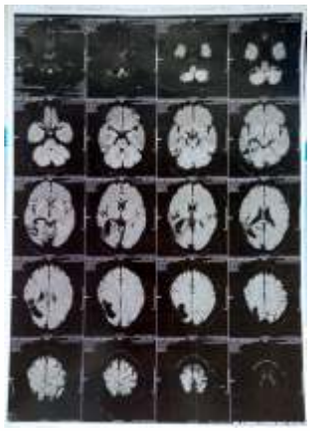
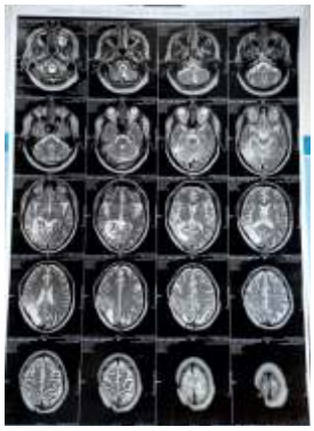
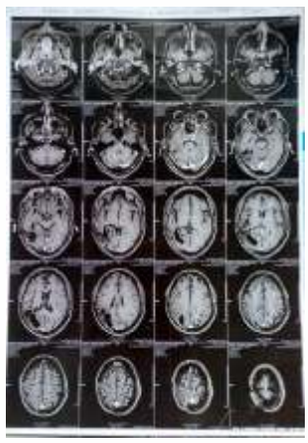
Clinical history: 51-year-old man with **3rd recurrence previously operated in** 2019, 2022 & 2023.

We received 9 blocks for second opinion & immunohistochemistry for the following. **1)** Extra-axial masses with intra-axial component in right temporal region & multiple masses in fronto-parietal region which were diagnosed as meningioma on histopathology for all the three excisions in other laboratory. **2)** Tru-cut biopsy of anterior mediastinal mass, was diagnosed as thymoma. (CT scan revealed a mediastinal mass before second surgery in 2022.)

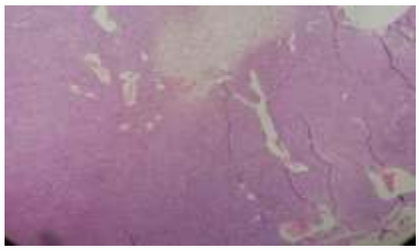
Imaging findings were suggestive of recurrent meningioma. Preoperative MRI findings (2023): Post operative status with right temporo-parietal craniotomy noted with areas of gliosis in right high parietal region. There appears to be areas of large lobulated T1-T2 hyperintense lesion in right temporal and fronto-parietal region of 79x47 mm with mild to moderate surrounding oedema & moderate enhancement likely to be a recurrent meningioma.

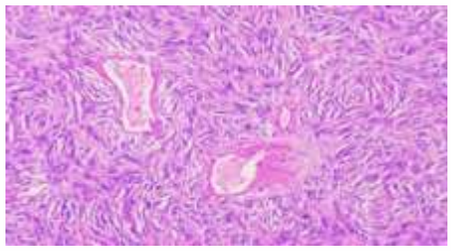








All the slides and blocks reviewed at Shanti lab, a diagnosis of was solitary fibrous tumor, CNS WHO grade 3 was rendered on histopathology. Histopathology findings revealed a compact cellular tumor with hypocellular areas. The tumor was arranged in patternless or haphazard pattern composed of spindled to ovoid monomorphic cells admixed with hyalinized, dilated, thin-walled, branching (staghorn-shaped) blood vessels. Hypocellular type showed abundant stromal keloidal-type collagen. The nuclei were monotonous and oval to elongate.

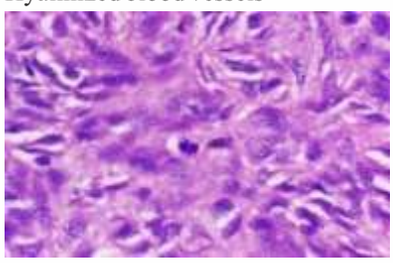
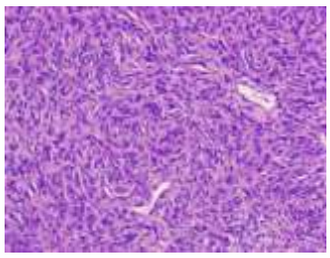
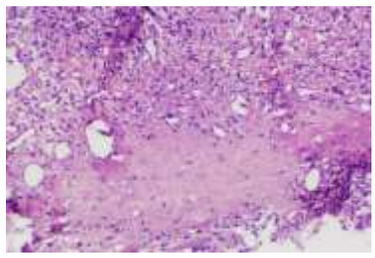
was noted. Pericellular collagen was present. Increased mitotic activity (5-6/10 hpf), necrosis, and invasion into brain parenchyma and occasional nuclear pleomorphism was noted. Nuclear pseudo inclusions, calcifications, or including psammoma bodies were not evident.

Histopathology findings of anterior mediastinal mass was similar to the extra-axial CNS masses.

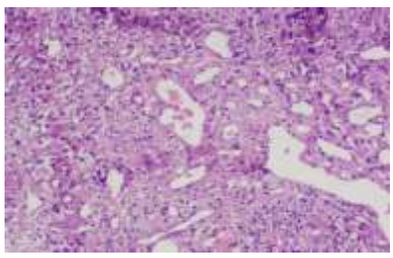
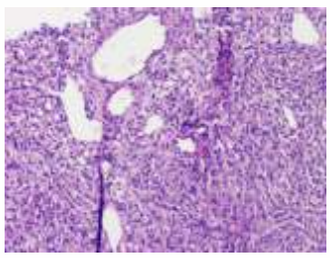
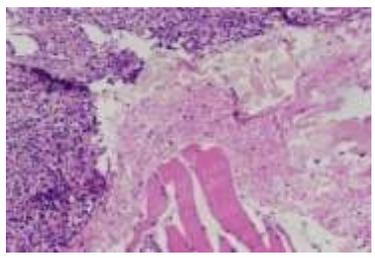




(A) Compact cellular tumor hypocellular areas, Branched vasculature, Staghorn blood vessels (B) Haphazard / patternless storiform pattern (C) Hyalinized blood vessels

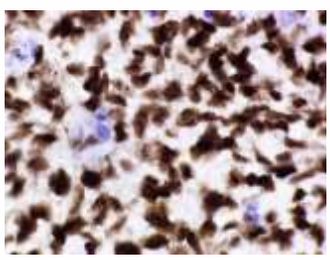
Nuclei are monomorphic and oval to elongate, Pericellular collagen, Mitotic activity (>5/10 hpf), Focal necrosis. Psammoma bodies absent

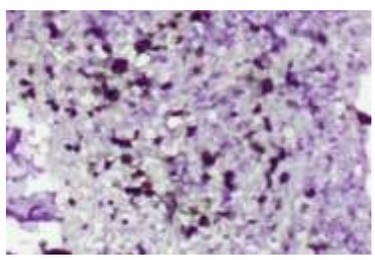
Anterior mediastinal mass tru-cut bx.

Immunoprofile of extra-axial cns masses:

- STAT6 – positive (IHC is more reliable than FISH).
- CD34 – focally positive.
- EMA – negative (meningioma ruled out)
- GFAP, OLIG2– negative (glial tumor ruled out)
- CK – negative (metastatic carcinoma ruled out)
- Ki-67 proliferation index (MIB1) is 15-18 %.



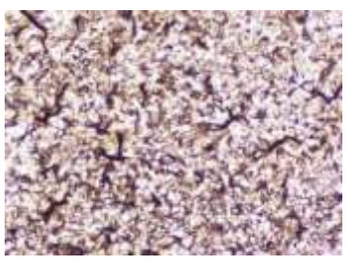
STAT6



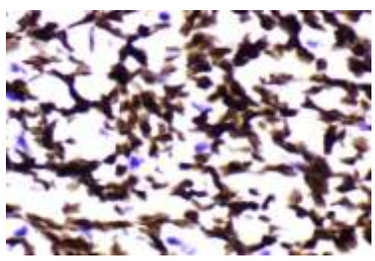
C D34

Immunoprofile of anterior mediastinal mass:

- STAT6 - positive.
- CD34, CK - negative.
- Ki-67 proliferation index (MIB1) is 8-10 %.



MIB1



STAT6

Diagnosis:
Excised recurrent tumors from right temporal region & multiple tumors from fronto-parietal region &
Tru cut biopsy from anterior mediastinal mass:
Solitary fibrous tumor, CNS WHO Grade 3.

Solitary fibrous tumor

WHO CNS 5 no longer recommends the terminology "solitary fibrous tumour/haemangiopericytoma" or "haemangiopercytoma". The genetic hallmark of SFT at all anatomical sites is paracentric inversions involving chromosome 12q13 resulting in fusion of NAB2 :: STAT6 genes. Most

SFTs are dural based (often supratentorial), about 10% are spinal. Skull base, parasagittal & falcine locations are common. These tumors commonly occur in 5th to 6th decade of life with nearly equal sex distribution. Imaging findings : Plain CT shows solitary, irregular mass, without calcification or hyperostosis of the adjacent skull. On MRI, the tumors are isointense on T1WI & shows high or mixed intensity on T2WI with variable contrast enhancement. Dural tail may be observed. No specific feature on CT or MRI can be distinguished SFT from meningiomas.

Histopathology is characteristic of haphazardly arranged spindle to oval monomorphic cells admixed with hyalinised, dilated thin-walled, branching / stag-horn shaped blood vessels. Wide histologic spectrum ranging from hypocellular to highly cellular phenotype in patternless architecture & multiple phenotypes may coexist. Paucicellular phenotype displays abundant stromal keloidal-type collagen, where as cellular tumor display densely packed round to ovoid cells with little or no intervening stroma & less conspicuous vasculature. The nuclei are monotonous and round to oval & lack pseudo-inclusions. Calcifications & psammoma bodies typical of meningioma are absent. Histological grading is combination of mitotic activity & tumoral necrosis which correlates well with prognosis. CNS WHO grade 1 : <2.5 mitoses/mm2 (<5mitoses/10hpf) without necrosis ; CNS WHO grade 2 : ≥2.5 mitosis/mm2 (≥5mitoses/10hpf) without necrosis ; CNS WHO grade 3 : ≥2.5 mitosis/mm2 (≥5mitoses/10hpf) with necrosis. D.Ds include both meningeal & soft tissue tumors such as fibrous meningioma (EMA -positive, CD34 & STAT6 -negative), dural based Ewing sarcoma (NKX2.2 & PAX7 – positive, FISH - EWSR1 gene rearrangement, STAT6 -negative), primary metastatic & monophasic synovial sarcoma (EMA & TLE – positive, FISH -SS18 gene rearrangement) , mesenchymal chondrosarcoma (can be differentiated due to presence of well differentiated hyaline cartilage). Diagnostic molecular pathology –NAB2:: STAT6 fusion by sequencing, RTPCR based detection is challenging. Fortunately IHC detection of strong nuclear STAT6 is sensitive & specific surrogate for all fusions. Treatment of choice is surgical resection with supplementary radiotherapy & chemotherapy if necessary. Prognosis and prediction: Menigeal SFT has high propensity for recurrence & metastasis. Low grade SFT may often metastasize & incomplete surgical resection may lead to recurrence.

Conclusion: SFT is a mesenchymal non-meningothelial tumor. Fibrous meningioma being its closest differential diagnosis, imaging cannot differentiate between the two. Histopathology is important to establish diagnosis which can be confirmed by STAT6 nuclear positivity on immunohistochemistry. STAT 6 is a sensitive & specific surrogate marker as compared to molecular detection methods. It very important to differentiate meningiomas from SFTs, as meningiomas are very slow growing & duration of recurrence is shorter than SFTs. Even low grade SFTs are known to metastasize. The treatment modality which includes radiotherapy & chemotherapy if required.

An interesting case of meningioma encasing an aneurysm

Dr. Deepu Banerji
M.B.B.S., M.S., M.Ch.
Consultant Neurosurgeon
Jaslok Hospital and Research Centre, Mumbai

History

63 year old lady presented with insidious onset gradually progressive visual loss in left eye for a few months. She had slowed down in her daily activities and had sense of imbalance while walking. Clinical examination showed 6/60 vision in left eye with early primary optic atrophy. There was no other neurological deficit. CT and MRI scans showed a large extra-axial lesion based on lesser wing of sphenoid involving the middle fossa and extending to the anterior cranial fossa. Medially the lesion extended up to the suprasellar area. The supraclinoid segment of left internal carotid artery was completely encased by the lesion. Within the encased segment of the artery, there was a focal saccular aneurysm. (Figure 1) On further evaluation with DSA, the aneurysm was bilobed and broad neck. In addition, there was another similar aneurysm, smaller in size in the supraclinoid segment of the right internal carotid artery. (Figures 3 and 4)

Diagnosis – Left en-plaque Fronto-temporal meningioma with encasement of left Carotid artery including dorsally projecting aneurysm. With progressive visual loss in left eye and frontal lobe symptoms.

Management

-Aneurysm needs to be embolized first before addressing tumor. In view of broad base- either flow-diverter or stent assisted coiling would need minimum six month of anti-platelet therapy. Risk to visual deterioration very high. After discussing with other senior endovascular specialist, it was decided to put flow diverter and review after 6 weeks with DSA. Risk of unilateral visual loss over life explained to relatives.

Endovascular treatment

In view of broad neck, possible endovascular treatment strategies include coil embolization with balloon remodeling technique, stent assisted coiling and flow diversion. She underwent embolization of the left ICA aneurysm using flow diverter. Immediately following the procedure, there was evidence of contrast stasis within the aneurysm.

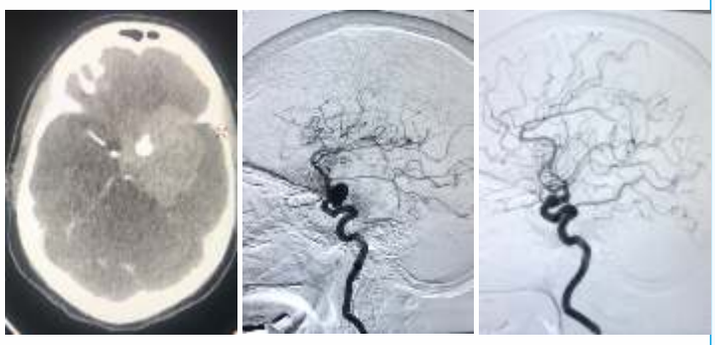
Course

- At 6 weeks DSA [post embolization] revealed partial thrombosis of Aneurysm. So, intervention delayed after patient and relative agreed to accept risk to vision. At 4 months post embolization and near complete embolization- patient was taken up for surgery.

Surgery

- At surgery -the plan was to go for maximum safe debulking. So infra sylvian and temporal component including along sphenoid ridge lateral to the anterior clinoid to be removed [Using navigation and Doppler]. Also opening of lateral/distal sylvian fissure to dissect MCA [M2] branches and trace them proximally up to ICA bifurcation and excise tumor inferiorly and laterally

- At Surgery – Frontal- temporal craniotomy and dural opening done. Tumor very firm and fibrous with attachment and blood supply from entire temporal base, temporal pole, sphenoid ridge, and pterion. CUSA didn't work, so tumor excised piece meal fashion using knife and scissors. Lateral Sylvian fissure dissection was difficult due to firm tumor consistency and some MCA branches engulfed. Also being dominant frontal lobe. Partial tumor resection done leaving tumor medial to the carotid/retro carotid and suprasellar component. No post operative deficit except right visual loss and perioperative diabetes Insipidus. Referred for radiation therapy for residual tumor.

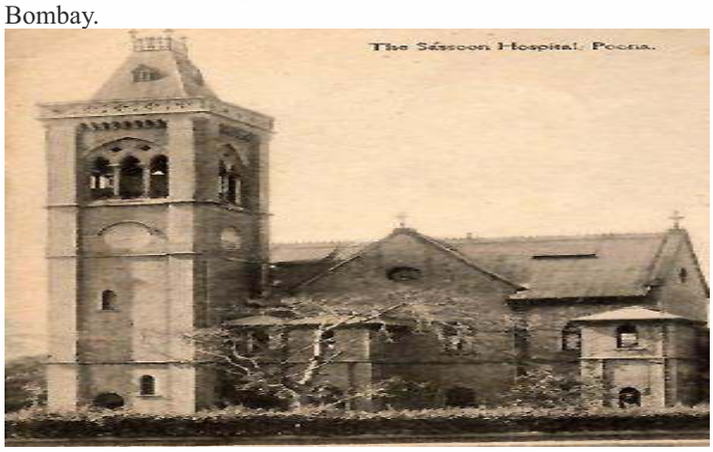


DEVELOPMENT OF NEUROSURGERY IN PUNE

Prof. Sanjay S Vhora
Founder, Prof. & HOD Neurosurgery
Department of Neurosurgery B J G MC & SGH, Pune

Pune, formerly known as Poona, the official name until 1978 is the seventh most populous city in India and the second-largest city in the state of Maharashtra, with an estimated population of 7.1 million as of 2023. Healthcare in the Pune is provided by private and public facilities. The PMR is served by two government hospitals: Sassoon Hospital, and Dr Ambedkar Cantonment general hospitalHospital. There are also a number of private hospitals such as Ruby Hall clinic, Poona Hospital, Inlaks and Budhrani Sahyadri, Jehangir, Sancheti Hospital, Aditya Birla Memorial Hospital, KEM Hospital, Naidu Hospital to name a few.

In the year 1946 on 23rd June, B. J. Medical College was founded to replace erstwhile B. J. Medical School, with Shri. B. G. Kher the head of the Bombay Government, laying the foundation stone. This was the fulfillment of the vision of a far sighted Parsi philanthropist Byramjee Jeejeebhoy, to have an institution in Poona for training of doctors and providing medical facilities on par with those in Bombay.



History of Neurosurgery in Pune

In June1947 the Neurosurgical unit from Secunderabad moved to Poona and attached to Indian Military Hospital, there who's in charge was **Capt. A.C. Ray.** Poona had7 base hospitals with 1000 beds for Indians (Neurology, nerve injury). Poona was the neurosurgical centre in April 1948 in view of logistics and strategic consideration. The Armed forces in India for PG training was first established in Poona in 1948 and was attached to university of Poona. After the war with China 1962 further expansion of armed neurosurgical forces neurosurgical centers in Poona (Southern Command) under **Lt. ColVirendra Mohan**

Dr R.D.Variava

An established Neurosurgeon did his MS from Nair Hospital, Bombay and trained in Neurosurgery in England were there was no proper Neurosurgical training program and then came to Pune in the 1966 to establish his practice but he was not attached to any government or medical college. He was known for his dedication and meticulous work and was elected for the Padma Bhushan award in 1965.

Dr S.D. Dighe

Dr S.D. Dighe completed his MS General Surgery from Topiwala Medical College, Mumbai and got trained under Dr V.G. Daftry for 5 years following which he left for England and got his FRCS and worked under Dr Tutton at the Preston University, England. On June 1st 1970 he joined KEM were there was no neurosurgical practice or any set up and he lead the foundation of a department at the hospital with OPD, and Neurosurgery Unit with general Surgery resident's on rotation. He taught many young doctors and staffs about the neurosurgical branch and the importance of timely management. He is a life member of NSI since 1970. He is known for his exemplary work in the field and continued practice till January 2022, following which he was hit by the Covid pandemic.

Dr C. Bajpayee

Dr C. Bajpayee was one of the first neurosurgeons to arrive in Pune at command hospital in the 1960's. He was posted in the army at the time of the Indo-Pakistan war. He served on the frontlines treating many traumatic cases. Subsequent to the conclusion of the war he was deputed to Command Hospital in Lucknow and subsequently transferred to Command Hospital Pune.Once in Pune he would regularly operate neurosurgical cases both of the army and civilian cases as at the time there wasn't a full-fledged neurosurgeon available at Sassoon General Hospital and seeing his dedication he was awarded with 5 beds dedicated for civilians. Regular Neuro meets were conducted at Sassoon General Hospital on a weekly basis by Dr Wadia and Dr Sardesai, and those civilians needing neurosurgical intervention were referred to him.He had a short training stint at Atkinson Morley's Hospital in Wimbledon, where he witnessed the birth of the CT-Scan. On his return to India, he collaborated with then Professor of AIIMS Dr P.N.Tandon and brought to the first ever CT scan to India. Once his tenure was up and hesubsequently retired from the armed forces, he joined RHC as a consultant Neurosurgeon in 1993 where he was regularly operating multiple cases until he finally retired from his active work in 2019.

Dr Shankar Gokhale

He was the first practicing neurosurgeon not only Sassoon Government Hospital but also at Ruby Hall clinic. He arrived in Pune in 1972, and this was really the beginning of Neurosurgery in Pune outside the armed forces in a government set up. At the time when he used to operate there were no CT-Scans available, the only available investigation which he used for preoperative evaluation was Carotid Angiography and pneumoencephalography. He had an excellent surgical hand and well loved by his residents, colleagues and Staff. Post-surgery he would evaluate the surgery he had conducted and would sit with engineers and design instruments which would reduce mortality and morbidity, every complicated case he would discuss with Dr Wadia as to what approaches would benefit the patient and also discuss with the staff as to what instruments he would need for each individual case. The time when he used to operate the morbidity and mortality in neurosurgery was very high as there was no specific investigations available, no specialized instruments available and no proper anesthetic protocol available for neurosurgery cases. Unfortunately, he succumbed to leukemia arising from years of radiation exposure. He is still very fondly remembered by all of those he came in contact with especially his staff and patients for his empathetic nature towards them.

Dr Charudutt Apte

Dr Apte completing his UG from BJ medical college where he was the best outgoing student after which he left for CMC Vellore and did 5 years course in Neurosurgery an procured a gold medal. He came back to Pune in 1983 and started working at RHC, SGH, KEM and many other hospitals in around Pune. In 1993 he established a center named Poona Institute of Neurosciences (PIN). In 2003 his brainchild Sahyadri Hospital at Deccan gymkhana was started, he is still in active practice and has received many awards for his surgical skills and innovations.

Dr Pradeep Bafna

He completed his MCh in Neurosurgery from Sion Hospital and worked there as a senior registrar for 2 years before joining the neurosurgery department at Sassoon General Hospital in 1983. At that time, he was the only neurosurgeon with a MCh degree in a tertiary state-run government hospital outside Mumbai. Initially he worked as an assistant professor in Neurosurgery under then department head Dr. Shankar Gokhale from 1983 – 1984. Following the departure of Dr Shankar Gokhale in 1984, he was appointed as an Honorary Professor and Head of department from 1984 all the way until 2015. During this time, he actively worked and developed the department which included actively training general surgery students in the basics of neurosurgery during their rotation in the department.Many of his students have themselves gone on to become successful neurosurgeons themselves such as, Dr Nitin Londhe, Dr Hitesh Gadkari, Dr Shekhar Chismude, Dr Deepak Ranande, Dr Hitendra Dahiwadkar and Dr Kaustubh Dindorkar. He was actively working at Sassoon General hospital until 2015, following which he retired and focused on his private practice as a consultant Neurosurgeon at Poona Hospital and Research Centre.

Dr Dilip Kiyawat

After returning from the UK in 1985, he joined Ruby Hall Clinic in Pune, but was keen to join Sassoon General Hospital and B J Medical College to have an academic and teaching career. The Neurosurgery specialty was managed by Dr Pradeep Bafna and worked under with one of the General Surgery units. He was appointed as Hon Neurosurgeon in 1991.There was no ward or operation theatre allotted for Neurosurgery at that time. They shared some ten beds in the male and ten in the female ward with General Surgery patients. ICU facilities were non-existing. The operation theatre was shared with Urologists and Plastic surgeons; as a result, only two days in a week were available to operate. There were limited instruments available with that only primary neuro work could be done. A basic microscope (OPMI 6 model) with a fixed straight eyepiece and poor focusing device (then used by ENT surgeons) was available, but even that did not have proper optical alignment. A proper microscope which arrived later in the 90'S.There were no dedicated resident doctors, residents from General Surgery came in rotation to work for Neurosurgery. Since the workload of Neurosurgery cases was large, many of these rotating doctors (generally not interested in Neurosurgery due to prolonged and exhausting hours of duties) got attracted to the specialty and took Neurosurgery as their career. Since there was no Neurosurgery postgraduate course in BJ Medical College, these candidates went to the various Neurosurgical centers.

Dr Sanjay Vhora

He joined Neurosurgery in B J G MC & SGH in 2003 as Assistant Honorary Professor. After completing MS in 1987, in which he stood first with distinction, he did MCh Neurosurgery from J.J. Group of Hospital, Mumbai, were again he stood first. He then spent two years as a Senior Registrar under with renowned Neurosurgeon and professor, Dr S.N.Bhagwati at Bombay Hospital. Who was trained in Atkinson Morlay Hospital & Padiatric Neurosurgery in USA.

He went to Japan on the Monbusho Scholarship awarded by the Japanese Government. After two years in Japan, he proceeded to

England to work as a Senior Registrar in Neurosurgery at the Royal Preston Hospital, Manchester. After spending 5 years in Japan and England where he was fortunate to receive training in the latest techniques in Neurosurgery, including Microscopic Neurosurgery, CT and MRI guided Stereotactic Neurosurgery, Neurovascular Surgery.

Presently he is Founder Professor & HOD Neurosurgery Department at B J Govt. Medical College & SGH. Since last 28 years he is well settled in Pune, where his roots are, and offer my services in Neurosurgery to patients from all parts of Maharashtra. He has received many awards to name a few, Late Dr. G. P. Apte Memorial Prize, Late Dr. G. M. Phadke Prize, Dr. S. R. Joglekar Prize, "Bharat Gaurav Award",Certificate of Indo-British Partnership, Paul Harris Fellows award.

We have high speed drills with 2 microscopes and several other equipment for performing complex neurosurgical procedures.
Department of Neurosurgery is situated on 2 floor, Infosys building, SGH. It has a well-equipped library with national and international journals, Seminar room with projector, well-equipped Neurosurgery OT, Separate ward for male and female patients, Post op ICU care and OPD

OPERATION THEATRE



NEURO ICU &TRAUMA OT

WARD

Upcoming Conferences

34th Annual Conference of the Indian Society for Paediatric Neurosurgery	29th February - 2nd March	2024The State Convention Centre, Shillong Organizing Chairman: Dr. Bernard T. Lyngdoh Ryntathiang	Email: indspncon2024@gmail.com, website: www.indspncon2024.com Contact us: +91-9436101852 +91-7005689594
Jaipur ICRAN 2024 Recent Advances in Neurotraumatology	29th Feb-3rd Mar, 2024	Hotel Clarks Amer Jaipur Prof. V D Sinha (Organising President) 53, Mozi Colony, Pradhan Marg, Malviya Nagar, Jaipur, Rajasthan 302017	Mob. No.: + 91-9829052320 E-mail: icranjaipur2024@gmail.com Website: www.icran2024.com
NESICON 2024	28th-31st, March 2024	Hotel Taj Land's End, Bandra, Mumbai Dr. Jayesh Sardhana	Nesicon2024@gmail.com Phone No - 9696472794
ISNOCON 2024	4th-7th, April 2024	Radisson Red Mohali Chandigarh	isnocon24@gmail.com
SGPGI Neurosurgery Foundation Day Celebration 6th Dr DK Chhabra oration & Dr VK Jain oration	19th-21st, April 2024	SGPGI Convention Centre, Lucknow Organising Secretary: Dr. Kamlesh Singh Bhaisora	Email: drkamleshbhaisora@gmail.com sgpgineurosurgeryoration2024@gmail.com www.sgpgineurosurgeryoration2024.com Contact No.: +91-9919624184
5th NoALCON (Noble Art of Lesioning)	17th-19th, May 2024	Convention Centre, Bengaluru Dr. Sharan Srinivas	WWW.NOBLEARTOFLESIONING.COM
12th AIIMS Annual Spine Workshop 2024 (Pre conf. Cadaver workshop)	28th-31st August 2024 (28 Aug 2024)	Department of Neurosurgery, AIIMS, New Delhi. Dr Deepak Agrawal (Email- drdeepak@gmail.com)	Dr Dattaraj Sawarkar (email- dattaraja@gmail.com) Conf Mail- info@spinecon.in Website- www.spinecon.
NSSA Spine 2024	19th-22nd September 2024	Hyderabad Dr Savitr Sastri	savitr@gmail.com +91 9618325364
SKULLBASESON2024	24th-26th October 2024	Ambedkar International Centre, Connaught Place, New Delhi Prof. Anita Jagetia	skullbasecon2024@gmail.com +91-9718599355
NSICON2024 Dec, 2024	18th-22nd December 2024	ITC Royal & ITC Sonar, Kolkata	WBNeurosocietyindia.com