

AGRIM NEUROSCIENCE UPDATE

VOL 1.2 2021

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HOSPITALS



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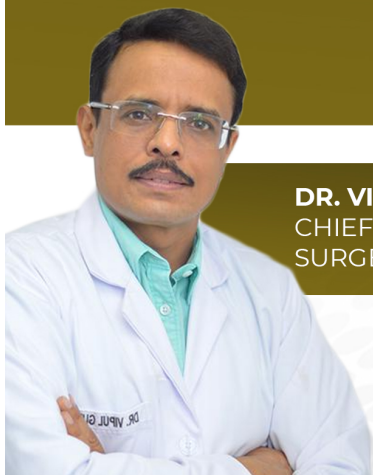


Stroke is a huge medical and societal challenge. As a doctor we frequently face dilemma in management of these patients in emergency. Thankfully, advances in medical sciences has made ischemic and hemorrhagic stroke treatable in many circumstances.

In this issue we are focusing on stroke & neurovascular disorders management. Artemis-Agrim Institute of Neurosciences has established a center of excellence in the field of Neurointerventional surgery and Stroke. The center has a team of specialist doctors with state of art technology. The team is headed by Dr Vipul Gupta, with Dr Rajsrinivas Parthasarathy as Chief of stroke Unit. The center is one of the highest volume intervention centers in our country, with over 1300 therapeutic Neurointerventions performed in last 5 years focusing on cerebral aneurysms, stroke, vascular malformations and carotid/intracranial stenosis.

We present this current issue of newsletter, showcasing advances in aneurysm management, acute stroke thrombectomy, intracranial vasculitis, neuroendoscopic surgery, ankylosing spondylitis & post-Covid myelitis. We hope that you will find this issue informative and knowledge enhancing. We are looking forward to your feedback to enable us improve on the content and provide continuing education through this medium.

Team Agrim



DR. VIPUL GUPTA
CHIEF - NEUROINTERVENTIONAL
SURGERY & CO-CHIEF STROKE UNIT



DR RAJSRINIVAS PARTHASARATHY
HEAD - STROKE UNIT & SR CONSULTANT
- NEUROINTERVENTIONAL SURGERY

Dissecting growing ICA aneurysm in a child- A rare case of Flow diverter placement from contralateral route

Case summary

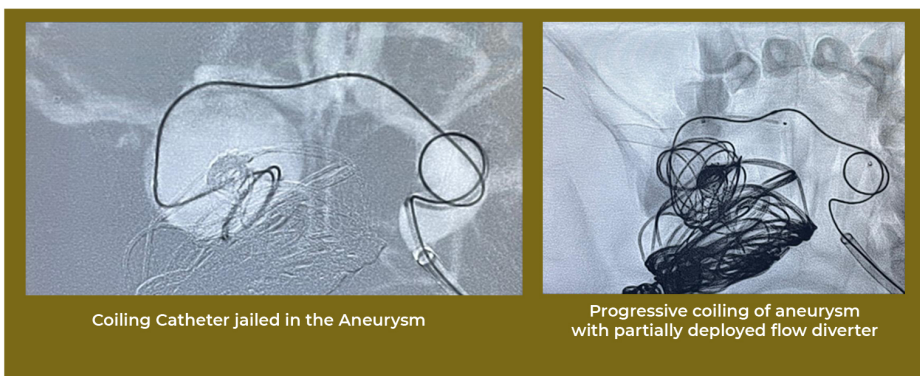
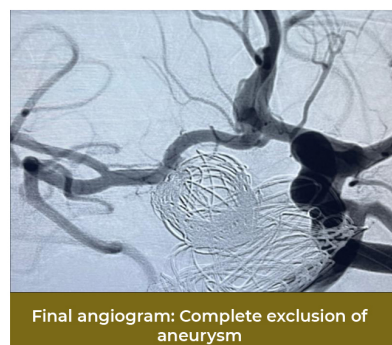
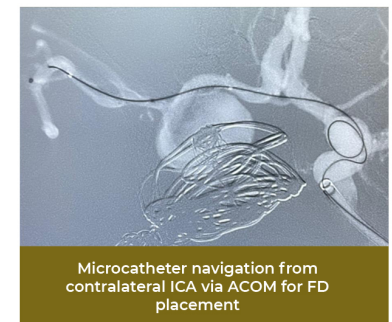
- 8 year old boy presented with intracranial hemorrhage due to giant ICA aneurysm. He was treated by parent vessel occlusion at another institution. However distal part of aneurysm was seen to fill retrogradely.
- On follow-up angiogram, the residual aneurysm was seen to grow in size raising the possibility of repeat bleeding.

Treatment strategy

- It was planned to place a Flow diverter across the ICA bifurcation starting from the middle cerebral artery to the right anterior cerebral artery along with few coils in the aneurysm as well.
- Patient was started on dual antiplatelets (Aspirin & Plavix) 5 days before the procedure. Two microcatheters were taken across the anterior communicating artery to the right side for the flow diverter placement and coiling respectively. After Partial deployment of flow diverter, coiling of aneurysm was done followed by complete deployment of the flow diverter placement.
- DSA showed good patent artery flow with complete occlusion of the aneurysm. Patient has been doing well.

Indications for flow diverter

- In large and giant aneurysm with broad neck
- Fusiform/dissecting aneurysm
- Blister aneurysms
- Selected cases of very small berry aneurysm and bifurcation aneurysms



Evolution in techniques for flow diverter

- Low profile flow diverters which can be delivered through much smaller microcatheters.
- Coated flow diverter are much less thrombogenic & may need less anti-platelet therapy.
- VasoCT imaging technology in cathlab helps in-visualizing proper deployment of devices in the cath lab

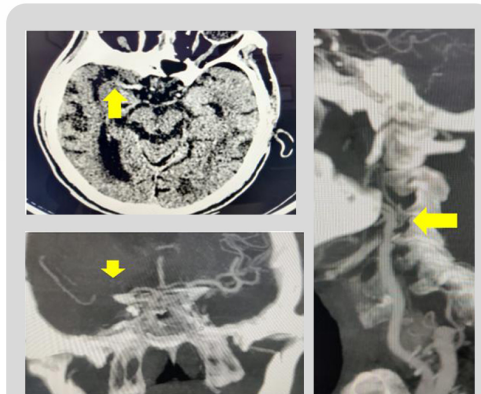
Take Home message

- Flow diverter helps in safe treatment of very complicated cerebral aneurysm.
- The advancement in the technology as well as experience has reduced the procedural complication rates significantly.

Acute Stroke With ICA Occlusion After Recovery Thrombectomy

Case Summary

- 65-male presents within 1.5 hours of onset – left sided weakness; Had recurrent seizures in hospital
- CT And CTA revealed: Tandem occlusion of proximal ICA and ICA terminus
- Immediately taken up for MT through Transfemoral route
- DSA showed ICA occlusion: angioplasty was done to open up the atherosclerotic occlusion. ICA angiogram revealed a large clot.
- An aspiration catheter (a large bore catheter which is soft and flexible is negotiated beyond the curved and bendy arteries to the site of the clot) was taken over a microcatheter upto the clot. The microcatheter was taken across the clot and a stent retriever was deployed across the occlusion. Under suction force the stent was retrieved along with the clot.

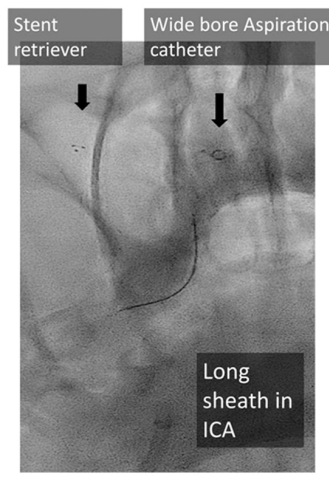
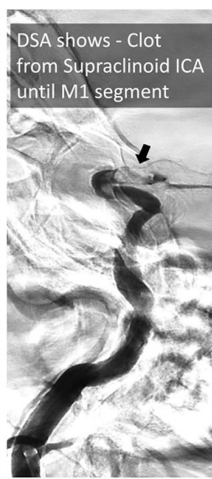


Stroke imaging protocol: CT and CTA

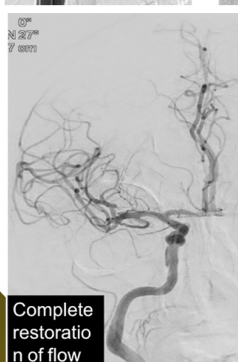
- Dense MCA Sign
- Right ICA occluded at origin and Intracranial terminu

Indications for mechanical thrombectomy

- Patients ≥ 18 years should undergo mechanical thrombectomy with a stent retriever if they have minimal prestroke disability,
- have a causative occlusion of the internal carotid artery or proximal middle cerebral artery,
- have an National Institutes of Health Stroke Scale (NIHSS) score of ≥ 6 ,
- have a reassuring noncontrast head CT (ASPECT score of ≥ 6), and
- if they can be treated within 6 hours of last known normal.
- In select patients MT can be performed till 24 hours



Stent retriever as well as local aspiration was used to remove clot- "Soumbra technique"



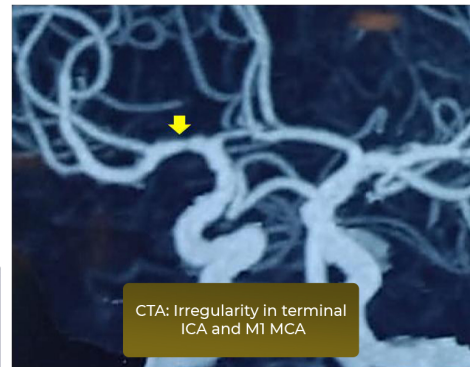
Take Home Message

- Comprehensive stroke care center is able to offer the below -
- Rapid triage at the ER, rapid response stroke team to allow parallel processing to minimize door to groin puncture, rapid advanced imaging and appropriate thrombectomy technique

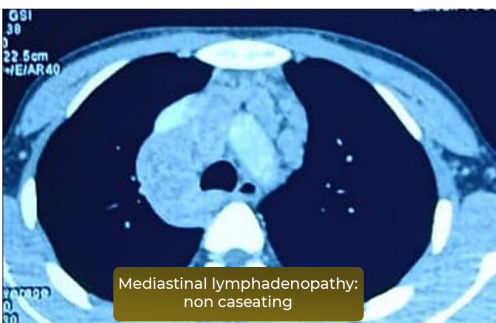
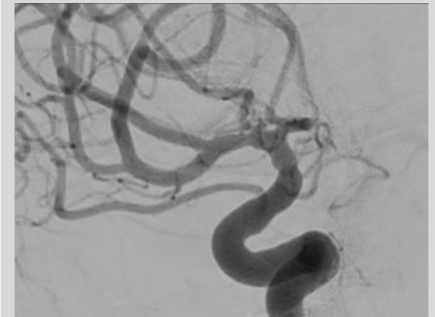
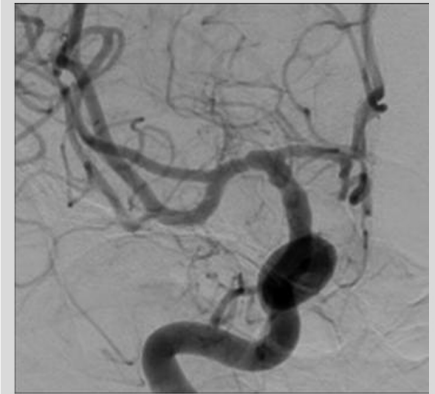
Recurrent Stroke in Young Male with Vasculitis

Case Summary

- **History:** A young male presented with left sided weakness. He developed recurrent stroke in the same territory in hospital
- **Radiological Investigations:**
MRI: Right deep and subcortical infarct
CTA and DSA: Irregularity in terminal ICA and M1 MCA
- **Relevant Investigations:** LP normal
 Serum ACE – 137; repeat also high; rest else screen for systemic vasculitis negative
- Sarcoid Vasculitis is a granulomatous vasculitis preferentially involves vessels of the caliber of the perforating arteries Rare but can involve larger arteries including the proximal MCA Commenced on Steroids, following which no further events observed



DSA cerebral: Irregularity in the M1 segment MCA and terminal ICA

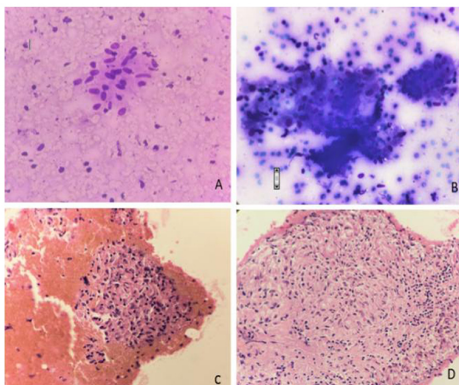


Presentation of Intracranial vasculitis

- CNS vasculitis is suspected when strokes, more often recurrent occur in young patients & diffuse neurological dysfunction
- Decreased cognition, headache, seizures and stroke are the most common presenting features.

Diagnosis of intracranial vasculitis

- Blood Investigations: ANA, ANCA, ENA, ACE, ESR, RF, Viral Screen, VDRL
- MRI Brain: abnormal in 94%
- LP is abnormal in 74%
- DSA cerebral: look for beaded appearance, however, not specific
- Guided brain biopsy has a better yield. In systemic vasculitis biopsy of peripheral organ



Biopsy: Epithelioid histiocytes: No caseous necrosis

DID YOU KNOW ?

Stroke is one of the leading causes of death and disability in India. The estimated adjusted prevalence rate of stroke range, 84-262/100,000 in rural and 334-424/100,000 in urban areas

Take home

- Recurrent strokes despite anticoagulation – to look for an underlying etiology
- Sarcoid can cause cerebral vasculitis; predominantly small vessels, but can affect larger caliber arteries also
- TB should be borne in mind – tends to cause caseation

Correction of Gross Sagittal Imbalance in a Patient of Ankylosing Spondylitis

Introduction

- Ankylosing spondylitis is a chronic inflammation that results in progressive ossification of the ligaments and joints of the spine.
- Pain and stiffness are hallmarks of this disease and these symptoms progress throughout life.
- Eventually, the spine becomes stiff and fixed in global kyphosis due to loss of lumbar lordosis and increased thoracic kyphosis. (Fig1)
- Stable walking becomes difficult due to the global positive balance and inability to look straight ahead due to bent posture. (Fig2)

Management Principles

- A corrective osteotomy is a widely accepted solution for rigid and fixed kyphotic deformities in ankylosing spondylitis patients.
- Various types of osteotomy, such as SPO, PSO, PVCR, and PPSO, could be applied to correct the deformity.(Fig3)
- Factors to be considered while choosing type of osteotomy - the amount of correction needed, type of deformity, location of the apex, surgical risks and others. (Fig4) Location of the osteotomy is important theoretically, the more distal the osteotomy, more is the correction achieved in the C7 plumb line.
- The purpose of surgery is to correct the posture, reduce other discomforts caused by poor posture, increase social activities, and improve respiratory and digestive functions.

Several reports have shown acceptable and good clinical outcomes after various types of corrective osteotomy.

Case Summary

- Our patient had a fixed global sagittal imbalance on the lateral image of the whole spine (with sagittal vertical axis [SVA] more than 120 mm) and had disturbed horizontal gaze and difficulty in daily activities.(Fig5)
- The indications for surgery was the inability to stand upright in a balanced alignment, inability to maintain a horizontal gaze, pain due to muscle strain, and poor cosmetic appearance.
- Due to the characteristics of ankylosing spondylitis where the ALL is ossified, we performed Pedicle Subtraction Osteotomy (PSO) of L2, deformity correction and stabilisation with pedicle screws. Manual reduction after osteotomy was performed slowly and sequentially on both sides using a compressor.
- Patient achieved acceptable sagittal balance postoperatively.(Fig6)

Discussion

Corrective osteotomies form a formidable tool in the correction of a variety of spinal deformities. Use of PSOs in the lumbar spine can translate into dramatic correction of global sagittal imbalance and have far reaching impact on the patient's horizontal gaze and general quality of life.



Figure 1

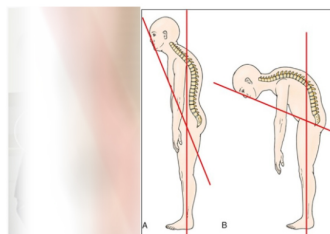


Figure 2

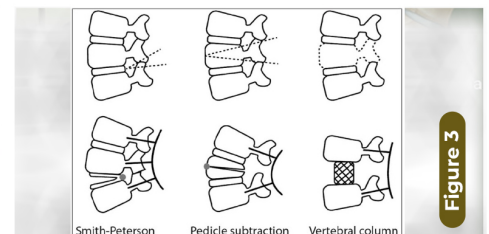


Figure 3

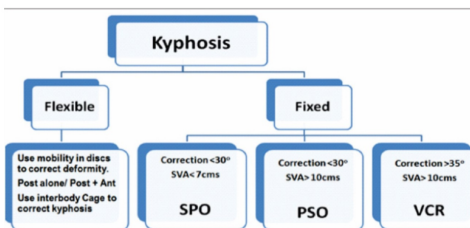


Figure 4



Figure 5

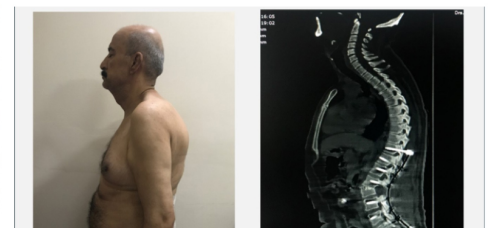


Figure 6

POST COVID MYELITIS

Introduction

COVID 19 has variable manifestations which include Fever, myalgias, anosmia, ageusia, thromboembolic phenomenon and viral pneumonitis and ARDS. COVID 19 vaccination, and infection per-se may rarely have neurological complications like acute neuropathy with a Guillain Barre like syndrome, myositis, myelitis and Acute Disseminated Encephalomyelitis. Here we present a case of a non compressive myelopathy as a complication of COVID.

Case Summary

- 50 years old male - no known comorbidities, received the first dose of COVID 19 vaccine on 21/4/21.
- One week later, had high grade continuous fever with generalized body aches without chills or rigours.
- On the third day of fever, the patient got a Hemogram LFT KFT Urine analysis and COVID 19 RT PCR, which turned out to be positive.
- He took treatment as prescribed by his physician and steroids for 5 days and became asymptomatic in 6 days.
- About 10 days later 17/5/21 started having difficulty in passing urine. He could feel the urge to pass urine and he had to go to the toilet several times to pass urine, every time voiding a small amount only. He also had to strain significantly while needing to defecate.
- 3 days later, he noticed weakness in both his lower limbs which progressed rapidly within 2-3 days and he could walk only with support. He also complained of abnormal band like sensation around the chest from the level of nipples below.
- This was the time when he presented to us for evaluation, when he was almost wheelchair-bound. On examination he had hypotonia of both lower limbs, power was 4/5 in all groups of muscle at hip and knee on right side and 3/5 on left side, foot dorsiflexion and planter flexion were weak. Hyperaesthesia was seen at the D4 Reflexes were 2+ at all joints and ankle jerks were preserved with mute

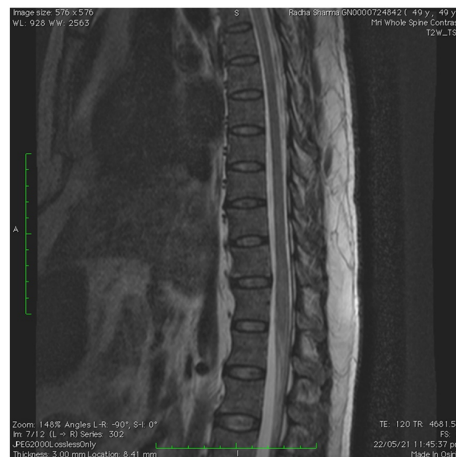


Figure 1

Management

- Admitted on 22/5/21 with gross urinary retention which was drained after catheterization with further deterioration in motor power.
- MRI Brain with whole spine screening was done. MRI of the brain was normal, however, the screening study of the spine revealed thickening of conus medullaris and lower dorsal cord with patchy intramedullary hyperintensities in the spinal cord. (Fig1)
- The CSF examination revealed no abnormality. Serum and CSF oligoclonal bands (OCB), anti Neuromyelitis Optica antibodies (Anti NMO Abs), anti Myelin Oligodendocyte Glycoprotein (MOG) Abs were negative.
- Considering a possibility of autoimmune myelopathy, ? Post vaccination ??

Post COVID 19 associated myelitis, the patient was started on Injection Methylprednisolone 1 gm per day for 5 days.

- He improved significantly right after the first dose. He was discharged from the hospital on oral prednisolone in doses of 1 mg/kg/day. On follow up visit he was observed to have a power of 4-5 power proximally in all groups on right side and 3/5 on left side with regained control on his bowel and bladder, with a marked improvement in the band like sensation over his torso.

Discussion

- Demyelinating diseases of the nervous system can be primary – like Multiple sclerosis or Neuromyelitis Optica, or they may be secondary – after a vaccination for a serious disease, as a result of a viral or a remote complication of a bacterial infection, a surrogate complication of a systemic vasculitis or an autoimmune disorder.
- In the present case our most probable diagnosis was a post COVID 19 myelitis. The patient developed COVID infection within a week after vaccination, which was unlikely to have generated protective antibodies. Patient developed neurological complications about two to three weeks after the COVID infection, which is the most likely timing when the neurological manifestations have been observed in previously reported cases. The significant improvement observed after steroids further confirms our doubts of a post viral myelitis as most of these patients recover almost completely after steroids. The present case underscores the importance of being watchful of the rare complications of COVID 19, and also be aware of the timing when these problems appear.

Endoscopy In Neurology : A Path - Breaking Technology

What is Neuroendoscopy?

Neuroendoscopy is a minimally - invasive surgical procedure in which the neurosurgeon uses small, lighted tubes called endoscopes to visualize various parts of the brain, skull base, or spinal cord through small openings.

There are a large number of brain surgeries which can be done even through nose or mouth with endoscope avoiding any cut on skin.

Pituitary adenoma :

- The third most common intracranial tumor and arise from the pituitary gland.
- Surgical removal via the endoscopic endonasal approach is the treatment of choice for most patients with the exception of prolactinomas.(fig.1)
- With major technical advances over the last few years in high-definition endoscopy and surgical navigation techniques pituitary surgery is safer than ever in experienced hands.

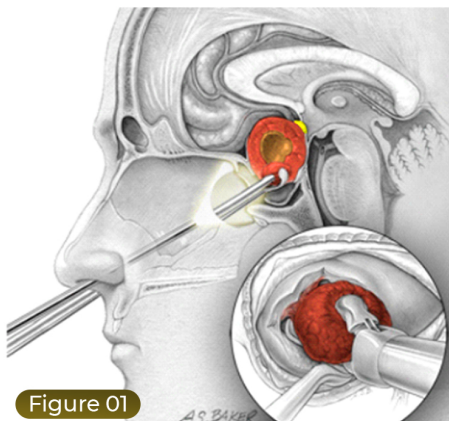


Figure 01

A 49 year old male patient presented with c/o progressive loss of vision in left eye along with severe headache. His contrast MRI brain showed a tumor of size approximately 4 cm in sellar region with suprasellar extension with compression of optic apparatus. Patient underwent endoscopic excision of tumor through nose. Patient showed good recovery from his symptoms . Not only his headache was relieved, his vision also improved tremendously. His postoperative MRI showed completed removal of tumor.(fig.2)

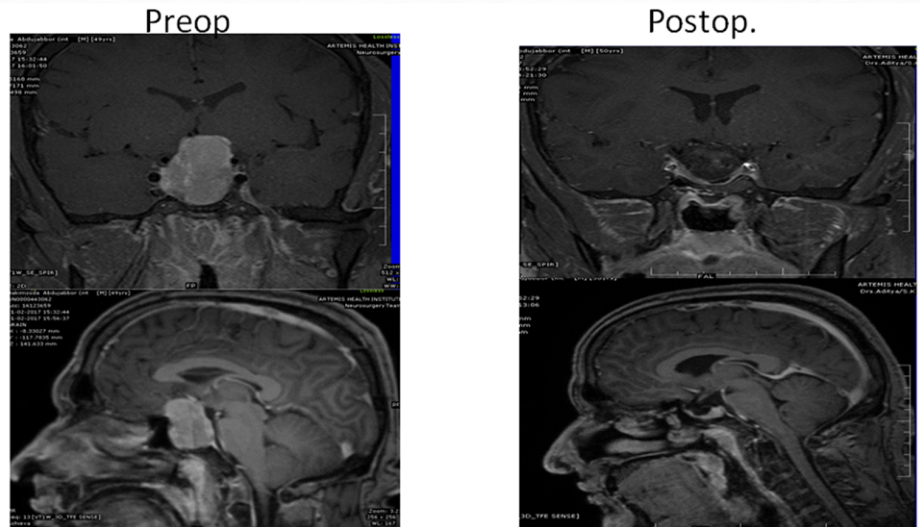


Figure 02

Case Summary

A 49 year old male patient presented with c/o progressive loss of vision in left eye along with severe headache. His contrast MRI brain showed a tumor of size approximately 4 cm in sellar region with suprasellar extension with compression of optic apparatus. Patient underwent endoscopic excision of tumor through nose. Patient showed good recovery from his symptoms . Not only his headache was relieved, his vision also improved tremendously. His postoperative MRI showed completed removal of tumor.(fig.2)

Discussion

We at Artemis Agrim institute of neurosciences, have a vast experience in endoscopic neurosurgery (both skull base and intracranial). The availability of latest endoscopes and navigation system(fig.3) at our centre has made this surgery even more safe and effective.



Figure 03

MEDIA, CONFERENCE AND EVENTS

Artemis opens Neuro Sub Speciality Clinics in Gurugram

Artemis Hospitals has launched one-of-its-kind Neuro Sub-Speciality Clinics for patients suffering from neurological disorders under the concept of Integrated Parkinson Clinic.

The speciality clinics are designed to provide efficiently enhanced services dedicated to diagnosing neurological problems and their right course of treatment. These Neuro Sub-Speciality Clinics are Parkinson's disease Clinic, Dementia Clinic, Neuro-Neurology Clinic, and Dementia Clinic (Memory Disorders) which will be housed in the same premises of the Neuro Sub-Speciality Clinics.

The eminent doctors and experts of Artemis Hospitals were also present during the launch including Dr. Suresh Singh (Chief Neurologist, Parkinson's Specialist & co-Chief, Stroke Unit), Dr. Aditya Gupta (Chief Neurologist & Chief Radiologist & Co-Chief, Epilepsy Centre), Dr. Manish Mishra (Co-Chief Neurologist & Head of Neuroimaging), Dr. Sameer Arora (Associate Consultant, Neurology), Dr. Vikas Goyal (Associate Consultant, Neurology) and Dr. Naveen Mishra (Associate Consultant, Neurology).

The early detection of neurological disorders like Parkinson's Disease with timely treatment is extremely crucial as underlying causes may hamper the nervous system which can change the way you move, talk or think. These dedicated neurological clinics will give a significant role in the holistic treatment of neurological disorders with support from a team of experienced neurologists, neurophysiologists, and trained nursing staff. Artemis Hospitals will continue to expand its services to other cities.

The services provided at the clinics include detailed clinical and cognitive assessment of patients, identification of patients according to the severity of disease, monitoring of disease progress for patients for long term disease management, the formation of support groups for patients and caregivers, detailed evaluation of symptoms and medical history, cognitive assessment using neurocognitive and neuropsychological tests, treatment of cognitive impairment, recognition of reversible and treatable causes, and enhancement of patients to make them self-dependent among others.

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न्यूरोलॉजिकल डिसऑर्डर से पीड़ित रोगियों के लिए विशेष सब स्पेशियलिटी क्लीनिक्स

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आज तक न्यूरोलॉजिकल डिसऑर्डर से पीड़ित रोगियों के लिए न्यूरो सब स्पेशियलिटी क्लीनिक्स का शुभारंभ किया गया।

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Artemis Hospitals leads battle against Parkinson's with a special clinic

Artemis Hospitals is leading the battle against Parkinson's disease. The clinic is designed to provide efficiently enhanced services dedicated to diagnosing neurological problems and their right course of treatment.

The clinic will be housed in the same premises of the Neuro Sub-Speciality Clinics. The eminent doctors and experts of Artemis Hospitals were also present during the launch.

The early detection of neurological disorders like Parkinson's Disease with timely treatment is extremely crucial as underlying causes may hamper the nervous system which can change the way you move, talk or think.

SLEEP DISORDER

INSOMNIA: IT'S TIME TO ADDRESS THE UNRECOGNISED BURDEN

Insomnia is a condition that affects millions of people worldwide. It is characterized by difficulty falling asleep, staying asleep, or waking up too early in the morning.

The burden of insomnia is increasing globally, with reports indicating that it affects up to 30% of the population. This is a significant public health concern as it is associated with various physical and mental health issues.

Addressing insomnia is crucial for improving quality of life and overall health. Early diagnosis and treatment can help manage symptoms and prevent complications.

Coma Patient revived successfully after minimally invasive brain surgery

A patient who had been in a deep coma for several weeks was successfully revived after undergoing a minimally invasive brain surgery. The surgery was performed by a team of experts at Artemis Hospitals.

The patient was brought to the hospital in a critical condition. The medical team quickly initiated resuscitation efforts and decided to perform a minimally invasive craniotomy to address the underlying cause of the coma.

The surgery was successful, and the patient showed signs of improvement. The medical team is continuing to monitor the patient's progress and provide necessary care.

WORLD PARKINSON'S DAY EVENT

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LAUNCHING ARTEMIS NEURO SUB SPECIALITY CLINICS

PARKINSON'S DISEASE CLINIC | NEURO IMMUNOLOGY CLINIC | DEMENTIA CLINIC (MEMORY DISORDERS)

11TH APRIL | 10:00 am - 1:00 pm | Auditorium, Artemis Hospital Sector 51, Gurugram

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