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SRI RAMAKRISHNA HOSPITAL

pulse

Happenings at Sri Ramakrishna...

50 Years of Excellence

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July is a month that celebrates the people and innovations that shape the future of healthcare. On **Doctors' Day**, we pay tribute to the extraordinary commitment of our doctors, whose dedication extends beyond treating illnesses to restoring hope, comforting families, and improving countless lives. Their compassion and professionalism remain the greatest strength of our institution.

Dr.Sundar Ramakrishnan
Managing Trustee

This month also marks International IVF Day, reminding us of how medical advancements continue to transform dreams into reality. The ability to help couples experience the joy of parenthood reflects the remarkable progress of modern healthcare and the importance of continually embracing innovation. As we observe World Hepatitis Day, we reaffirm our responsibility to create greater awareness about liver health, preventive care, vaccination, and the importance of early detection in building healthier communities.

At Sri Ramakrishna Hospital, we believe that true healthcare is measured not only by clinical excellence but also by the positive impact we create in society. Guided by our commitment to service, innovation, and compassion, we will continue to strengthen our healthcare ecosystem, empower our medical professionals, and provide accessible, world-class care for every individual who places their trust in us.

Healthcare today is driven by a shared commitment to excellence, collaboration, and continuous learning. **Doctors' Day** is an opportunity to recognize the dedication of every physician who works tirelessly to deliver safe, ethical, and evidence-based care. Their expertise, supported by multidisciplinary teamwork and advanced technology, enables us to provide the highest quality treatment across every specialty.

Dr.S.Rajagopal
Medical Director

The observance of **International IVF Day** highlights one of medicine's most inspiring achievements—helping families overcome infertility through advanced reproductive care. At Sri Ramakrishna Hospital, we are committed to delivering comprehensive fertility services with clinical precision and compassionate support.

As we also commemorate **World Hepatitis Day**, we continue to strengthen our efforts in early diagnosis, vaccination, patient education, and advanced liver care, reinforcing the importance of prevention alongside treatment.

Medicine continues to evolve, and so does our commitment to staying at the forefront of healthcare. Through continuous research, adoption of cutting-edge technology, and a patient-first approach, we strive to improve outcomes and elevate the standards of medical excellence. Every member of our healthcare team remains dedicated to delivering care that is not only advanced but also compassionate, ensuring the well-being of every patient who walks through our doors.

Our Hospital Certified as Tamil Nadu's First Comprehensive Chest Pain Center

Sri Ramakrishna Hospital has achieved a landmark milestone by becoming Tamil Nadu's first hospital to be certified as a Comprehensive Chest Pain Center by the American Heart Association (AHA). This prestigious international recognition reflects the hospital's unwavering commitment to delivering world-class, evidence-based cardiac care and further strengthens its position as a leader in advanced cardiovascular healthcare.

The certification was officially announced during a press meet held at Sri Ramakrishna Hospital. The press meet was led by Dr. Sundar Ramakrishnan, Managing Trustee, SNR Sons Charitable Trust, and attended by Shri. C. V. Ramkumar, Chief Executive Officer, Shri. D. Maheshkumar, Chief Administrative Officer, Dr. S. Rajagopal, Medical Director, Dr. S. Alagappan, Medical Superintendent, along with senior consultants and specialists from the Department of Cardiology. During the interaction, the leadership and cardiology team highlighted the significance of this international certification and reaffirmed the hospital's commitment to providing timely, high-quality emergency cardiac care.

The Comprehensive Chest Pain Center Certification is awarded to hospitals that meet stringent international standards in the rapid diagnosis and treatment of heart attack patients. With advanced infrastructure, expert cardiologists, and the capability to perform life-saving procedures such as Percutaneous Coronary Intervention (PCI), Sri Ramakrishna Hospital is well-equipped to provide immediate and coordinated care when every second matters. The certification also recognizes the hospital's adherence to evidence-based clinical protocols, continuous quality improvement, and excellence in patient outcomes.

Speaking during the press meet, Dr. Sundar Ramakrishnan said that this recognition is a proud milestone for Sri Ramakrishna Hospital and its Department of Cardiology. He emphasized that the certification reflects the institution's dedication to clinical excellence, advanced technology, and international quality standards, while reaffirming its commitment to delivering timely, compassionate, and evidence-based cardiac care to every patient.

Pediatric Neurosurgery

Intro: This article illustrates the wide spectrum of remarkable paediatric neurosurgical cases pediatric neuro surgery managed at Sri Ramakrishna Hospital by me. These cases illustrate the breadth of modern paediatric neuro surgery with the latest technologies like Navigation, advanced Neuro Microscope, Neuro Endoscopy, paediatric skull base approaches, Intraoperative Neuromonitoring, the importance of multidisciplinary care including plastic, ENT, neonatal, paediatric, paediatric and Neuro Intensive care units. Children with neuro surgical disease may present with headache, vomiting, gait disturbance, visual disturbances, weakness, spinal skin markers, developmental delay, or abnormal head shape and new neurological deficits, congenital deformities, Some conditions are time-sensitive, and delays in referral and appropriate treatment can affect neurological recovery or long-term function. Thanks to the general practitioners and referral doctors involved in early diagnosis and referral of these patients for their appropriate recovery.

Case Series Highlights - Skull base lesions

1.MIDLINE NASAL APICAL DERMOID WITH SKULL BASE EXTENSION WITH INR ACRANIAL EPIDERMOID.

This Female child with nasal apical epidermoid extending upto skull base along the nasal septum and another separate lesion in the frontal basal region intracranially with congenital corpus callosal agenisis with mild hydrocephalus was approached by csf diversion by vp shunt followed by trans nasal endoscopic route excision of the nasal portion upto the skull base a followed by rhinoplasty using the septal cartilages, rib grafts by team of endoscopic paedicatiric neurosurgeon and plastic surgeon recovered completely with good cosmesis. The same child had spinal dysraphism which along with the intracranial pathology was planned for surgery at later date.

Fig 1: Clinical photo and CT images demonstrating nasal apical dermoid extending upto the skull base and intracranial frontal basal epidermoid.

Fig 2: MRI images of the same child with corpus callosal agenesis, mild hydroceplaus, myelomeningocele with tethered cord and post op clinical images after tumor excision and rhinoplasty.

COMPLEX SPINAL DYSRAPHISMS

MYELOMENINGOCELD WITH TETHERED CORD: Two children with large congenital meningomyelocele and tethered cord with normal neurology. Of which one child had chiari-malformation with syringomyelia and other child with only tethering 1st child required staged surgical intervention and underwent excision of the myelomeningocele detethering with intra operative neuromonitoring followed by plan for foramen magnum decompression with syringosubarachnoid shunt later and the other child excision of the myemomeningocele with detethering in the same sitting.

Dermal sinus with tethered cord

Fig 3: Pre opMRI and clinical images showing spina bifida Meningomyelocele With tethering, spina bifida chiarimalformation,cervicodorsal syringomyelia, preop clinical images and post opclinical images.

Fig 4: Pre op MRI and clinical images showing spina bifida Meningomyelocele With tethering, preop clinical images and post opclinical images.

Two other children's with no neurological deficits presented with dermal sinus with placode tethering the spinal cord underwent microsurgical excision of the dermal sinus with detethering as this is essential to prevent the children developing infection of the dermal sinus as well developing neurological deficits or bladder disturbances at later date.

Intra operative multi modal Neuro monitoring with motor evoked potential, somato sensory evoked potential and use of high mag operating microscope and the team work with plastic surgeons aids in better preserved neurological outcome as well cosmetic results and less post op complications in these cases.

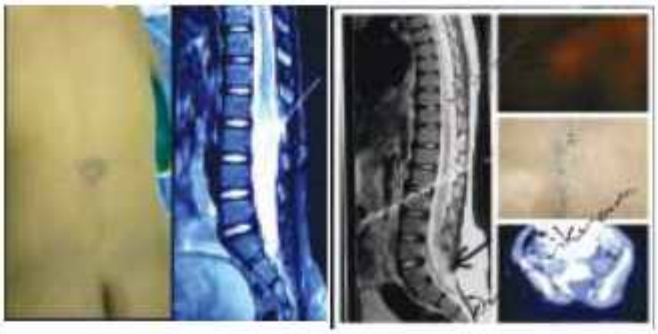

Fig 5: Pre op MRI and clinical images showing dorso lumbar dermal sinus Extending to the conus With tethering, preop clinical images and post opclinical images.

Fig 6: Pre op MRI and clinical images showing lumbo sacral dermal sinus extending to the cauda euqinal dural sac with preop clinical images and post op clinical images.

Acute Subdural Hematoma due to Coagulopathy: This Child with spontaneous acute sub dural hepatoma due to coagulopathy induced by altered liver function test due tocholedocal cyst underwent craniotomy and evacuvation of the subdural hematoma recovered post operatively to normal neurology. Later on child underwent correction of choledocal cyst by surgical intervention under surgical gastroenterologist care with normal course of life.

Fig 7: Pre opCT and clinical images showing acute subdural hematoma with mass effect, midline shift, coning, perop images of vascularized pedicled craniotomy evacuation of sdh as well post op clinical image of the child.

Congenital Craniostenosis and Cranioplasty:

Two children with non syndromicsagittal suture craniostenosis one being at 1 year old underwent cranioplasty successfully showing pre and post op images and the other presenting at 3 months of age with pliable and less thicker bone amenable to cutting with scissors underwent endoscopic multiple suturectomy as cranioplasty with which child cosmetically improved and doing well .

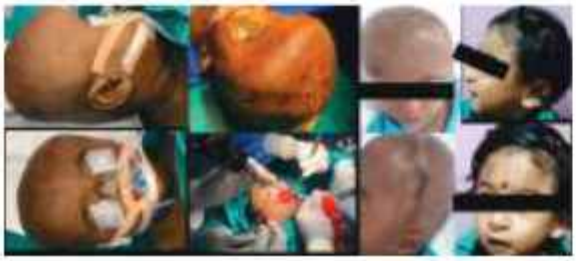

Fig 8: Clinical photo and preop 3d ct image reconstruction, per op cranioplasty bone cuts for correction of the deformity and pos op clinical image of the child with non syndromic craniostenosis.

Fig 9: Clinical photo, per op endoscopic cranioplasty by multiple suturectomy for correction of the deformity and pos op clinical image at 1 year of the child with good cosmesis in a non syndromiccraniostenosis at 3 months presentation.

Child with mild gait disturbances, head ache and persistent unprovoked vomiting had 4th ventricular tumour medulloblastoma with hydrocephalus underwent ventriculo peritoneal shunt , telovelar approach and radical excision of the medulloblastomafollowed by chemo radiotherapy, radical near total excision is the goal for these aggressivetumours, telovelar approach helps in preservation of the cerebellar vermis and the cerebellar function and prevents cerebellar mutism and other disturbances due to vermis damage. Radical near total excision can be achieved with this approach with intra operative neuro monitoring and the surgical high end neuro operating microscope assistance to achieve adequate results with no fresh neurological deficits. We did had the experience of operating on a child with benign pilocytic astrocytoma in the supra cerebellar location by sitting position to achieve near total excision of the same as these being benign lesion the near total surgical excision is essential for recurrence free quality of life for the child. Thanks to the technology and the neuro anaesthetist and the paediatric team for their support to achieve the same.

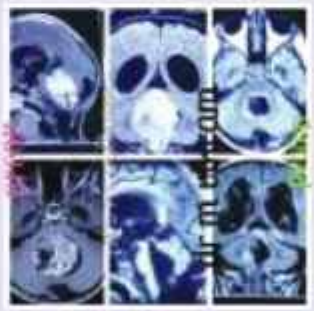

Fig 10: re opMRI of the child with 4th ventricular medulloblastoma as well post op MRI showing near total excision of the lesion by telovelar approach.

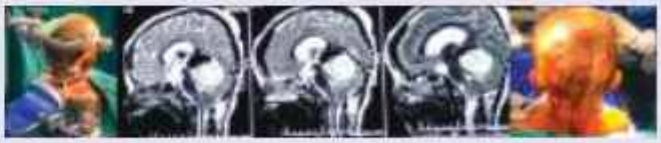

Fig 11: Clinical photo, per op sitting position of the child and the preop images showing the supra-cerebellar pilocytic astrocytoma lesion the essentiality of the sitting position to achieve effective total surgical resection.

Another Adolescent girl with para paresis with conus medullaris myxo papillary ependymoma underwent laminoplasty and total excision of the lesion with conus detethering and under regular follow-up came after marriage and child birth with no recurrence showing

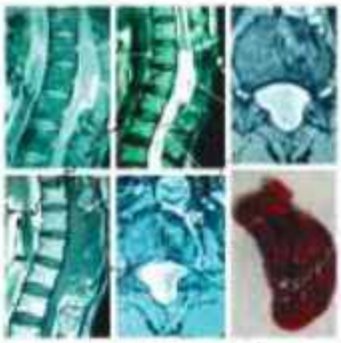

Fig 12: Pre op MRI plain and contrast images of the adolescent girl with myxopapillary ependymoma with en-capsular excision of the lesion following laminoplasty.

Hypothallamic Ganglioglioma

7 yrs old Child presenting with visual disturbance and endocrine disturbance showing seller suprasellar ganglioglioma in MRI underwent trans nasal extended endoscopic total excision of the lesion, though had minimal DI transiently improved later with no DI and preserved endocrines as well having normal growth, improvement in vision.

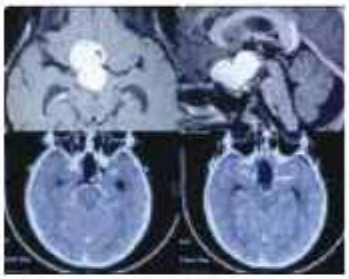

Fig 12: Pre op and post op MRI study showing near total excision of the ganglioglioma of a 7yrs old child by trans nasal extended endoscopic approach with visual improvement and transient endocrine disturbances.

Adolescent girl with colloid cyst

A 13 yrs old girl with headache vomiting due to Colloid cystcausing hydrocephalus underwent neuro endoscopic total excision of the colloid cyst and recovered to normalcy.

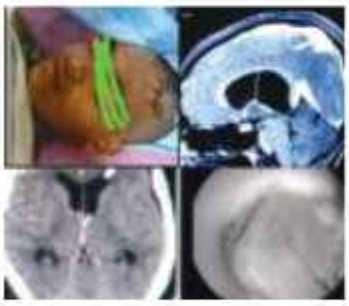

Fig 13: Pre op, post opMRI and CT study, intra op images showing near total excision 3rd ventricular colloid in a 13 yr old adolescent girl with no post op deficits.

CV Junction instability as Torticollis

9 yrs old Child with torticollis rotational Atlanta axial dislocation underwent posterior c12 reduction and fixation, thanks to advanced smaller size instruments, IONM for successful reduction and instrumentation.

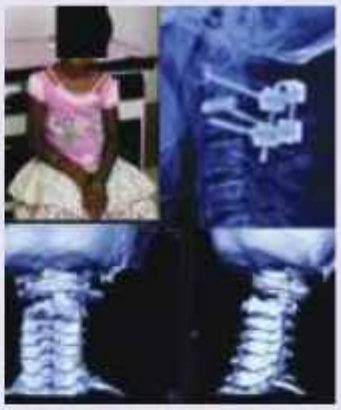

Fig 14: Clinical photo of child with torticollis, pre op 3d ct showing rotational AAD, and post op xray showing reduction, fusion and stabilization of the CV Junction with no neurological deficits.

Congenital Arachnoid cyst with hydrocephalus

Child with variant of dandy walker malformation large loculated arachnoid cyst causing, hydrocephalus underwent endoscopic third ventriculostomy with cystocisternostomy and, preimproved in symptoms though the chronic arachnoid cyst decreases in size with better appearance of the sulci gyri pattern of the cortex post op images wont show complete resolution of the arachnoid cyst

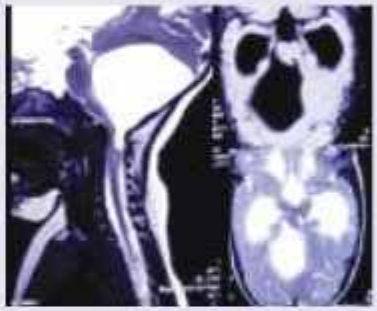

Fig 15: pre op and post op MRI of the child with dandy walker variant, loculated arachnoid cyst

Conclusion: This series of cases shows how modern pediatric neurosurgery uses endoscopic, microsurgical, and reconstructive techniques to reduce morbidity, the team work of various specialties for these Visible spinal abnormalities, abnormal head shape, various lesions causing persistent vomiting, headache, gait disturbance, weakness, developmental delay, or congenital lesions aids in early and apt intervention where timely referral can prevent irreversible deficits. The central message is to identify red flags early, arrange imaging when appropriate, and refer children with suspected neurosurgical disease without delay for timely and appropriate intervention.

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SRI RAMAKRISHNA HOSPITAL

Celebrating the Gift of Life - World Blood Donor Day

We proudly celebrated World Blood Donor Day by organising a Voluntary Blood Donation Camp at Sri Ramakrishna Hospital, reaffirming our commitment to saving lives through voluntary blood donation. The camp was inaugurated by Dr. Sundar Ramakrishnan, Managing Trustee, SNR Sons Charitable Trust, in the presence of the hospital's leadership team, who appreciated the invaluable contribution of blood donors and encouraged more individuals to embrace this noble cause.

We were delighted to witness the enthusiastic participation of over 100 voluntary donors, including members of the public and students, who came forward to donate blood with a spirit of compassion and social responsibility. Our Blood Centre team ensured a safe, hygienic, and comfortable donation experience while creating awareness about the importance of maintaining an adequate blood supply to support emergency care, surgeries, cancer treatment, maternal healthcare, and other life-saving medical services.

The celebration reinforced our belief that every drop of blood donated has the power to save multiple lives. Through this meaningful initiative, we continue to inspire a culture of voluntary blood donation and community service while strengthening our mission of delivering compassionate, quality healthcare. We extend our heartfelt gratitude to every donor who made this event a resounding success and a true celebration of humanity.

Transnasal Endoscopic Resection of a Pituitary Macroadenoma in a Patient with Acromegaly and Mechanical Mitral Valve Replacement

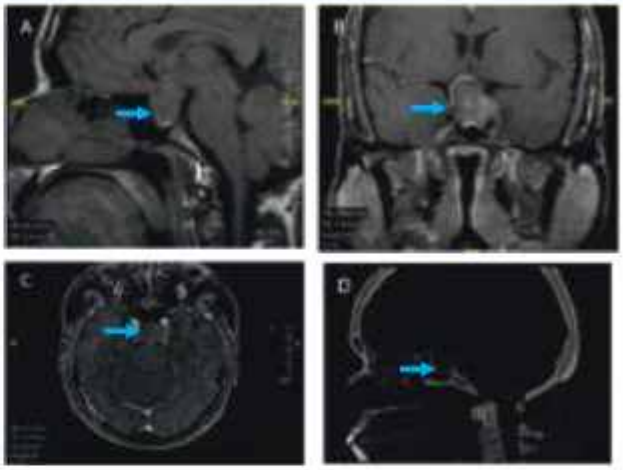
Introduction: Pituitary macroadenomas are benign tumors of the anterior pituitary gland that may present with hormonal hypersecretion and mass effects. Acromegaly resulting from growth hormone (GH)-secreting pituitary adenomas is associated with significant systemic morbidity and mortality if left untreated. Transnasal endoscopic excision of the tumor is the firstline of treatment. The coexistence of acromegaly with rheumatic heart disease (RHD) poses unique surgical challenges.

Balancing thromboembolic risk against perioperative bleeding risk requires careful planning and multidisciplinary coordination. We report a case of a 40-year-old female, on chronic anticoagulation therapy following mitral valve replacement, who was diagnosed with pituitary macroadenoma presenting with acromegaly. She successfully underwent transnasal transsphenoidal (TNTS) endoscopic excision of the tumor with favorable postoperative recovery.

Case Report: A 40 year old lady a known case of rheumatic heart disease who underwent mechanical mitral valve replacement surgeryin the year 2010, on anticoagulation therapy, presented with progressive acromegalic features and persistent headaches for 2 years.

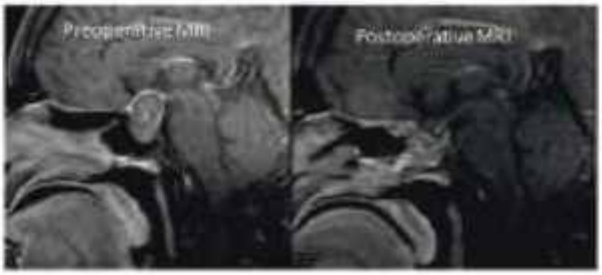
Given her history of mechanical valve replacement and chronic anticoagulation therapy, primary surgical intervention was deferred at diagnosis by the patient. She was managed medically with octreotide for approximately two years under endocrinology supervision.She was on treatment with thyroxine for hypothyroidism.

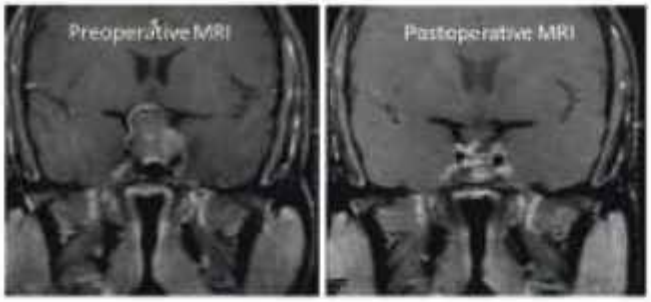
Although biochemical control improved, headaches persisted despite medical therapy. The persistence of symptoms prompted re-evaluation. MRI scan of brain with contrast showed a 2.7 x 2.6 x 1.5 cm sellar-suprasellar enhancing lesion splaying the optic chiasm and partially encasing the bilateral cavernous internal carotid arteries (Knosp Grade 3). There was no significant interval change in the size of tumor in the present scan when compared to the previous MRI scans.



Figures: Blue arrows in Figures A,B,C are pointing to the sellar suprea sellar enhancing lesion in sagittal, coronal and axial planes in MRI scan respectively, features suggestive of pituitary macroadenoma. Arrow in Figure D is indicating the sellar tumor eroding the sellar floor in sagittal plane in CT scan.

A multidisciplinary discussion involving cardiology, endocrinology, neuroanaesthesia, and neurosurgery was undertaken. She was planned for transnasal transsphenoidal (TNTS) endoscopic excision of the tumor. A bridging protocol was instituted and oral anticoagulant was discontinued preoperatively. Low molecular weight heparin (Clexane) was initiated. Serial INR monitoring was performed and surgery was scheduled only after therapeutic normalization of coagulation parameters. She underwent a successful TNTS endoscopic excision of the adenoma. The tumor was noted to be pinkish-grey, friable, and possessed a thin capsule that was firmly adherent to the arachnoid membrane. After tumor excision there was an intraoperative minimal CSF leak which was successfully repaired using free fascia lata and fat graft and secured with a vascularized nasoseptal flap. Anticoagulation was safely resumed 24 hours post-operatively. Patient was placed on strict bed rest for 5 days with stringent intake-output monitoring to evaluate for diabetes insipidus or fluid shifts.





Nasal packing was removed on post-operative day (POD) 5 as there was no CSF leak or nasal bleeding. Patient was safely discharged on POD 8. Remarkably, post-operative biochemical evaluation demonstrated a complete normalization of her IGF-1 levels. She had reduction in headache with reversal of acromegalic features like thinning of thickened skin, lip and extremities, normalization of skin color and reduction in the size of tongue. 3 months follow up MRI scan of brain with contrast showed a small left parasellar small residual lesion. She is on regular followup.

Discussion: Pituitary adenomas account for approximately 10–15% of intracranial tumors. Acromegaly is caused by hypersecretion of growth hormone (GH) from a pituitary macroadenoma. The prevalence of acromegaly is reported to be 70–90 cases per million population annually. Excess GH stimulates hepatic production of insulin-like growth factor-1 (IGF-1), leading to characteristic somatic and metabolic manifestations. It is associated with increased morbidity and mortality rates, especially due to respiratory, cardiovascular disease, and malignant diseases. Endoscopic TNTS surgery is currently the preferred treatment modality for most pituitary macroadenomas as it provides excellent visualization of the tumor, allowing maximal tumor resection, and also associated with reduced morbidity compared with traditional approaches. The presence of rheumatic heart disease, particularly following valve replacement, complicates surgical management due to mandatory chronic anticoagulation therapy, which significantly elevates perioperative and anesthetic risks. In our patient, risk of mechanical mitral valve thrombosis significantly increased if anticoagulation was interrupted. On the other hand, performing surgery under anticoagulation therapy substantially increased the risk of intraoperative bleeding and postoperative hematoma. Hence a multidisciplinary approach involving Neurosurgeon, Otolaryngologist, Cardiologist, Endocrinologist and Anesthetist was required for a safe surgery and its outcome. The bridging therapy that is perioperative transition from oral anticoagulants to low-molecular-weight heparin (LMWH) demanded precise timing to prevent both valve thrombosis and devastating post-operative intracranial or surgical-site hemorrhage. Our patient was started on anticoagulant postoperatively without any bleeding complications. Skull base reconstruction was absolutely mandatory in pituitary adenoma patients to prevent nasal CSF leak. Our patient had a small arachnoid rent with CSF leak during surgery which was managed with fat/fascia lata grafting combined with vascularized nasoseptal flap. Successful treatment of functioning adenomas is not evaluated solely through radiology; biochemical remission remains the critical endpoint. In our patient postoperative hormonal assessment showed normalization of IGF-1 levels, indicating effective endocrine control. Patient also had significant reduction in headache and regression of acromegalic features suggestive of successful surgical outcome. This case highlights the importance of multidisciplinary collaboration among neurosurgeons, endocrinologists, cardiologists, anesthesiologists, and otolaryngologists in managing complex pituitary tumors in patients with significant cardiac comorbidities.

Conclusion: Management of pituitary macroadenoma presenting with acromegaly in a patient with RHD and mechanical valve replacement is rarely reported in literature. Endoscopic endonasal transsphenoidal surgery is a safe and effective treatment option for pituitary macroadenoma causing acromegaly in carefully selected patients requiring chronic anticoagulation for prosthetic heart valves. Appropriate perioperative anticoagulation bridging, meticulous skull-base reconstruction, and multidisciplinary care can result in excellent surgical and endocrine outcomes.

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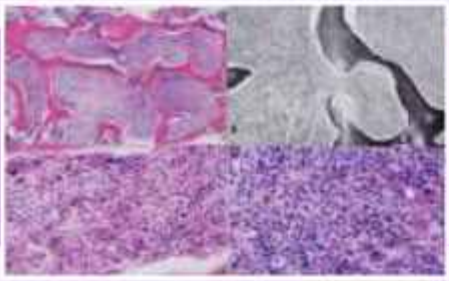

Treating Chronic, Complicated Genetic Anemia with a 'Targeted-Drug' Costing Less Than a Cup of Coffee - A Case of Successful Transfusion-Free Pregnancy in Ghosal Hematodiaphyseal Dysplasia (GHDD)

Introduction: Ghosal Hematodiaphyseal Dysplasia (GHDD) is a condition, classically encompassing progressive diaphyseal dysplasia of long bones accompanied by severe, refractory anemia and thrombocytopenia.The disease maps to mutations in the TBXAS1 gene on chromosome 7q34, which encodes thromboxane synthase. This enzyme is critical for converting prostaglandin H2 (PGH2) to Thrombaxane A2 (TXA2). Defects in this pathway cause a local accumulation of proximal prostaglandin intermediates, triggering inflammatory remodeling and dense reticulin fibrosis in the bone marrow cavity. The resulting myelofibrosis causes progressive, transfusion-dependent cytopenias.

Historically, these patients faced lifelong steroid dependence or heavy transfusion burdens. However, understanding the molecular mechanism reveals a remarkably affordable alternative. '**Low-dose aspirin**' acts as a direct, pathogenetically targeted therapeutic agent by irreversibly inhibiting upstream cyclooxygenase (COX) enzymes, halting the accumulation of toxic prostaglandin intermediates.

We present the clinical management and successful obstetric outcome of a patient with GHDD, demonstrating that a severe genetic cytopenia can be completely reversed during pregnancy using a drug costing mere pennies.

Case Description: Patient Presentation & Baseline Evaluation: A 26-year-old married female presented with a one-month history of worsening generalized tiredness, easy fatigability, mild exertional dyspnea, and occasional palpitations. She denied fever, joint pain, hair loss, skin rashes, early satiety, or loss of weight or appetite. Menstrual history was normal without menorrhagia. Her obstetric history was notable for a surgical termination (dilation and curettage) in June 2023 due to an early miscarriage with decreased embryonic cardiac activity. Family history revealed a consanguineous marriage among her parents and a history of non-transfusion-dependent anemia in her mother. Notably, the patient carried a 3-year history of chronic refractory anemia despite strict compliance with oral iron and vitamin B12 supplements. She had previously required three units of packed red blood cell transfusions in the past.

On physical examination, mild pallor was noted. There was no frontal bossing, facial dysmorphism, icterus, cyanosis, clubbing, or peripheral lymphadenopathy. Abdominal examination revealed mild hepatosplenomegaly.

Diagnostic Workup: Baseline laboratory tests confirmed aDimorphic(macrocytic/normocytic) anemia with significant thrombocytopenia (bicytopenia):

- White Blood Cell (WBC): 6,810/µL
- Hemoglobin (Hb): 6.7 g/dL
- Red Blood Cell (RBC):4.1 x 10^6{µL}
- Mean Corpuscular Volume (MCV): 82 fL
- Platelet Count: 69,000/µL
- Differential: Neutrophils (44%), Lymphocytes (49.6%)
- Reticulocyte Count: 3.04%
- Peripheral Blood Smear: Dimorphic anemia with thrombocytopenia.

A systemic workup was initiated to identify the underlying cause of her bicytopenia and splenomegaly. Direct Antiglobulin Test (DCT) was negative. Total Bilirubin was 2.1 mg/dL(Direct: 0.6 mg/dL), and Lactate Dehydrogenase (LDH) was 232 U/L. Uric acid (6.2 mg/dL) and Creatinine (0.5 mg/dL) were stable. Antiphospholipid Antibody (APLA) triple screening, Antinuclear Antibody (ANA) profile, and ANA Immunofluorescence (IF) were all negative. Paroxysmal Nocturnal Hemoglobinuria (PNH) screening was negative. Hemoglobin Electrophoresis showed normal ranges for HbA andHbA2, though a small fetal hemoglobin HbFpeak was visualized. The Mentzer Index calculated to 20(MCV)/RBC = 82/4.1), ruling out a classic Beta-Thalassemia Trait. Given the refractory nature of the cytopenias and a wide differential diagnosis encompassing atypical hemoglobinopathies, bone marrow failure syndromes, or primary marrow pathology, a bone marrow evaluation was performed. The bone marrow aspiration was technically difficult and yielded a dilute sample, though imprint smears preserved evidence of trilineage hematopoiesis. The bone marrow trephine biopsy demonstrated a hypocellular marrow with architectural signs of marrow hypoplasia, initially suspected to be drug-induced or secondary to an elusive autoimmune etiology. To establish an absolute diagnosis, Whole Exome Sequencing (WES) was ordered. Genetic Analysis & Targeted Therapy Induction: Whole Exome Sequencing identified a pathological mutation in the TBXAS1 gene, confirming a diagnosis of GhosalHematodiaphyseal Dysplasia (GHDD).

FINDINGS RELATED TO PHENOTYPE

In light of this molecular diagnosis, a mechanism-targeted treatment plan was initiated. The patient was started on oral Prednisolone (Omnacortil) at 0.5 mg/kg paired with low-dose Aspirin (Tab. Ecospirin, 75 mg once daily). The patient demonstrated an exceptional, rapid hematological response within weeks of launching the aspirin regimen, as detailed in the chronological timeline below.

Summary of Hematological Recovery

Parameter	Baseline	1 Month	3 Months	4 Months
Hemoglobin (g/dL)	6.3	7.4	11.5	12.6
Platelets (/µL)	74,000	128,000	248,000	235,000

Pregnancy Management & Outcome: Shortly after achieving complete hematological remission, the patient conceived. Given her history of parental consanguinity and her underlying genetic condition, a multidisciplinary team including a clinical geneticist, hematologist, and maternal-fetal medicine specialist was convened. The couple received comprehensive genetic counseling regarding the autosomal recessive inheritance patterns of GHDD. Backed by her fully restored blood counts and a strong desire to continue the pregnancy given her past pregnancy loss, she proceeded with the gestation under close monitoring. The low-dose aspirin therapy was maintained safely throughout gestation. Her hemoglobin remained completely stable, maintaining levels consistently greater than 11 g/dL. She required absolutely no blood or platelet transfusions throughout the entire pregnancy. The patient successfully delivered a healthy infant via an uneventful peripartum course with zero maternal or fetal complications. The clinical team has advised parent-infant follow-up with plans to perform Whole Exome Sequencing for the infant at a later date.

Discussion: Ghosal Hematodiaphyseal Dysplasia is an easily overlooked cause of refractory childhood or young-adult cytopenias. Because it primarily targets the TBXAS1 gene, it creates a unique state of local bone marrow failure. Normally, thromboxane synthase redirects arachidonic acid intermediates down downstream pathways. When TBXAS1 is mutated, prostaglandin H2 (PGH2) accumulates locally, activating standard pro-inflammatory prostanoid signaling pathways that promote bone overgrowth and drive dense reticulin scarring (myelofibrosis) within the medullary space. This physical fibrosis causes the characteristically difficult "dry tap" or dilute aspirates during bone marrow samplings, as witnessed in this patient's initial trephine biopsy.

Historically, GHDD was treated with lifelong systemic corticosteroids to suppress the secondary marrow inflammation. However, steroids rarely yield sustained cures alone and expose patients to severe, long-term systemic toxicities. The introduction of low-dose aspirin (1–2 mg/kg/day) represents a milestone in pathophysiologically **'Targeted therapy'**. By binding irreversibly to cyclooxygenase-1 (COX-1), aspirin arrests the synthesis of PGH2, cutting off the source of toxic accumulation. Over time, this arrests the stimulus for marrow fibrosis, allowing the stem cell niches to clear and regenerate normal trilineage hematopoiesis.

The financial contrast in this treatment paradigm is profound. While modern hematological therapeutics heavily leverage engineered biologics, monoclonal antibodies, and gene therapies that cost hundreds of thousands of rupees annually, this patient's marrow failure was entirely reversed using a drug that costs mere cents per day—literally a fraction of the cost of a cup of coffee.

Conclusion: This case demonstrates that low-dose Aspirin is a highly effective, ultra-low-cost 'Targeted' treatment for Ghosal Hematodiaphyseal Dysplasia. Confirming the diagnosis through Whole Exome Sequencing allows us to switch from generic immuno suppressive treatments to target the underlying cause of the disease. Furthermore, maintaining aspirin therapy through pregnancy is safe and effective, reversing bone marrow failure and supporting a full-term, transfusion-free delivery. It underscores a vital lesson for global health: precision medicine does not always require expensive drugs; sometimes, it simply requires the precise application of our most basic, widely available medications.

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