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Emergency / Casualty :	**2656 8063 / 2656 8064**
Ambulance :	97692 50010
Hospital Board Line :	022-2675 1000 / 2656 8000
Hospital Fax :	022-2640 7655 / 2640 5119
Admission Department :	2656 8080 / 2656 8081 / 2656 8082
TPA Cell :	2656 8089
Appointment-OPD :	2656 8050 / 2656 8051
Billing-Inpatient Department :	2675 1586 / 2675 1585
Billing-OPD Department :	2656 8052 / 2656 8053
Blood Bank Department :	2656 8214 / 2656 8215
Health Check-up Department :	2656 8355 / 2656 8354
Report Dispatch Counter :	2675 1620
MRI Department :	2656 8066
X-Ray, Sonography Department :	2656 8031
CT Scan Department :	2656 8044 / 2656 8045
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Lilavati Hospital and Research Centre

More than Healthcare, Human Care

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MEDICAL TIMES

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MEDICAL TIMES

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CONTENTS

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EDITORIAL...

Dear Colleagues,

Lilavati Hospital and Research Centre has been at the cutting edge of medical knowledge and through Lilavati Hospital Medical Times (LHMT) it is our endeavour to bring to you, in your office the medical updates and clinical pearls which we hope will help you in treating your patients.

Dr. Swati Kanakia has outlined an approach to prevent sepsis after Splenectomy. Vaccines have an important role and the guidelines are listed here.

We have a series of case reports highlighting challenging aspects of Anaesthesiology especially for Kyphoscoliosis, as it is challenging due to the complexities of intra and post-operative management, Cardio Vascular and Thoracic surgery, Histopathology, Orthopaedic surgery, Radiology and Paediatric Neurology.

Dr. Hemangini Barot and colleagues have outlined a new technique along with a case report.

Dr. Pavan Kumar has shared his cases of long term follow up of three patients undergone coronary artery bypass surgery. Coronary angiographies performed subsequently have shown graft patency in these cases.

We love pigeons, but do not appreciate the health hazard from them. Apart from infections, allergy is a common problem. Dr. Chandralekha Tampi describes a form of lung disease we have recently recognised as a major problem with exposure to pigeons.

Dr. Sudhir Warrier and colleagues have succinctly outlined a strategy for treating tumor like conditions of the hand.

Dr. Manoj Deshmukh and his team discuss a case of spontaneous vertebral artery dissection and the role of modern day Radiology in this life threatening condition.

We have briefly described a new test which we have recently introduced namely the *Acetyl choline esterase* test, for the benefit of your patients.

We have a new, upgraded, state of the art SICU (Surgical ICU) on the first floor.

We invite you to participate in the medical quiz incorporated in our FUN TIME section.

I am sure that this edition of the LHMT has enough on its menu to whet your academic appetite.

Looking forward for your valuable comments and suggestions to help us serve you better.

Wish you great health and happy reading.

Dr. Sanjeev Mehta

OVERVIEW: LILAVATI HOSPITAL & RESEARCH CENTRE

Late Shri Kirtilal Mehta

LILAVATI KIRTILAL MEHTA MEDICAL TRUST

Lilavati Hospital and Research Centre is run and managed by Public Charitable Trust - Lilavati Kirtilal Mehta Medical Trust which was formed in 1978. The Trust was settled by late Shri Kirtilal Manilal Mehta. The Trust has engaged in innumerable charitable endeavors across India.

Late Smt. Lilavati K. Mehta

The Lilavati Kirtilal Mehta Medical Trust is being managed and administered by:
Interim Board

Chairman

Justice (Retd.) J. N. Patel

and

Trustees

Smt. Charu K. Mehta
Smt. Rekha H. Sheth

LILAVATI HOSPITAL & RESEARCH CENTRE

Lilavati Hospital & Research Centre is a premier multi specialty tertiary care hospital located in the heart of Mumbai, close to the domestic and the international airport. It encompasses modern health care facilities and state of art technology dedicatedly supported by a committed staff. Lilavati Hospital has focused its operation on providing quality care with a human touch; which truly reflects the essence of its motto, "More than Health Care, Human Care". Being a centre of medical excellence where technology meets international norms and standards, the hospital has got what it takes to be the pioneering quality healthcare institute and hence is one of the most sought after and "Patient Friendly" hospital.

Mission: To provide affordable healthcare of international standard with human care.

Motto: More than Healthcare, Human Care.

HIGHLIGHTS

- 316 bedded hospital including 72 Intensive care beds.
- 12 state-of-the-art well equipped operation theatres.
- Full fledged Dental & Dermo cosmetology clinic.
- Modern Cathlabs having specialized SICU & ICCU with highly trained cardiac care medical staff.
- Lilavati Kirtilal Mehta Medical trust is an approved research organization by Ministry of Science & Technology having all modern facilities necessary for conducting research.
- More than 300 consultants and manpower of nearly 1,800.
- Hospital attends to around 300 In-patients and 1,500 Out-patients daily.

LATEST TECHNOLOGY

Lilavati Hospital has always striven to provide the best in health care to patients and is always in the front to adopt the latest technology available to its repertoire.

- ***SOMATOM Definition Flash - CT SCAN***
- ***3 Tesla MRI with latest Philips Ingenia having digital technology***
- **Philips Allura Clarity FD10 Low Dose Cathlab**

LILAVATI KIRTILAL MEHTA MEDICAL TRUST RESEARCH CENTRE

The Lilavati Kirtilal Mehta Medical Trust Research Centre is a Scientific and Industrial Research Organization approved by Ministry of Science and Technology (Govt. of India). The Research Centre under guidelines of Dept. of Science & Technology works in close collaboration in evaluating and developing technologies for better health care to the sick people. The research centre have undertaken multidisciplinary researches in the fields of Cardiology, Radiology, Cerebrovascular Diseases (Stroke), Ophthalmology, Chest Medicine, Nuclear Medicine, Pathology, Oncology, Orthopedics etc, to cite a few. One of the important aims of the Research Centre is to establish Community based epidemiological researches in Cerebrovascular disease in stroke. As a policy Drug and Device Trials are not undertaken at the Research Centre.

LILAVATI HOSPITAL TODAY

DEPARTMENT IN FOCUS: PAIN MANAGEMENT

OVERVIEW

Pain Management Clinic aims at relieving the chronic pain such as low backache, radiating pain to hands and legs, cancer pain, Neuropathic pain such as in Diabetes Mellitus, Nutritional, Ischemic pain in Diabetic patients, peripheral vascular diseases and any long lasting pain.

The Goal of Pain Management Clinic at **Lilavati Hospital and Research Centre** is to increase professional proficiency and to provide **"Total Pain Relief"** to improve **"Quality of Life".**

ADVANTAGES OF PAIN MANAGEMENT CLINIC:

- Minimally invasive nature of the procedure, minimal tissue damage.
- Quick pain relief, minimizing or stopping pain killer requirement, boosting patient morale.
- Usually done on day care basis.
- No general anaesthetic usually in local anaesthesia and occasionally under sedation.
- Good for the patients who do not want surgery or not fit for surgery.
- Great advantage in diagnostic utility especially in chronic patients.
- Easy reproducibility with almost same success.
- Early post procedure recovery and rehabilitation.

SERVICES AVAILABLE

- **Transforaminal epidural or selective Nerve root block** for radiating pain due to disc prolapsed or bulge of upper and lower limbs.
- **Radio Frequency ablation or coagulation** is very effective for facet joint pain, disc pain, ischemic pain of lower limbs in diabetic patients, peripheral vascular diseases.
- **Plexus block** such as coelic plexus block for upper abdominal malignancy, superior hypogastric plexus block for cancer of uterus, cervix, rectum or urogenital pain.
- **Disc techniques** - Discoplaty, Discolysis, Nucleolysis and IDET - for pain due to disc prolapse.
- **Vertebroplasty** - Osteoporotic for selective patients with metastasis in spine to stabilize spine.
- **Spinal cord stimulation** - for failed back surgery pain.
- **Implantable pumps for Intra Thecal drug delivery system** - The dose of pain drugs will come down drastically. These pumps are used for Cancers of prostate, pancreas, liver, kidney and all types of generalized body pains requiring high dosage of morphine and multiple metastatic pains.

HOW I TREAT: PAEDIATRIC HEMATOLOGY

PREVENTING OVERWHELMING POST SPLENECTOMY SEPSIS

Dr. Swati Kanakia, *MD, DCH, PhD*

SPLEEN AND ITS ROLE IN THE HUMAN BODY

The spleen is not necessary to life. Many of its functions overlap with functions of other organs and in it's absence these functions are easily performed by the other organs. The spleen however assumes importance in disease processes and plays a role in the immune as well as hematologic functions. The role of the spleen includes phagocytosis of senescent RBCs, recycling of iron, recognition and destruction of pathogens and an important role in adaptive immunity by production of antibodies. The spleen is the site for hematopoiesis in fetal life and can support hematopoiesis in post natal life also.

TIMING OF SPLENECTOMY

The dictat is 'minimize risk maximize benefits'.

Splenectomy should be deferred till 6 years of age in children (the child should be at least 2 years of age preferably 5 years, 6 years is the most acceptable age).

SURGICAL OPTIONS

The decision to perform a complete splenectomy or partial splenectomy can be based on the underlying diagnosis.

Subtotal splenectomy can be carried out for removal of cysts or a pseudocyst, trauma, Gaucher's disease etc. where the immune function of the spleen is preserved.

Laparotomy is required when there are peritoneal adhesions and for enlarged spleens. In fact laparoscopic surgeries and minimally invasive procedures have become the standard of care for splenectomy. The advantages are a short post-operative recovery time, lesser days of hospitalization and antibiotic usage. The risk of injury to the pancreas, likelihood of development of peritoneal adhesions and other post-op complications and morbidity are lesser with laparoscopic splenectomy. The other advantage is that laparoscopic splenectomy can be carried out in patients with a low platelet count.

Due to the problems of post splenectomy sepsis, various novel procedures have been attempted; splenosis following traumatic splenic rupture, salvage of spleen post pancreatic surgery etc.

INFECTIOUS COMPLICATIONS AFTER SPLENECTOMY:

Post Splenectomy sepsis (OPSI) - Though rare is rapidly lethal. Encapsulated micro-organisms such as Streptococcus pneumoniae, Neisseria meningitides and Haemophilus influenzae as well as certain parasitic infections such as Malaria and C. Canimorsus are causative organisms.

POST SPLENECTOMY SEPSIS AND ITS PREVENTION

The risk of post splenectomy sepsis is life -long. However, this risk can be reduced by simple prophylactic measures including vaccines, prophylactic antibiotics, patient and parent education and aggressive treatment.

Prophylactic antibiotics

The most effective prophylactic antibiotic is penicillin. It should ideally be given lifelong in the following doses:

Penicillin V

For patients NOT allergic to penicillin

- Adults and children over 5 years - 250 mg bd oral
- Children 1-5 years - 125 mg bd oral
- Children under 1 year - 62.5 mg bd oral
- Penicillin V has no activity against Haemophilus influenzae.

Erythromycin

For patients allergic to penicillin

- Adults and children over 8 years - 500 mg od oral
- Children from 1 month-2 years - 125 mg od po

PRE-SPLENECTOMY VACCINES

Vaccines are a simple way to prevent life threatening infections in a patients undergoing splenectomy.

TIME OF VACCINATION

Elective splenectomy vaccines - The vaccines should be given at least 2 weeks prior to splenectomy. The ideal time frame is 4 - 6 weeks prior to surgery.

Emergency splenectomy - Vaccines should be given 2 weeks post surgery. Response to pneumococcal vaccine is poor if given within 2 weeks.

VACCINES TO BE GIVEN

Immunisation with Pneumococcal Vaccine in children with aplenia/hyposplenia, based on their age and prior immunization status.

Pneumococcal vaccines - please see table below .

Child's Age	Vaccination history PCV7 and / or PCV13	Recommended PCV 13 schedule
6 weeks to 6 months	0 dose	3 doses,4 weeks apart
		4th dose at age 12-15 months
	1 dose	2 doses, 4 weeks apart
		4th dose at age 12-15 months
	2 doses	1 dose. At least 4 weeks after the most recent dose
		4th dose at age 12-15 months
7-11 months	0 dose	2 doses 4 weeks apart
		Dose 3 at age 12-15 months
	1-2 doses Before age 7 months	1 dose at age 7-11 months Dose 2 at age 12-15 months (8 weeks later)
12-23 months	0 dose	2 doses at least 8 weeks apart
	1 dose before age 12 months	2 doses at least 8 weeks apart
	1 dose at or after age 12 months	1 dose at least 8 weeks after the most recent dose
	2-3 doses before age 12 months	1 dose at least 8 weeks after the most recent dose
	4 doses of PCV7 or age appropriate complete PCV 7 schedule	1 supplemental dose at least 8 weeks after the most recent dose
24-71 months	0-2 doses of any incomplete schedule	2 doses. Dose 1 at least 8 weeks after the most recent dose
		Dose 2 at least 8 weeks later
	3 doses of any incomplete schedule	1 dose at least 8 weeks after most recent dose
	4 doses of PCV 7 or age appropriate complete PCV 7 schedule	1 supplemental dose at least 8 weeks after the most recent dose
6-18 years	Any PCV7 or PPSV23	1 dose

PPSV 23 to be given to all children ≥ 2 years of age at least 8 weeks after last scheduled dose of PCV 13.
##Elective splenectomy at least 2 weeks after PPSV23 dose.
PPSV 23 second dose 5 years after 1st dose.
Modified to include special situations in children with asplenia (medical / surgical) and hyposplenia.
Reference - IAP Guide Book on Immunization, IAP Committee on Immunization 2009-2011, pg 106.

Meningococcal vaccine

Conjugate and polysaccharide vaccines are available. If polysaccharide vaccine is available then Quadrivalent meningococcal vaccine is recommended.

Two doses, 2 months apart form the primary immunization. Revaccinate after 5 years.

Haemophilus influenza B (Hib) vaccine

In a child who has received complete primary immunization with Hib vaccine (4 doses), a single dose of Hib is recommended with revaccination after 5 years.

In patients who have not received primary Hib immunization, two doses of Hib two months apart are recommended with revaccination after 5 years.

Additionally *typhoid vaccine* is also very important for children with medical/surgical splenectomy.

Ref : Br J Haematol. 2011 Nov;155(3):308-17.

GUIDELINES FOR PATIENTS

Patients and parents must be instructed regarding the following aspects of care post splenectomy.

- Shared care with the pediatrician / family physician regarding vaccination and antibiotic prophylaxis will go a long way in preventing life threatening infections.
- Patients should report to the doctor at the first sign of an infection despite being on antibiotics as antibiotic therapy may fail and parenteral antibiotics may be needed.
- Patient must be told about the increased susceptibility to malaria.
- Patients must visit a doctor ASAP following a dog bite because there is an increased risk of infection due to C. canimorsus.

CASE REPORT: ANAESTHESIOLOGY

MODIFIED TOTAL INTRAVENOUS ANAESTHESIA TECHNIQUE FOR MAINTENANCE IN KYPHOSCOLIOSIS CORRECTIVE SURGERY

Dr. Hemangini Barot, *M.B.B.S, MD (Anaesthesia), Fellow Paediatric Anaesthesia,*
Dr. Kunal, *M.B.B.S, MD (Anaesthesia), FRCA (London),* **Dr. Nitya,** *DNB Anaesthesia*

What is TIVA ?

TIVA is Total Intravenous Anaesthesia which includes titrated infusion of Propofol[2,3] or Ketamine and Remifentanil or Fentanyl[2] or Dexmedetomidine through Target controlled infusion pumps with no use of inhalational agents and muscle relaxants.

Why TIVA?

It helps to obtund airway reflexes and bronchodialatation, easily titrable hence able to maintain hemodynamic stability, good quick quality of recovery, reduced emergence delirium and neuroprotection.

The anaesthetic plan in Scoliosis surgery must allow for safe induction, positioning of patients, appropriate maintainence of anaesthesia with conventional methods of total intravenous anaesthesia, management of fluids, blood loss, intraoperative and post operative assessment of neurologic function.

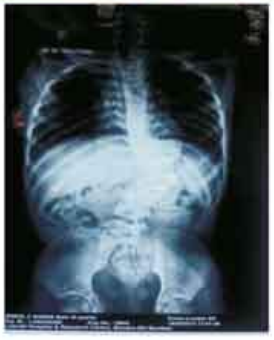
Scoliosis surgery involves a spectrum of procedures during which the spinal cord, nerve roots and key blood vessels are frequently placed at risk for injury. Neuromonitoring provides an opportunity to assess the functional integrity of susceptible neural elements during surgery[1].

We are reporting this case as this is the first kyphoscoliosis case done in Lilavati Hospital with SSEP and MEP monitoring without performing intraoperative wake up test with the team of Dr. Shekhar Bhojraj.

CASE REPORT

A 10 yrs. old male weighing 25kgs with the chief complaints of pain in the lower back and deformity since 2 months now posted for spine deformity correction surgery. He was a k/c/o congenital kyphoscoliosis with hemivertebrae operated for the same 9 years back with no h/o post operative anaesthetic or surgical complications.

General examination and systemic examination were normal (except the kyphoscoliotic back from birth). Breath holding time was 25 seconds. All blood investigations were within normal limits.



MANAGEMENT

We have managed with the modified technique of total intravenous anaesthesia for the maintainence using fentanyl and propofol infusion with our regular infusion pumps during the surgery.

Pre operative

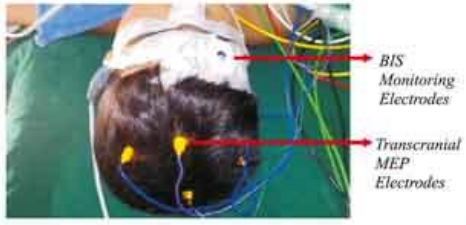
After pre- operative evaluation the patient and his parents were counselled regarding post operative ICU and ventilator support, blood transfusion and analgesia with PCA morphine. Adequate blood and blood products were reserved. Informed Consent was taken from parents.

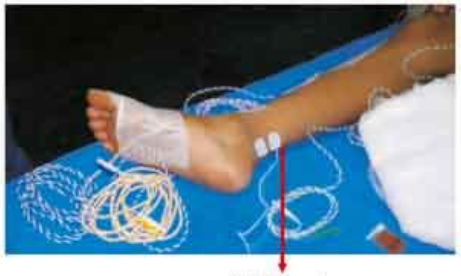
Intra operative

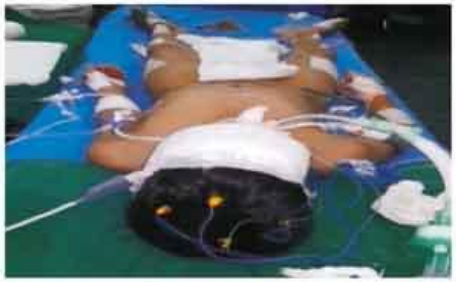
Monitoring of ECG, NIBP, SPO2 was done before induction

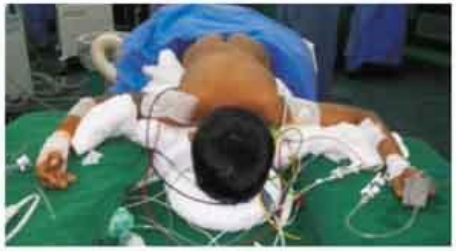
Two big bore IV line was taken. Induction done with Midazolam 0.05 mg/kg, Fentanyl 2 mcg/kg. The induction was done with Propofol 2mg/kg and Succinylcholine 2mg/kg (short acting muscle relaxant only for intubation), dexamethasone 0.1 mg/kg, intubation was smooth. Antibiotics were administered. Tranexamic acid 500mg and Solumedrol 500mg was administered as per surgeons advise. No muscle relaxant was administered after induction.

Additional monitoring post induction ABP, BIS and neuromonitoring.









MEP, SSEP, EEG, transoesophageal temperature monitoring was done.

SSEP: They are a type of sensory evoked response. Sites of stimulation used in our case was posterior tibial nerve at ankle. All anaesthetic drugs affect SSEPs. Generally they tend to increase latency and decrease amplitude. Exceptions are nitrous oxide, ketamine and midazolam which do not affect latency. Etomidate has been reported to increase amplitude. The use of inhaled agents upto 0.5 - 1 MAC may not significantly affect SSEP and MEP monitoring but studies have showed that it would be difficult to differtentiate between the neurological damage and the effect of inhalational agent hence TIVA remains a better option. Bolus doses of opioids or sedatives or sudden increase in concentration of anaesthetic agents alter SSEPs. Physiologic factors influencing SSEPs include blood pressure, temperature, blood gas tensions. CO_2 levels. Hypotension progressively decreases the amplitude with no change in latency. Hypothermia causes increase in latency and decrease in amplitude. Hyperthermia decreases amplitude and causes loss of wave at 42°C. Hypoxia decreases amplitude.

MEP: MEPs are markedly depressed by almost all anaesthetic agents. The electrodes were placed transcranially and the muscles monitored were both hands hypotheanar muscles, brachiallis, both lower limbs extenser hallucis longus, quadriceps femoris (Myogenic MEPs were acquired by electrical stimulation of the scalp and the peripheral responses from target muscles were recorded). The marked influence of anaesthetic drugs on MEPs demands a rigid anaesthetic protocol. Opioids decrease the amplitude and increase the latency of MEP only slightly hence TIVA of Propofol and Fentanyl was appropriate.

Prone position was given, eyes and other pressure points padded.

Maintenance of anaesthesia

No inhalational agents and muscle relaxants were used for maintainance of anaesthesia. Patient was maintained on propofol and fentanyl infusion and an FIO2 of 50%. During the MEP recording, anaesthesia was maintained by minimum dose of Propofol 1% infusion at the rate of 150 mg/hr (10mg/ml) and was titrated according to patients anaesthetic requirements and Fentanyl infusion (2 mcg/ml) at the rate of 60 mcg/hr. Intermittent boluses of Morphine was given 1.5 to 3 mg total 7.5 mg. As a component of TIVA, infusion of propofol in combination with an opioid has achieved popularity and produces acceptable conditions for monitoring of cortical SSEPs and MEP recording. Muscle relaxants can decrease the amplitude of MEP. The depth of anaesthesia was maintained by monitoring BIS and effective MEP monitoring could be done.

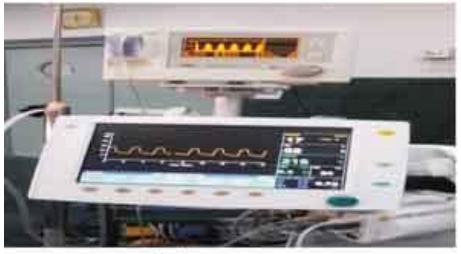
Intraoperative hemodynamics was maintained, systolic blood pressure 80-110 mmHg, heart rate 65 - 80 / min and BIS between 44 - 58.

During the surgery there was a decrease in the amplitude and increase in the latency of the evoked potential monitored from the right side quadriceps femoris muscle. This was discussed with the surgeon and appropriate action was taken by the surgeon after which the MEP monitoring the quadriceps femoris improved.

Adequate fluids were administered and urine output was maintained. Intraoperative blood loss of 250ml. ABG before extubation of patient done which was within normal limits. Once the dressing was done patient was made supine. Ondensetron 0.1 mg/kg was given. Extubation was planned. Propofol and Fentanyl infusions were stopped before half and hour and the total amount of

propofol and fentanyl were 750mg and 300mcg. Patient started breathing spontaneously but decreased respiratory rate and wakefulness. Naloxone 200 mcg was given to reverse these effects of opioids. The patient was awake pain free and was shifted to the PICU with a PCA Morphine explained to patient and the relatives. The total duration of the surgery was 5 hrs. Post operative patient was on paracetamol 15 mg/kg and very minimal use of patient controlled analgesia.

Sevoflurane 0%

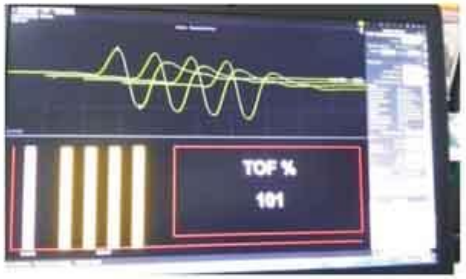


Ventilatory parameters

Infusion pump

Target Controlled Infusion pump

Intraoperative hemodynamic status and BIS value



TOF moniter showing no use of muscle relaxant

MEP Recordings from the muscles
Red graph - baseline
Yellow graph - response

CONCLUSION

Combined SSEP and MEP intraoperative monitoring is the standard of care for individuals undergoing correction of scoliosis. Considering that most anesthetics affect SSEP and MEP to some degree, anesthetic management of these cases often can present a challenge. In our case Propofol and Fentanyl infusions provided acceptable conditions for the monitoring of MEP and SSEP as well as good hemodynamic stability which is a modified TIVA technique using regular infusion pumps. With the help of neuromonitoring early detection of any neurological damage can be recognized and manipulated. Thus a good anaesthetic technique is the key for effective neuromonitoring and early diagnosis of intraoperative neurological damage and repair of the damage.

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CASE REPORT: CARDIOVASCULAR AND THORACIC SURGERY

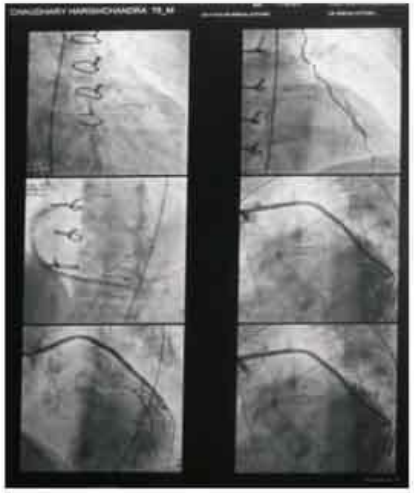
LONG TERM RESULTS OF CORONARY ARTERY BYPASS SURGERY BEYOND 10 YRS.

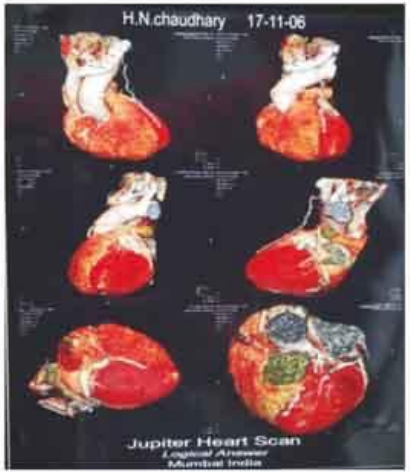
Dr. Pavan Kumar, *M.S, M.ch*

Case report I

LONG TERM RESULTS OF CORONARY ARTERY BYPASS SURGERY - 17 YRS. FOLLOW UP PATIENT

A 54 yrs. old male patient residing in Bandra West underwent coronary angiography under Dr. Sanzgiri for his cardiac angina complaints in Feb, 1998. Angiography revealed triple vessel coronary artery disease. Subsequently as advised he underwent Triple vessel coronary artery bypass surgery in March, 1998. He received left Internal Mammary artery (LIMA) to LAD (Left anterior descending artery), Saphenous vein graft (SVG) to OM_2 (Obtuse Marginal coronary artery) and SVG to PDA (Posterior descending artery) in his successful coronary bypass surgery. His post-operative period was uneventful and had yearly follow up maintaining strict control of risk factors, taking medications properly. There was no incidence of repeat angina, hospitalization for cardiac illnesses. He underwent coronary CT scan angiography in Nov, 2006, which showed all grafts patent at 8 year follow up. He underwent repeat coronary angiography in July, 2015 as 17 yrs. old follow up study by Dr. S Kothari. Repeat coronary angiography showed patent grafts (LIMA to LAD, SVG to OM_2 and SVG to PDA) suggesting excellent long term results beyond 15 yrs. with no MACCE (Major Adverse Cardiovascular and Cerebral Events).





Case report II

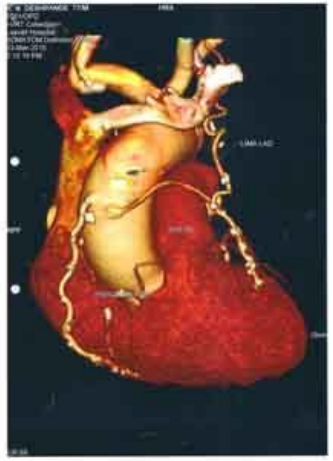
LONG TERM RESULTS OF CORONARY ARTERY BYPASS SURGERY USING BILATERAL IMA CONDUIT - 18 YRS. FOLLOW UP PATIENT

A 77 yrs. old male underwent triple vessel coronary artery bypass surgery in Oct, 1996 utilizing RIMA (Right Internal Mammary artery) for Right coronary artery block, LIMA (Left internal mammary artery) for L.A.D block and SVG for Diagonal 1 block. Recent CT Angiography scan images taken in March, 2015 show patent arterial (RIMA+LIMA) conduits and patent SVG after 18 yrs. follow-up.

Case report III

LONG TERM RESULTS OF CORONARY ARTERY BYPASS SURGERY USING RADIAL ARTERY CONDUIT - 10 YRS. FOLLOW UP PATIENT

A 59 yrs. old male resident of Vashi underwent double vessel coronary bypass surgery at Lilavati Hospital in 2004 utilizing radial artery conduit to bypass circumflex branch of coronary artery & LIMA conduit for LAD blocks. Repeat coronary angiography done after 10 yrs. of follow up shows well patent radial artery conduit and LIMA conduits. This demonstrates great utility of Radial artery as conduit for use in coronary bypass surgery for long term patency.



CONCLUSION

These three case studies show long term patency of LIMA, Radial artery conduit, RIMA and saphenousvein grafts. SYNTAX TRIAL is gold standard trial for long term results in triple vessel coronary artery disease treatment. In SYNTAX TRIAL angioplasty V/S CABG results were compared. Results show that at six years, CABG arm shows significantly less repeat hospitalization, repeat revascularization / intervention and less MACCE (Major Adverse Cardiovascular and Cerebral Events).

These case reports corroborate findings of SYNTAX TRIAL that coronary artery bypass surgery remains preferred choice of treatment over angioplasty in Triple vessel coronary artery substrate with greater freedom from angina and better outcome.

CASE REPORT: HISTOPATHOLOGY

PIGEONS AND HYPERSENSITIVITY PNEUMONITIS

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INTRODUCTION

Exposure to pigeons has increased multifold in urban areas as they nest within buildings. Smog inhalation mingled with inhalation of bird guano aerosols has compounded the incidence of lung disease in the city.

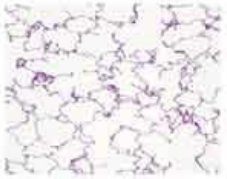
We report a case of severe restrictive lung disease in a young girl with prolonged history of pigeon exposure and a short discussion on hypersensitivity pneumonitis.

CASE HISTORY

A 22 yrs. old female office worker with no premorbid conditions presented with breathlessness on exertion and cough. She had these complaints along with weight loss since several years but noticed severe exacerbation in the last 15 days.

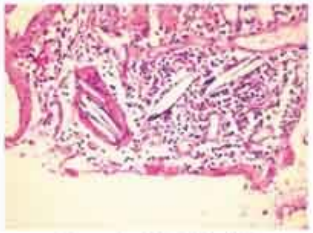
Her general examination was unremarkable. Her respiratory system examination revealed bilateral inspiratory crackles. ESR was 40 mm at the end of 1 hr. She had hypercapnia and pulmonary function tests and imaging were suggestive of restrictive lung disease. The differential diagnoses considered were low grade infections, interstitial pneumonias and early sarcoidosis

A thoracoscopic lung biopsy was done and histopathology revealed extensive chronic inflammatory changes in the lung.



Normal lung

Lung with Chronic hypersensitivity pneumonitis



Giant cells with clefts in CHP

There was widespread, prominent thickening of interalveolar interstitium by a diffuse small lymphocytic infiltrate, scattered Schaumann bodies, foreign body giant cells with clefts, and mild fibrosis. Occassional ill-defined small granulomas were seen. She was diagnosed to have Chronic hypersensitivity pneumonitis, a.k.a Extrinsic allergic alveolitis.[1]

Re-evaluation of her history revealed that she lived next to a pigeon cote (Kabutarkhana).

The patient was treated with steroids and showed gradual improvement of lung function and her cough and breathlessness reduced. As barring her windows with netting did not help, she subsequently changed her residence to a location away from the bird shelter.

DISCUSSION

Modern city living exposes people to the nuisance of pigeons *(Columba livia)*[2] which inhabitate and nest in concrete construction sites and residential areas. Their droppings and dust from their feathers form aerosols and is one of the causes of hypersensitivity pneumonitis.

It is our observation that a significantly large number of lung biopsies for restrictive lung disease in this city are found to have chronic hypersensitivity pneumonitis. This chronic inflammatory disease of the lungs is due to inhalation of any of a wide variety of organic substances that are capable of acting as a foreign antigen and triggering a local hypersensitivity reaction. 10% to 30% of pigeon handlers have hypersensitivity pneumonitis. Though bird (pigeon) droppings are the commonest cause other known causative agents are certain microbes and fungi in mouldy hay or air conditioner humidifiers and some chemicals in plastic and rubber manufacturing. Antigen exposure initiates lung injury which is perpetuated and amplified by T cell activities represented by significant lymphocytic infiltration in the interalveolar spaces thus hampering blood gas exchange and restricting expansion of the alveolar spaces.

Hypersensitivity pneumonitis can present in acute or chronic forms.[4]

An acute presentation resembles hay fever and diagnosis is suspected by the attack occurring within hours of exposure. Chronic disease manifests more subtly but progressively and is due to lower levels of antigen exposure. The link between the antigen and the symptoms therefore may not be evident as in our present case. The radiological findings[1] vary from ground glass change, small nodules to irregular linear opacities which represent the onset of lung fibrosis. A long standing disease may cause honeycombing and irreversible lung damage with end stage lung fibrosis. Histopathology findings[4] show characteristic lymphocytic inflammatory reaction in the interstitium. Bronchiolitis with a bronchiolocentric distribution is often evident, as these are inhaled antigens. Ill-defined small granulomas and multinucleate giant cells with clefts are characteristic features. Microscopic honeycombing and fibrosis is seen with chronicity.

The patient responds well to steroids and should avoid further bird exposure.

Regular clearing of nesting sites of pigeons, in and around residences, pigeon net use, social education and avoiding feeding of pigeons next to residential areas will help ameliorate the incidence of this disease. A study of the lung function status of people staying close to "Kabutarkhanas" would yield further information on the subclinical incidence of this zoonotic disease.

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CASE REPORT: ORTHOPAEDIC SURGERY

TUMOR LIKE CONDITIONS IN HAND: THE SURGICAL STRATERGY

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Dr. Sanjay Kumar Tripathi, *DNB Trainee, Final year,* **Dr. Munjal Satish Shah,** *DNB Trainee, Final year,* **Dr. Rakesh Khiyani,** *DNB Trainee, Final year,* **Dr. Prashant Pradhan,** *DNB Trainee, Second year,* **Dr. Shaikh Muzammil Shiraz,** *DNB Trainee, Second year*

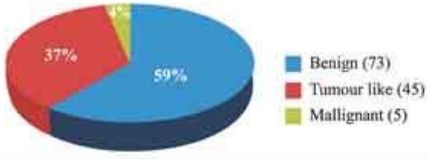
INTRODUCTION

Tumors which occur in the hand may arise from the soft tissues or from the bones[1].The incidence of the soft tissue tumors which are seen in the hand consist 15 % of all throughout the body and 6 % of the bone cancers of the body are seen in this area[2].Tumors of the hand can be divided into two groups, tumor like lesions and true neoplasm, with the latter further divided into benign and malignant tumors. Majority of the tumors are benign. Mostly diagnosed by clinical examination & imaging, they may need histopathological examination in certain condition. Excisional biopsy is often the definitive treatment for most of the tumors in the hand and the wrist, although preoperative biopsy is recommended particularly in tumors exceeding 2 cm in size.

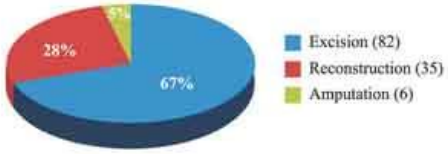
PATIENTS AND METHODS

Patients (N=123) who were treated for tumors and tumor like lesions around the hand surgically at Lilavati Hospital & Research Centre between 2002 and 2014 were evaluated. Diagnosis was made by clinical examination & imaging in majority of cases. Only suspected malignant lesions & aggressive benign lesions were biopsied with core needle biopsy.

Patients Statistics



Procedure



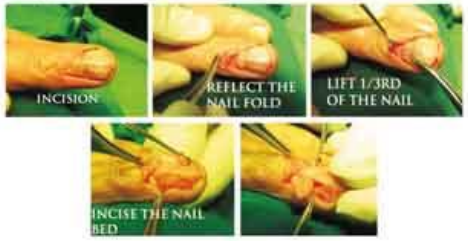
Consideration was taken for complete excision of tumor mass protecting the normal hand anatomy, reconstructive procedure to salvage whenever is possible along with a cosmetic scar. Data were analyzed by SPSS software of ver-17.

RESULTS

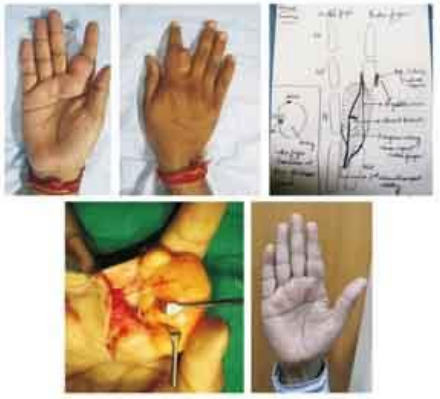
All the patients were followed during the post op period.

- All the patients who were undergone excision recovered fully with cosmetic scar without any recurrence.

Case - **Glomus tumor** (with minimal incision, complete excision).

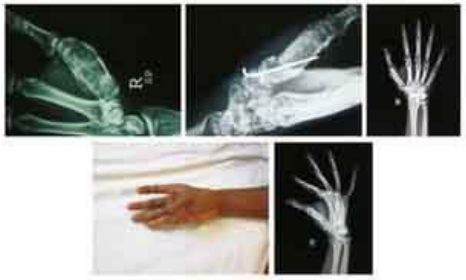


Case - **Lipoma** (with proper anatomical work out, complete excision, cosmetic scar, full function).

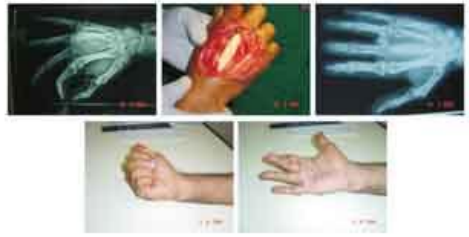


- All the patients who were undergone reconstructive surgery had fair outcome except one with GCT which showed recurrence & was managed by ray amputation.

Case - **Enchondroma** (curettage with iliac crest bone grafting, remodeling, good function).

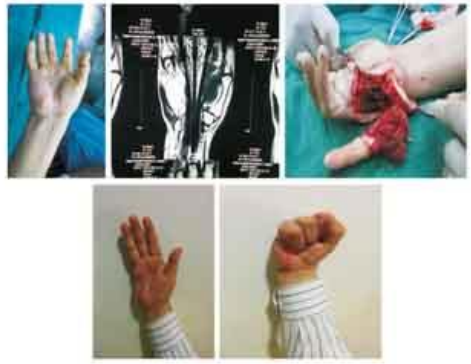


Case - **Giant Cell Tumor** (complete excision of 3rd metacarpal, cement spacer, spacer removal, acceptable function).



- All the patients operated for amputation recovered well without any metastasis and acceptable functioning hand.

Case - **Epitheloid Sarcoma** (ray amputation, cosmetic scar, acceptable function).



DISCUSSION

Excision of the lesions must be meticulous because of the proximity of the neurovascular structures, especially in the digits & chance of recurrence. Devastating complications can occur due to miss / late diagnosis of a malignant lesion. So needle / incisional biopsy may be needed for suspicious lesion[3]. Collaboration of the orthopedic surgeon, radiologist and pathologist is mandatory in adequate diagnosis and treatment.

KEY MESSAGE

- Put knife only after confirming the diagnosis clinically, radiologically & if needed histo-pathologically.
- **Non tumor mass -** dissect under magnification, excision / debulking.
- **Benign tumor mass -** dissect under magnification, complete excision & reconstruction if needed.
- **Malignant tumor mass -** dissect under magnification, complete excision with safe margin followed by reconstruction.
- Don't hesitate to amputate if fail to achieve a safe margin or in case of recurrence.

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CASE REPORT: RADIOLOGY

SPONTANEOUS VERTEBRAL ARTERY DISSECTION: POSTERIOR CIRCULATION STROKE

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Dr. Anju Wadhwa, *Resident Doctor Dept. of Radiology*
Dr. Ravi Rajdeo, *Resident Doctor Dept. of Radiology*

INTRODUCTION

Vertebral artery dissection is an important cause of posterior circulation stroke in young & middle age. They are classified as 'spontaneous' or 'traumatic'. We present a case of a middle aged male who came with complain of sudden onset headache, left sided neck pain and right sided weakness which on imaging revealed an extracranial left vertebral artery dissection.

CASE REPORT

A 46 yrs. old non hypertensive, non diabetic male presented with sudden onset headache, left sided neck pain followed by difficulty in walking and right sided weakness. No other significant history was found.

On clinical examination there was grade 2 power in the right upper and lower limb.

Contrast MRI angiography with diffusion weighted sequence was performed which revealed acute infarcts in left occipital lobe (figure 1 a & b) along with left vertebral artery dissection involving extradural segment (figure 2). CT Brain Neck angiography with IV contrast was performed on Siemens Somatom Definition flash 128 slice dual source dual energy CT scanner which revealed a linear short segment (2.6 cm) dissection of left vertebral artery at the level of C5-C6 vertebrae with associated aneurysmal dilatation (figure 3). Patient underwent DSA which revealed elevated intimal flap in the left vertebra artery with development of false lumen showing stagnant contrast suggestive of dissection commonly referred as double barrel lumen (figure 4).

Since the extracranial vertebral artery was involved, conservative management was planned and patient was started on anticoagulants and heparin.

Follow up CT angiography after 6 months showed near complete regression of the left vertebral dissection (figure 5).

DISCUSSION

Vertebral artery dissection is an uncommon disorder with estimated annual incidence of approximately 1-1.5 cases per 10,000.[1] However, it is an important cause of posterior circulation ischemia in young and middle aged patients, female preponderance[2] and accounts for nearly one-fifth of such cases.

Dissection occurs when blood under pressure finds its way into the vessel wall either leading to luminal narrowing and/or occlusion if the tear is subintimal or formation of a pseudoaneurysm with potential risk of bleeding if the dissection is subadventitial.

Headache and neck pain (on the side of arterial dissection) are important warning symptoms of dissection. Pain often precedes neurological features.[3] Although conventional catheter angiography has been the criterion standard for the diagnosis of arterial dissection, computed tomography (CT) scanning and magnetic resonance angiography (MRA) are increasingly been used because of the inherently non-invasive nature of these modalities[4]

Various MRI Angiography techniques have been used these include; 3D TOF, phase-contrast techniques, a T1 or occasionally with a T2-weighted, fat-suppression technique. Fat

suppression is important to differentiate the periarterial fat from the hyperintense intramural hematoma.

CT Angiography has practical advantages such as rapid acquisition of information in obtunded or un-cooperative patients and patients in whom MRI is contraindicated. Dual energy technique provides additional edge in vertebral arteries by enabling effective bone removal as most of the extracranial vertebral artery is covered by vertebral foramina.

DSA remains the criterion standard for the diagnosis of cervico-cephalic arterial dissection. The most common finding seen in approximately 65% of patients with subintimal arterial dissection is a relatively smooth or slightly irregular, tapered or spiralled luminal narrowing of the dissected segment. Other angiographic findings include the double-barrel sign which is most specific. The double-barrel sign demonstrates a patent false lumen or the accumulation of blood beneath an intimal flap.[5]

Management depends on site of involvement which states anticoagulation with heparin followed by oral warfarin therapy for extradural VA dissection & Balloon / coil embolization or surgical aneurysm clipping in cases of an intracranial involvement.

CONCLUSION

Imaging modality like dual energy CTA and MRI can reliably and safely demonstrate the direct and indirect features of spontaneous VAD. The routine use of dual energy CTA and MRI in stroke increases detection of vertebral artery dissection therefore promotes early diagnosis of VAD facilitating prompt initiation of appropriate management.

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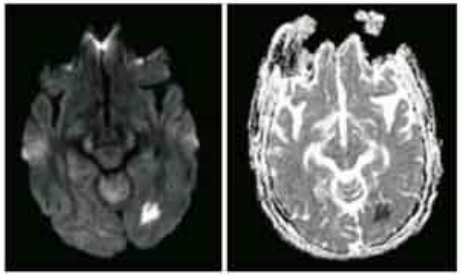

Figure 1 (a & b): ADC & diffusion weighted (b= 800 s/mm2) image showing acute infarct in the left occipital region.

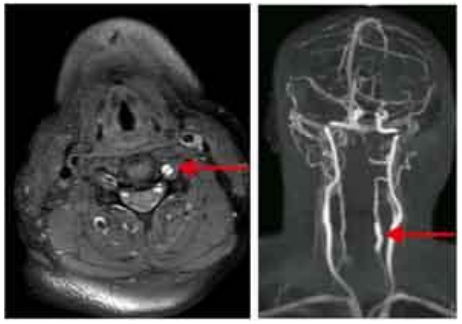

Figure 2 (a & b): a: Axial T1 fat suppressed image showing hypointense intimal flap b: Contrast MRI angiography showing left vertebral artery dissection.

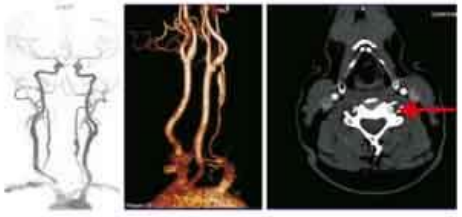

Figure:3a *Figure:3b* *Figure:3c*

Figure 3: 3D CT angiography showing vertebral artery dissection with dilation of the involved segment. Axial image shows the hypodense intimal flap (arrow) (a: MIP image, b: VRT image, c: Axial section at C5-C6 vertebral level).

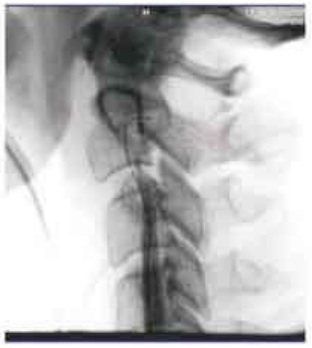

Figure 4: DSA of left vertebral artery showing double barrel lumen with different contrast density.

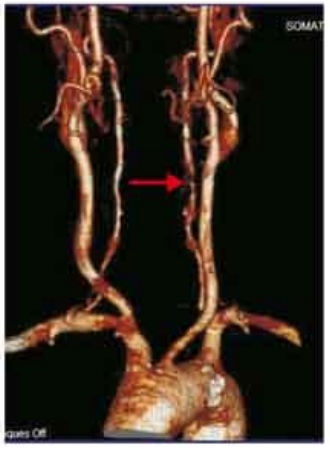

Figure 5: Follow up CT angiography after 6 months showing near complete resolution of arterial dissection in the involved segment.

CASE REPORT: RADIOLOGY AND PAEDIATRIC NEUROLOGY

INTERESTING CASE OF ANTERIOR ENCEPHALOCELE-DIAGNOSIS AND MANAGEMENT.

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Dr. Makarand Kulkarni, *MD, Consultant Radiologist*
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Dr. Avinash Vattam, *Second year D.N.B Resident*

INTRODUCTION

Anterior encephalocele accounts for only 5-10% of all encephaloceles. A detailed second trimester anomaly scan can aid in diagnosing these anomalies and help in taking timely measures since the neurological outcome of infants born with such anomalies is dismal. We present a case of anterior encephalocele with dysgenesis of corpus callosum which was detected on USG done in Lilavati Hospital when the patient first presented to us at 28 weeks of gestation.

CASE REPORT

Mother of the child first came to the paediatric neurology department with an antenatal sonography report (done outside) at 27 weeks showing microcephaly and lateral ventriculomegaly. A repeat sonogram was done at our hospital at 28 weeks of pregnancy. Antenatal USG revealed microcephaly with hypertelorism, gross bilateral ventriculomegaly with colpocephaly, thining of the cortical mantle and dysgenesis / agenesis of corpus callosum. There was a bony defect noted in the fronto-nasal region with brain parenchyma seen herniating through it, suggestive of a frontonasal type of anterior encephalocele. 3D ultrasound also depicted the anterior encephalocele in the frontonasal region. Fetal MRI was done at 30 weeks to reconfirm the ultrasound findings and aid in prognosis and surgical planning.

Mother delivered a male child with a birth weight of 1.7 kg at 35.2 weeks by LSCS. Baby cried immediately after birth, passed stool and urine on day 1 and was discharged on day 4 of life. Head circumference was 27 cm for a normal of 31-32 cms. On Day 13 of life parents noticed decreased activity and admitted the child in a local hospital and on investigation was found to have pyogenic meningitis with CSF showing 120 cells. Child received IV antibiotics (Meropenem and Vancomycin). Parents were advised not to actively manage the child in view of poor prognosis. But parents were by now emotionally attached to the child and wanted active intervention. Child was then admitted in Lilavati Hospital and Research Centre for further evaluation and management. Repeat lumbar puncture revealed lymphocytic predominant meningitis with no growth on culture. Hence MRI brain of infant was performed on Phillips 3T machine which revealed the anterior frontonasal encephalocele with gross ventriculomegaly, dysgenesis / agenesis of corpus callosum, thining of cortical mantle and ventriculitis / choroid plexitis as there was restricted diffusion of choroid plexus and ependymal enhancement. Child received 6 weeks of Vancomycin and Meropenem and 2 weeks of Fluconazole. EEG done was suggesting multifocal epileptiform activity but no clinical episodes of convulsions hence no antiepileptics were given.

The child was operated for the anterior encephalocele with resection of the fungating mass and reconstruction of the defect with the pericranium. However the child has not gained any milestones like social smile, head control, recognizing parents or roll over and carries an overall poor prognosis.

DISCUSSION

Encephalocele are out pouchings of the brain through a bony skull defect. Encephaloceles are divided into three major types: sincipital (frontoethmoidal), basal (trans-sphenoidal, sphenoethmoidal, transethmoidal, and spheno-orbital) and occipital. Occipital encephaloceles are the most frequent type (~85%) in North America and Western Europe[1]. By contrast, in Southeast Asia, parts of Russia and Central Africa, frontal encephaloceles are more frequent than occipital type[1]. The etiology is controversial. Most investigators believe it is due to failure of closure of the rostral end of the neuropore resulting from either overgrowth of neural tissue in the line of closure or a failure of induction by adjacent mesodermal tissues which in turn interfere with normal closure of the skull.[2]

Although antenatal detection of fetal encephalocele has been made by 2D US since 1992[2], prenatal illustration of fetal encephalocele by 3D US has not been reported before 2006[3]. Most encephaloceles are covered with skin therefore they are more likely to be diagnosed with screening US scanning than with maternal serum alpha-fetoprotein testing. Frontal encephaloceles almost always contain brain tissue and involve the bridge of the nose (60%) as well as the nasal cavity (30%). Encephalocele is frequently associated with other malformations that may be part of recognized syndromes[4]. The most common of the associated syndromes is Meckel-Gruber syndrome which includes occipital encephalocele, microcephaly, microphthalmia, polycystic kidneys, ambiguous genitalia, polydactyly, cleft lip and palate and other malformations. Other cerebral malformations are often associated with encephalocele such as hydrocephalus, corpus callosal abnormalities as was seen in our case. Another entity associated with anterior frontonasal encephalocele is frontonasal dysplasia. Frontonasal dysplasia is defined as the presence of two or more of the following symptoms:

1) true ocular hypertelorism.
2) anterior cranium bifidum occultum (a skin-covered gap in the bones of the forehead).
3) broadening of the nasal root.
4) median facial cleft affecting the nose, upper lip and palate.
5) uni-lateral or bilateral clefting of alae nasi.
6) lack of formation of nasal tip.
7) a V-shaped or widow's peak frontal hairline.[5] Our patient had hypertelorism with an anterior skin covered bony defect.

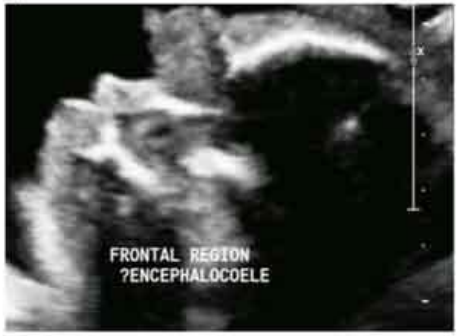
CONCLUSION

This case highlights the importance of a detailed second trimester anomaly scan in detection of major congenital anomalies which have significant morbidity.

With high resolution 2D and 3D ultrasound imaging and multiplanar MRI imaging, an excellent anatomical delineation is possible which would aid in prognosis and surgical planning.

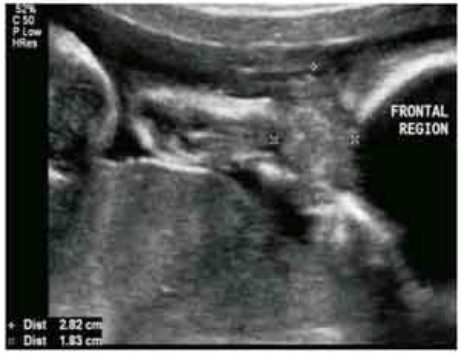
Figures

1.



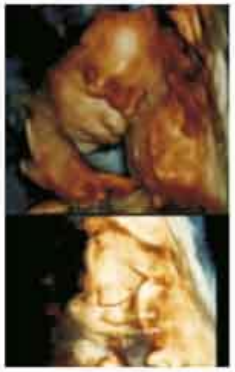
USG image in mid-sagittal plane showing bony defect in frontonasal region with brain herniating through it.

2.



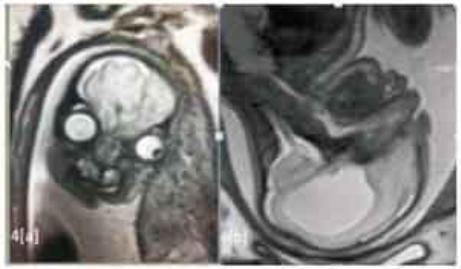
USG image in coronal plane showing the anterior encephalocele in the frontonasal region.

3.



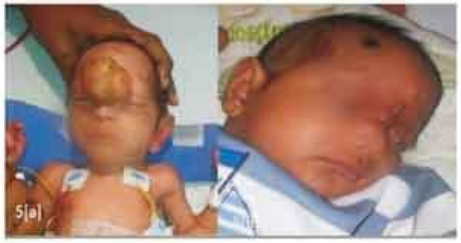
3D ultrasound images showing the anterior encephalocele.

4.



Fetal MRI in [a] coronal and [b] sagittal plane showing hypertelorism and anterior encephalocele.

5.



[a] Preoperative image of the infant with anterior encephalocele.

[b] postsurgical resection and closure.

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ANNOUNCEMENTS

Acetylcholine esterase test is now available in the Histopathology department of Lilavati Hospital. Lilavati Hospital is the only institute currently offering this test in Mumbai.

BENEFITS OF THIS TEST

- This test is used in the diagnosis of Hirschsprung's disease, a morbid disease of early infancy and childhood.
- The new test is done on suction rectal mucosal biopsies as an OPD procedure.
- The test is done on small mucosal biopsies, thus avoiding the need for the usual full thickness rectal biopsies in Paediatric patients.
- Reports are available within few hours.

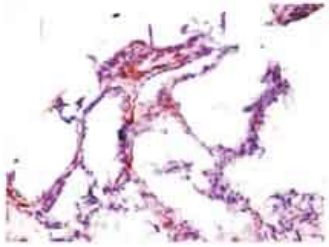

Figure 1 : Positive for Ach esterase - confirms Hirschsprung's disease

Figure 2 : Negative for Ach esterase - excludes Hirschsprung's disease

RENOVATED SICU DEPARTMENT

STRAIGHT FROM THE HEART

All staff & departments are most efficient. I will certainly recommend Lilavati Hospital to my friend & relatives. I wish further success & progress to Lilavati Hospital

Excellent guidance & information is provided by this hospital. Excellent work by both the doctors & staff too. Overall very much satisfied

The way in which the healthcheckup was coordinated between various departments with minimum waiting period was systematic

Discipline in restricting visits, calm & quietness in Hospital, proper cleanliness. Caring for patient and efforts to maintain Hospital's good image

Overall, it was professional efficient and friendly experience to stay and get operated in Lilavati hospital. Nothing less than what I expected from such a reputed institute. Thank U!!

Lilavati Hospital has clean & well maintained rooms, excellent nursing staff, great housekeeping & security, good canteen & experienced doctors & dietician, Food quality & variety is great

The treatment is awesome. The staff in Lilavati hospital handles the patient with care & gives respect.

The hospital is having best team of doctors, nursing staff & also supporting staff. The management is excellent also having the best infrastructure. Please keep doing & maintain the standard of the hospital. Serving the mankind is a great job. Thank u & God bless u!!

EDUCATIONAL ACTIVITIES

Lilavati Hospital and Research Centre doctors share their intellectual capital and expertise with others through CMEs using means like workshops, seminars, conferences, live telecast of procedures and surgeries, which they are performing. Lilavati Hospital and Research Centre has been accredited by Maharashtra Medical Council for conducting CMEs.

Sr. no.	Topic	Organized in
1	Paediatric Nephrology	April, 2015
2	Plastic Surgery	June, 2015
3	What's new in Haematology	July, 2015
4	Recent advances in Knee Replacement and Knee Injury	August, 2015

Plastic Surgery

What's new in Haematology?

Recent advances in Knee Replacement and Knee Injury

SEWA

The social service wing of the hospital-**SEWA** - serves to the health requirements of the needy people. This department seeks to bridge the gap between the needy patients and the fast evolving medical technology. Various social activities such as Free OPD, services to senior citizen, sending mobile vans to Adivasi areas for organizing free health checkup camps are undertaken as an on-going process. The Roshni Eye bank managed by Lilavati Hospital is a well equipped comprehensive centre for cornea removal, supplying, processing, storing, and corneal transplantation. We have also taken up a new initiative of **"Swastha Bachpan"** which comprises of free health check ups for underprivileged children.

BENEFICIARIES

Year	Free OPD	Sewa Mobile Clinic
2013-2014	14301	30232
2014-2015	14371	21207

Swastha Bachpan Initiative: Anugrah Vidya Mandir, Ambernath camp conducted on 3rd July, 2015.

FREE HEALTH CHECKUP CAMP AT PAVANDHAM, KANDIVALI

FEATHERS IN CAP

Efforts and hard work put in by team Lilavati Hospital has resulted in various awards and accolades:

- *In 2013, 2014: "THE WEEK" magazine has rated Hospital as* ***"Number 1 Multispecialty Hospital in Mumbai"***

- *Hospital has been rated amongst* ***"Top 10 Hospitals of India"*** *2013, 2014 by "THE WEEK" magazine.*
- *Winner in the category* ***"Most Popular Maternity Hospital (All-India)"*** *in the 2nd edition of Child Most Popular Awards, 2014, Child India Magazine.*
- *Hospital emerged as the* ***Runner-Up*** *in the category* ***India's Most Popular Maternity Hospital;*** *in the inaugural edition of* ***Child Best Awards 2013*** *by Child India Magazine.*
- *Hospital has been recognized as* ***"India's best Multi Speciality Hospital-Megapolis"*** *by ICICI Lombard and CNBC TV 18* ***in India Healthcare Awards 2013.***
- *Hospital has been recognized as* ***"India's best Multi Speciality Hospital-Metro"*** *by ICICI Lombard and CNBC TV 18* ***in India Healthcare Awards 2012.***
- *Hospital is* ***Gold Winner*** *of* ***"Reader's Digest Trusted Brand Award 2012"*** *in category 'Speciality Hospital'.*
- *Hospital is an official* ***ESMO (European Society for Medical Oncology) Asia CME Partner*** *Centre in Colorectal Cancer program in India.*
- *Quality Council of India (QCI) has accredited Lilavati Hospital & Research Centre with* ***NABH*** *in February 2011 and Reaccredited in 2014.*

Lilavati Hospital Doctor's Achievements

Dr. Hrishikesh Pai *became the Secretary General of Federation of Obstetrics and Gynecological Societies of Indian FOGSI. He also became the Assistant Treasurer and Board Member of the Executive Council of International Federation of Fertility Societies which is the World Federation of IVF Societies. He is bestowed with following awards:*

- *Medscap India award for leading Gynecologist, Nov, 2014.*
- *Lions club of Juhu award for leading Gynecologist in India, Jan, 2015.*
- *The Ferticon Life time achievement award in Infertility and Gynaecology, July, 2015.*

FUN TIME

Guess the names of these drugs

Example:  **llin is Penicillin (Pen-see-lin)**

1.  **+ nidazole =** _____

2. **A + tro +**  **=** _____

3. **CLORO +**  **=** _____

4. **Cefo +**  **+ me =** _____

5. **Tetra +**  **=** _____

Kindly email us your answers on
medicaltimes@lilavatihospital.com

SERVICES AVAILABLE

MEDICAL
Anesthesiology
Audiology and Speech Therapy
Cardiology
Chest Medicine
Chronic Pain Management
Dental
Dermo Cosmetology
Diabetology & Endocrinology
Gastroenterology
Haematology
Hair Transplant
Internal Medicine
Infectious Diseases
Nephrology
Neurology
Head and Migraine Clinic
Psychiatry / Psychology / Neuropsychology
Medical Oncology
Pediatrics
Rheumatology
Physiotherapy
Sleep Medicine

SURGICAL
Bariatric Surgery
Cardiothoracic Surgery
Colorectal Surgery
ENT and Head & Neck Surgery
Gastro Intestinal Surgery
General Surgery
Gynecology, Obstetrics & IVF
Transplant: Corneal & Kidney
Minimal Invasive Surgery (Laproscopic Surgery)
Neuro Surgery
Spine Surgery
Onco Surgery
Ophthalmology
Orthopedics, Sports Medicine
Pediatric Surgery
Plastic & Reconstruction Surgery
Urology, Andrology
Vascular Surgery

CRITICAL CARE
Intensive Care Unit (ICU)
Intensive Cardiac Unit (ICCU)
Surgical Intensive Care Unit (SICU)
Paediatric Intensive Care Unit (PICU)
Neo-Natal Intensive Care Unit (NICU)
Paralysis & Stroke Unit

DIAGNOSTICS
Imaging Services
CT
MRI
X-ray
BMD
OPG
Sonography (USG)
Mammography
Nuclear Medicine
Interventional Radiology

LABORATORY SERVICES
Pathology
Microbiology
Histopathology
Blood Bank

24 HRS SERVICES
Ambulance
Emergency
Pharmacy
Roshni Eye Bank