LILAVATI HOSPITAL
MEDICAL TIMES

APRIL 2021

Lilavati Hospital and Research Centre

More than Healthcare, Human Care

NABH Accredited Healthcare Provider

Contents

All the correspondence should be addressed:

To,
The Chief Editor
Lilavati Hospital Medical Times
Lilavati Hospital & Research Centre
A-791, Bandra Reclamation, Bandra (W)
Mumbai - 400 050.
Fax: 91-22-2640 7655
Email:medicaltimes@lilavatihospital.com
Website: www.lilavatihospital.com

Shraddhanjali To Our Beloved Trustee

Remembering the Visionary

Late Shri. Prabodh Mehta

Late Shri Prabodh Mehta an honourable and esteemed name in the healthcare and diamond industry bide adieu to us on 03/11/2020 at the age of 84.

Born in 1936 he played several roles in his corporate journey; wherein on one hand he was well known for his pivotal role as a trustee of Lilavati Hospital and at the same time as a pioneer for the entry of the Indian community into Antwerp seeing the potential in the export of diamonds. Countless families and diamond businesses owe their beginnings in Belgium thanks to him. In recognition of his contributions on the economic and social fronts to Belgium, Late Shri Prabodh Mehta were bestowed the two highest civilian awards by his Majesty the King of Belgium, the "Orde Van Leopold II" in 1993 and the "Albert II Koning Der Belgen" in 1994.

As one of the trustees of Lilavati Hospital he played a vital role in bringing the hospital on the mark where he successfully reflected the dream of his father and the founder of Lilavati Hospital Trust, Late Shri Kirtilal Mehta to raise the standard of medical system of the country by offering affordable and quality healthcare.

Words cannot express the gratitude that has touched lives of many. He was truly a humble soul, who had a strong bond with people whom he knew. He had a charismatic persona, a kaleidoscopic ability to come forward & help people who were in need around him through his kind & selfless act.

His passion for giving back to the society and his philanthropic work will continue to inspire generations to come.

We pray for his soul to rest in enormous peace.

From COO's Desk

At the outset, I would like to thank each and every COVID warrior for tackling the second wave of COVID with immense determination, perseverance and dedication.

This year was extremely challenging for us as we lost our beloved trustee Shri Prabodh Mehta. I can't thank him enough for his timely support and guidance. His memories shall be cherished by each one of us and his ethos shall continue to motivate all.

I would like to welcome Shri Ayushman Mehta on our board of trustees. I am sure that with his acumen we shall have newer developments to make our hospital even better.

Due to sudden surge in COVID cases, we have increased our bed capacity to cater to COVID patients and currently we have 45 ICU beds and 128 ward beds dedicated only for COVID positive patients.

Taking utmost precautions we continued to treat medical and surgical patients and even conducted Kidney and Liver Transplants.

Though the pandemic time is yet not over but like every cloud has silver lining our centre was designated to administer COVISHIELD vaccine on 4th March and till date we administered vaccine to more than 7000 individuals.

We have established and fully commissioned a state of the art Molecular Lab (Qiagen) which shall enable us to offer many molecular assays, such as: Infectious Diseases, SARS-CoV-2 (COVID-19) and related Tests, Haematology/Haemato-oncology, Oncology (Solid Tumours), Neurology and Paediatric Neurology, Reproductive and Women's Health, Paediatrics and Paediatric Endocrinology, Nephrology. With this the basket of testing in the hospital laboratories will receive a great fillip thanks to the tireless efforts of the Clinical Pathology department.

Currently results of RT PCR test, if swab is sent before 12 PM, can be given same evening by our lab which is a great achievement considering test results outside can take even upto 36 to 48 hrs.

It was heartening to see that the spirit for cutting edge work by our consultants was not hampered by the current pandemic. This edition of Medical times is special as our doctors have managed to perform and even write about the most unique cases in different specialities that serve the hospital.

Editorial

It has been a difficult 12 months where the world sank into the sandpit of COVID 19 . Well almost- but thanks to the scientists and think tanks / task force , we were pulled to safety by the COVID 19 warriors giving selfless timely care and therapy not worrying about the fact that they could be infected by the very same deadly virus they were treating others for ! This dedication combined with dissipation of knowledge through the webinars and various social media made people adequately aware of this deadly disease preventing many from falling prey to the COVID 19 virus. We salute all these warriors and thank them profusely. These warriors came in the form of doctors, administrators, nurses and nursing aides, ward boys and all the support staff such as engineering, housekeeping and the allied support systems- all worked quietly and unquestioningly to see that the hospital ran and continues to run smoothly.

We are very proud that some of our doctors were part of the Maharashtra task force to fight against the corona virus and we salute them for their tireless service. We were able to take care of many patients by video consultation where appropriate so that they were treated without visiting the hospital thereby reducing the risk of infection. This was possible due to the platform that the hospital provided us through the Marketing and IT department and has been appreciated both by the patients and doctors.

While we are yearning to get back to a normal life, there could actually be a rise in cases causing new infections and impending lock down in affected areas. This is a situation we should be wary of and prevent by awareness amongst each one of us to maintain distance, clean hands, use sanitizer and avoid crowding. With the advent of the vaccines against COVID 19, the case fatality will reduce and as the virus loses steam, we soon should be back to a normal life. We appeal to our patients to get vaccinated once it is made available for them so as to reduce the risk of infection.

The brighter side of the COVID lock down was that many of us in our spare time returned to forgotten hobbies and explored various new tasks that we had no time for in the past but which we always wanted to do. Similarly, it is really heartening to note that the list of publications from our hospital staff in national and international journals has been impressive and the research work has gone uninterrupted. Our hospital doctors from different specialties have provided valuable reading material in this magazine indicating that work went on as usual.

Once again, I request you to read and enjoy this magazine cover to cover to maximally utilize the presented information and hope we are able to impress you with the kind of cutting edge work that is going on in our hospital and the positive impact it has on patient care

Do continue to give us a feedback with criticism and/ or suggestions to assist us in improving the publication- after all we are here to empower you with more knowledge, the more we share the more we learn! We still haven't seen the end of this virus and hence implore all of us to be on guard and take all precautions to not be affected by this wretched infection that has many subsequent unhealthy sequalae. Please take care and keep healthy

I have saved the best for the last and will end this editorial comment by paying rich tributes for the tireless effort put in day in and day out by our COO Dr Ravishankar. He was only a phone call away for us and took personal interest in seeing that the hospital policy for COVID was implemented without fear or favour !

Hats off to you sir and thank you very much for not letting this titanic sink!

Dr. Abhay A Bhave
Chief Editor, MD, FRCPA, Haematologist

Welcome To The Board Of Trustees

Shri Ayushman C. Mehta

Shri Ayushman C. Mehta, a young and dynamic entrepreneur holds a BSc in Management from the London School of Economics and International Baccalaureate degree from the Antwerp International School. Shri Ayushman C. Mehta has worked at Baring Private Equity Partners (India) covering a variety of sectors including Automobiles, Real Estate, Non-Banking financial services, technology and more. He has actively invested in start-ups focussed on high tech solutions tailored for the Indian market including Drones, Health applications and Agritech solutions.

We welcome Shri Ayushman C. Mehta on our Board of Trustees and wish him all the best.

Authorised MCGM COVID-19 Vaccination Centre

We started administering COVISHIELD vaccine since 4th March,2021 and have completed more than 9000 vaccinations till date. We have dedicated vaccine registration, billing and administering counters for the ease of individuals visiting our centre for vaccination.

OUR NEW NORMAL IS AS SAFE AS EVER

Marked Non COVID / Green Zones

Separate Staff

Separate Entry, Exit & Lifts

Separate ICUs & OTs

Negative Pressure Air Handling Unit

Separate Laundry

PANDEMIC IS TEMPORARY

OUR DEDICATION TO PATIENT CARE AND SAFETY IS PERMANENT

Overview: Lilavati Hospital & Research Centre

Late Shri Kirtilal Mehta

Late Smt. Lilavati K. 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 started by late Shri Kirtilal Manilal Mehta. The Trust has engaged in innumerable charitable endeavors across India.

The Lilavati Kirtilal Mehta Medical Trust is being managed and administered by Board of Trustees:	
Smt. Sushila V. Mehta	Shri Nanik Rupani
Shri Kishor K. Mehta	Shri Rashmi K. Mehta
Smt. Charu K. Mehta	Shri Dilip Shanghvi
Smt. Rekha H. Sheth	Shri Chetan P. Mehta
Shri Niket V. Mehta	Shri Bhavin R. Mehta
Shri Ayushman C. Mehta	
Principal Advisor to the Board of Trustees and Lilavati Hospital & Research Centre **Shri S. Lakshminarayanan, IAS (Rtd.)**	

Lilavati Hospital And Research Centre

Late Shri Vijay Mehta wished to fulfill his parents desire to build a world-class hospital where everyone in need for relief from disease and suffering come in with a certainty to receive the best possible medical care. His passion, attention to details and perseverance resulted in iconic healthcare landmark called **Lilavati Hospital**.

Lilavati Hospital & Research Centre is a premier multispecialty tertiary care hospital located in the heart of Mumbai, close to the domestic and the international airport. It encompasses modern healthcare facilities and state of art technology dedicatedly supported by 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 Healthcare, Human Care”. Being a centre of medical excellence where technology meets international norms and standard, the hospital has got what it takes to be a pioneering quality healthcare institute that is also 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

- 323 bedded hospital including 77 intensive care beds. Currently number of beds have been temporarily increased for helping fight the COVID pandemic. We have dedicated 144 ward beds and 48 ICU beds to treat COVID positive patients.
- 12 state-of-the-art well equipped operation theatres.
- Full-fledged Liver Transplant, Heart Failure, Hypertension, Bariatric, Foot and Ankle, Dental and Dermo Cosmetology Clinic.
- State of art PET – SPECT CT department.
- Lilavati Hospital is recently equipped with Coronary GRAFT Patency Flowmeter which is first of its kind in India. This imaging system is used in Cardiac surgery to assess GRAFT flow / perfusion in coronary bypass surgery.
- The hospital has added Intraoperative Nerve Monitoring system which enables surgeons to identify, confirm and monitor motor nerve function of the patients which helps to reduce the risk of nerve damage during various operative surgeries.
- The hospital has upgraded its ENT department by adding a top-of-the line surgical operating microscope to carry out various microsurgeries under high magnification. The microscope electronics allows the surgeon to electronically control object focusing, magnification,illumination, surgical recording, etc.
- All days round the clock OPD Pathology and Radiology investigations without any Emergency charges.
- ICU Emergency charges after 8pm are kept at par with the day time and additional charges are withdrawn.
- More than 300 consultants and manpower of nearly 1,800.
- Hospital attends to more than 10,000 In-patient, 40,000 Out-patient and performs thousands of surgeries every year.
- 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

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 healthcare to the sick people. The research centre has 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 aim 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.

Transplants During Pandemic

Organ Transplantation in COVID 19 pandemic has been a dilemma due to increased possibility of the donor or recipient contracting the infection. Liver and Kidney Transplant centres worldwide have tried to deal with the double edged sword of the risk of COVID 19 transmission in transplant recipient versus the risk of death in a decompensated chronic liver or kidney disease patient. At Lilavati Hospital, we successfully carried out one Living donor Liver Transplantation (Daughter to father) by meticulously following guidelines given by Liver Transplant Society of India and our own multi-disciplinary transplant unit.

58 yrs. old businessman, case of HBV related CLD presented with decompensation. Comprehensive multi-system recipient and donor workup while strictly maintaining infection control procedures was done. Patient with Bilirubin 8mg%, INR 2.4 and MELD score 27 (transplant indicated for MELD score > 14) underwent a right lobe LDLT. Donor a 27 yrs old IT professional voluntarily donated her right lobe. Both had negative RT-PCR and HRCT Chest on admission. Donor's siblings who stayed in the hospital had also undergone RT-PCR prior to admission. She was shifted out of ICU on day 1 and discharged on day 7 from the floor. As per consensus of multi-disciplinary treating team and administration, decision was taken to keep the recipient in Transplant ICU as he was on multi drug immunosuppression. He was discharged on day 10 with normal lab parameters.

The complexity of the procedure and vigilant intensive care requires close coordination of Anaesthesiologists, Surgeons, Hepatologists, Intensivists, Operation Theatre Staff , Nursing Staff and Laboratory / Radiology personnel. The Transplant team owes all the successful Liver Transplants to all the above departments.

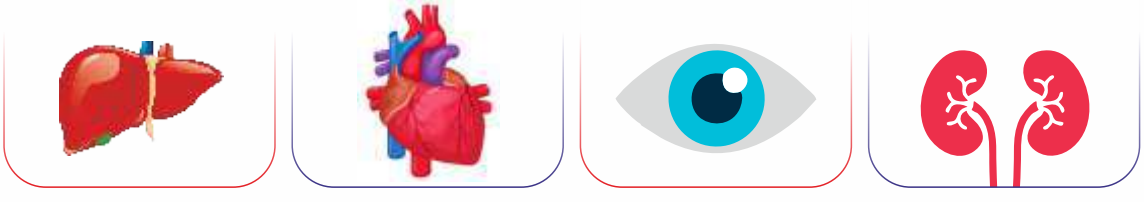
We also carried out 2 successful kidney transplantation during the pandemic, one cadaver donor, and one living donor (wife to husband), by following the standard guidelines given by various transplantation societies.

Proceeding with transplant for asymptomatic individuals with comprehensive donor, recipient screening before surgery, using a combination of clinical, radiological and laboratory criteria and maintaining infection-control procedures was found feasible during the pandemic at our hospital.

Over 2 decades of comprehensive human care

Transplant Centres of Excellence

Liver Transplant | **Heart Transplant** | **Cornea Transplant** | **Kidney Transplant**



Parenting in 2021

Ms. Varkha Chulani, MA (Clinical Psychology), Consultant - Pyschology

The modern day parent is an unfortunately frightened one! He (and I use this in a generic way) believes that whatever he does or does not do for his child in his formative years is going to cause irreversible damage and shape the child's total personality so severely, that he literally treads on eggshells while parenting. No, I don't say that parents do not contribute to their child's well being or the converse, but to believe that a parent is totally responsible for their children smacks of a certain kind of grandiosity and leads to anxiety, causing parents to flounder. They believe that one harsh word, an act of correction, will lead to their child jumping off the cliff or running away from home or will lead to irreversible damage. To prevent against that – discipline, one of the requisites in shaping behavior – is avoided. Add to that an idea that you have to 'be a friend' to your child and what do you have? A pickle – where the parent is no more one, and instead embraces a confused role where he is neither mentor nor ally and instead is unsure as to what part to play in his child's life. The child senses the hesitancy and grabs the opportunity to mess about because he sees an insecure and inadequate father/mother. So, the emerging challenge of the parent is to learn to be one! Not a floundering, unassured, ready to befriend kind. But a confident, clear headed and friendly kind. And it is important to underscore – a friendly parent but a parent nevertheless, not a friend to or of his child.

'Do as I say, not as I do' is another adage the new age parent preaches. Because he knows that there is a huge gap between what he says and what he does! Again, the emerging challenge for a parent would be to minimize this gap. Between practicing one thing and preaching another. So you have adults, who don't bat an eyelid when they party into the wee hours of the morning week after week and flip channels all Sunday long, believe that their child must be more controlled in his partying and make use of leisure more wisely. There's where the dichotomy begins. Yes, modeling is the best way to teach; not the only way, but surely one of the better ways. Can your child see in you what you want him to become? So easy to sermonize but so difficult to be consistent in deeds! And as that chasm narrows, the probability increases that you may be able to shape a competent and successful child.

That leads us to the next question – do we want happy children or successful ones? In my years of experience, whenever a question like 'What kind of a child would you like to raise' is brought up, the majority state successful children. A handful express happiness as a quality they appreciate. However, the reason for this could be due to confusion between happiness and success. Most look at the terms synonymously and believe that they go hand in hand. There is an idea that a successful person is necessarily a happy person and vice versa. That one cannot exist without the other. But nothing could be further from the truth. So what then is happiness? Is it the same as pleasure and contentment? At the risk of sounding clichéd, it is not a fruit that you can cut and eat, nor is it as abstract as 'a state of mind'. It is being completely immersed and involved in something that gives delight. Thus, happiness is not a passive state of being nor is it a feeling of peace, as many believe it to be. It is action towards something that brings fulfillment. But what is fulfilling for one child may not gratify another. However, do parents recognize that? And let their children be. Allow them to choose what suits their temperament and tastes? Everyone wants to be a clone. So children run to copy and imitate, leaving on the back burner their uniqueness and individuality. The challenge for 2021 would be to foster distinctiveness as a quality to be revered, rather than frowned upon. That sameness will not get one too far. That listening to the distant drummer playing his tune and having the courage to follow that tune will go a long way towards the road to happiness.

Tolerance – one of the traits whose synonyms are patience, forbearance, fortitude, endurance and resilience – are cultivated qualities. The new age parent had better use whatever it takes to build his child with this. Again, the best teacher being attitudes that are inculcated as the child grows. Not giving into every whim, pandering to each need, or overindulging in satisfactions is one way to go. Deprivation, usually looked upon by most parents as something to be avoided, is not a bad word. In fact, excess spoils and corrupts to the extent that the child believes that he is special, the chosen one, that when he walks, the carpet will be rolled for his highness. Unable to bear reality when nothing of the sort happens, he becomes hostile and un-adaptable. Growing with a philosophy that one will not necessarily get what one wants, as and when he wants it, is sensible thinking. It helps the child learn the value of acceptance of reality and allows him to develop patience. The value of hard work and effort is important and to teach that nothing in this world comes without effort is imperative. Quite the contrary to the patterns that may emerge for 2021. Where ease will be the name of the game. Everything becoming available instantaneously, pronto, at once.

Summing up – parenting is like tight rope walking. No one can be a perfect parent. The more you aim for that, the more anxious you will be. Enjoying rather than proving anything to oneself or to the rest of the world, will make our task of parenting less distressing.

Review Article I: Endocrine Surgery

Primary Hyperparathyroidism - A Fascinating Disease

Dr. Ritesh Agrawal, MS, MCh, FAIS, Consultant – Endocrine Surgery

Hyperparathyroidism (HPT) is a disease where one or more parathyroid glands in our neck secrete excess parathyroid hormone (PTH). PTH secretion is affected by serum calcium levels. Primary Hyperparathyroidism (PHPT) means the gland itself is producing more PTH without any stimulus and here serum PTH and serum calcium both are high. When calcium levels are low, they give feedback stimulus to secrete more PTH. This is termed Secondary Hyperparathyroidism (SHPT) like we see commonly in Vitamin D deficiency or renal failure. When PTH secretion becomes autonomous and excessive in SHPT leading to high serum calcium, it becomes tertiary hyperparathyroidism (THPT), a condition usually seen post renal transplant. It is important to differentiate between the types of HPT because management of all are different. PHPT and THPT are managed by surgery while SHPT is managed mostly conservatively and sometimes surgery when indicated.

PHPT is one of the diseases which is exciting to diagnose, and rewarding in terms of symptoms alleviation after successful surgery. PHPT sincerely needs high expertise for its management. The classic presentation is painful bones, psychic moans, abdominal groans, kidney stones and fatigue overtones.

Imagine a situation when a patient has high serum calcium values and presents with generalized weakness and multiple bone pains or has tendency to fracture with little trauma (as the bones are osteoporotic) and gets treated by calcium tablets that in turn causes more harm to the patient but is a very common scenario in our country. However, when some vigilant physician gets serum calcium done and finds it in high range, then search for PHPT starts. The patients may also present in emergency with severe abdominal pain due to pancreatitis, ureteric colic, hyperacidity, severe psychosis or other neuropsychiatric symptoms. High serum calcium levels can also cause severe constipation and intractable vomiting. PHPT can run in families sometimes like in Multiple Endocrine Neoplasia (MEN) type 1 syndrome.

Any patient whose bone pains are not responding to analgesics or other measures, any patient with renal stone/ recurrent renal stone or family history of multiple members with renal stones must be screened for PHPT.

Diagnostic workup includes serum calcium and serum PTH. Supporting tests include serum phosphorus, 25-hydroxy vitamin D, serum creatinine and sometimes 24 hour urine for calcium and creatinine with spot urine calcium creatinine ratio. The next step is to find the offending gland/s. Two sets of imaging studies is required; one functional (Sestamibi/ Choline nuclear scan) and one anatomical (USG, CT or MRI) to localize the hyperactive parathyroid gland/s. If gland is localized on both, then minimally invasive parathyroidectomy can be done. However, if more than one gland is found hyperactive, then bilateral neck exploration for parathyroid glands is done. However, *"The best thing to localize in PHPT is an experienced parathyroid surgeon". Doppmann 1968.*

Patients may also require subtotal parathyroidectomy (3½ gland removal) or total parathyroidectomy with autotransplantation in forearm. A successful parathyroid surgery is one of the most rewarding surgery amongst all surgical disciplines. The results are amazing as the patients are relieved of bone pains immediately after surgery or the next day. Imagine the condition of patients who had been taking analgesics for many years still wincing with pain, but got pain relief immediately after surgery.

Hence PHPT is a fascinating disease where the tumor is very small but affects the whole body and cure can be achieved by a team approach.

Cytoreductive Surgery and HIPEC for peritoneal carcinomatosis

Dr. Deepak Chhabra, MS (Bom), DNB, MRCS (Edin, UK), FICS,
Consultant - Surgical Oncologist

Epithelial ovarian cancer has an estimated five-year survival rate of 39% [1] and 60% of patients present with advanced (Stages III-IV) disease [2]. A typical ovarian tumor arises from the serosal lining of the ovary, which communicates with the serosal lining of the abdomino-pelvic cavity known as the peritoneum. As a consequence of tumor growth, malignant cells exfoliate and shed, becoming free floating in the peritoneal fluid. These cells then implant in the pelvis and subdiaphramatic recesses owing to gravity and the incumbent position. This spread of the tumor within the peritoneum is termed peritoneal carcinomatosis. Similar forms of spread are also noted in cancers from colon, appendix, stomach and the peritoneal lining itself often referred to as pseudomyxoma peritonei. Presentation of these tumors can be vague gastrointestinal symptoms, such as abdominal bloating, distension, weight loss, and fatigue while many suffer from severe symptoms of profound anorexia, dyspnoea, and severe pain from malignant bowel obstruction, abdominal distension from ascites, and breathlessness from pleural effusion.

In the past, peritoneal carcinomatosis was considered a terminal condition and patients were often treated palliatively or with best supportive care. However, despite extensive dissemination of cancerous cells within the abdominopelvic cavity, this condition is now considered a loco-regional disease. A comprehensive management of peritoneal carcinomatosis involves cytoreductive surgery (CRS) to decrease the tumor load to a minimum, and intraperitoneal (IP) chemotherapy to eliminate microscopic disease on peritoneal surface. This modality has the potential to greatly improve quality of life and have an impact on survival in these patients. The intent of surgery is not to leave any macroscopic intraabdominal disease [3].

A typical CRS begins with a staging laparoscopy. All four quadrants are examined, with special attention to both the right and left hemidiaphragm, the peritoneal surface, small bowel, and mesenteric involvement, as well as pelvic structures. If it is decided to proceed, a generous midline laparotomy is made from the xiphoid process to the pubis, and the abdomen is again examined to accurately determine the patient's peritoneal carcinomatosis index (PCI). Diaphragm involvement with deeply infiltrating tumor deposits increases the risk of exposing the pleural cavity to the neoplastic process, as well as inadvertent entry into the chest. The right and left lobes of the liver are fully mobilized depending on the side of involvement, and a systematic diaphragm stripping is performed. Very often the gallbladder, occasionally the spleen and invariably the appendix is involved and necessitates its resection. Subsequently, all peritoneal surfaces involved are stripped and an omentectomy is performed. When there is small bowel and mesenteric involvement, care is taken to preserve as much bowel as possible. If the small bowel segment is densely involved, a segmental resection is performed. The mesenteric border, if involved, can be managed with repair or resection, in combination with ablation techniques using electrocautery or electroablation. The primary goal is to remove all visible tumor and preserve as much involved viscera as possible. In female patients, total abdominal hysterectomy and bilateral salpingo-oophorectomy are performed along with peritoneal stripping over the urinary bladder. If the rectum is directly involved, a partial or full-thickness resection and primary repair can be done. The presence of extensive tumor involving the rectum or its mesentery necessitates a low anterior resection with or without a diverting loop ileostomy.

The apparent value of primary cytoreductive surgery is based on the following reasons [4] (a) Surgery is thought to remove resistant clones of tumor cells and thus decreases the likelihood of the early onset of drug resistance; (b) The removal of large masses likely to be associated with poorly vascularized areas of tumors supposedly improves the probability of delivering adequate drug doses to the remaining cancer cells; (c) Removal of bulky disease theoretically enhances the immune system; (d) The patients feel better after removal of ascites and large tumor masses, particularly from the omentum; and (e) Surgery alleviates the associated nausea and satiety these patients feel.

Majority of patients receive Neoadjuvant chemotherapy prior to surgery and only about 50% of patients show a complete clinical response to systemic platinum/taxol based regimen. Residual disease after primary surgery is one of the most important

prognostic factors in advanced ovarian cancer patients. Moreover, despite achieving clinical remission after completion of initial treatment, most patients (60%) with advanced epithelial ovarian cancer will ultimately develop recurrent disease or show drug resistance, and their rate of curability is less than 30% [5].

Different treatment modalities have been attempted to overcome these limits, such as secondary cytoreduction, second-line chemotherapeutic drugs, high-dose chemotherapy, intraperitoneal chemotherapy (IP), radiotherapy, immunotherapy, and hormone therapy.

Intraperitoneal hyperthermic chemotherapy (HIPEC) is a new treatment modality that is based on increasing the sensitivity of cancer cells to the direct cytotoxic effect of chemotherapeutic agents at high temperature (40-43°C) and increasing the concentration of chemotherapeutic agents that penetrate cancer tissues [6].

Another mechanism is the destabilization of thymidine kinase 1, which is involved in DNA synthesis in cancer cells [7]. At 40-43°C, neoplastic cells become more chemo-sensitive due to an enhancement of intracellular concentrations of drugs and to alterations in the DNA repair process [8]. Various drugs have been used during the intraperitoneal chemotherapy based on primary origin of peritoneal carcinomatosis, Cisplatin and Mitomycin combinations are commonly used in our setting. Cisplatin has been shown to penetrate deeper into tumor tissue under hyperthermic conditions compared to normothermic conditions.

Cytoreductive surgery plus HIPEC appears to be a promising modality for treatment of cancers presenting with peritoneal carcinomatosis. A phase III randomized study of hyperthermic intraperitoneal chemotherapy following cytoreductive surgery compared with traditional iv chemotherapy in patients with peritoneal spread of colorectal carcinoma showed a statistically significant prolongation of life in the experimental arm [9]. In addition, this combined treatment has been suggested as the standard of care for peritoneal dissemination from neoplasm of the appendix [10,11] and diffuse malignant peritoneal mesothelioma [12]. Among patients with stage III epithelial ovarian cancer, the addition of HIPEC to interval cytoreductive surgery resulted in longer recurrence-free survival and overall survival than surgery alone [13].

REFERENCES:

1. Jemal A et al: CA Cancer J Clin. 2004 Jan-Feb; 54(1):8-29
2. Munkarah AR, Coleman RL: Gynecol Oncol. 2004 Nov; 95(2):273-80
3. Eisenkop SM et al: Gynecol Oncol. 2006 Feb; 100(2):344-8.
4. Fagotti A et al: World J Gastrointest Oncol. 2010 Feb 15; 2(2): 102–108
5. Sagae S et al: Obstet Gynecol 1988; 72; 782-788
6. Los G et al: Br J Cancer. 1994 Feb; 69(2):235-41
7. Demeter A et al: Anticancer Res. 2001 Jan-Feb; 21(1A):353-8
8. Engelhardt R: Recent Results Cancer Res: 1987; 104:136-203
9. Verwaal VJ et al: J Clin Oncol. 2003 Oct 15; 21(20):3737-43
10. Sugarbaker PH et al : J Clin Oncol. 2006 Aug 20; 24(24):4011-9
11. Sugarbaker PH: Lancet Oncol. 2006 Jan; 7(1):69-76
12. Kusamura S et al: J Exp Clin Cancer Res. 2003 Dec; 22(4 Suppl):207-12
13. van Driel WJ et al, N Engl J Med. 2018 Jan 18;378(3):230-240

Case Report I: Cardiology

A first reported case of Primary Cardiac Myxofibrosarcoma (MFS) with Osteoid Differentiation Mimicking a Left Atrial Myxoma.

Dr. Charan Reddy KV, MBBS, DNB (Cardiology), Junior Consultant - Cardiology
Dr. Pavan Kumar, MS, MCh (Cardiovascular & Thoracic), FIACS, Consultant - CVTS
Dr. Prakash Sanzgiri, MD (Med), DM (Cardiology), Consultant - Cardiology
Dr. Vidya Suratkal, MD, DM, FACC, Consultant - Cardiology
Dr. Namrata Kothari, MBBS, MD, Consultant - Anesthesiology
Dr. Asha Mary George, MBBS, MD(Pathology), Consultant - Histopathology

Abstract

Cardiac Myxofibrosarcoma (MFS) is an uncommon entity. It is among the most challenging conditions to diagnose due to its rarity, high variability and non specific findings. These tumors often simulate left atrial myxoma at clinical presentation. Though, the definitive diagnosis of cardiac tumors is histopathological examination, various imaging techniques are also useful to diagnose it early in order to plan a appropriate treatment strategy. Here we highlight a case of primary cardiac myxofibrosarcoma of left atrium (LA) showing areas of transition to undifferentiated pleomorphic sarcoma (UPS) with bone or osteoid formation, which has not been described in medical literature.

Introduction

Primary cardiac tumors are rare and their incidence varies from 0.3% to 0.7%[1]. They are usually benign and only 25% are malignant. Primary cardiac sarcomas are even rarer with an incidence of 0.0001% in autopsy series[2].Angiosarcomas are the commonest, accounting for about 33% to 40%. Myxofibrosarcoma (MFS), pleomorphic sarcoma and osteosarcoma are exceptionally rare primary cardiac soft tissue tumors. MFS is a aggressive soft tissue neoplasm. It is often asymptomatic with extensive local invasion or distant metastases at detection. Although, 31 cases of cardiac MFS have been reported in medical literature, the one with osteoid or bony transformation has not been described[3]. To the best of our knowledge this is the first reported case of high grade primary cardiac MFS with predominant areas of bone or osteoid matrix formation.

Here, we share our case experience and problems encountered during diagnosis and management of this extremely rare histological subtype of MFS.

Case report

A 62 yrs old woman, came with the complaint of dyspnea on exertion (NYHA class II) for the last one month. No significant past history was elicted. On examination, pulse was regular and blood pressure was 130/80 mm of Hg. On auscultation of chest, S1 was soft and S2 was normally split. There was an early diastolic plop sound after the S2 with a low pitched, mid-diastolic rumbling murmur (Grade II) over apex, without presystolic accentuation. The intensity of the sound changed in relation to patient position.

Electrocardiogram (ECG) was normal. X-ray of chest showed cardiomegaly. A 2D-Echo done outside 3 months back was reported as calcified LA Myxoma.2D-ECHO was repeated at our hospital and later Transesophageal Echocardiography (TEE) was done, showed a large mass measuring 4.8 x 3.5 cm, almost filling the entire left atrium(LA). This mass was lobulated, sessile, having heterogenous echogenicity with areas of dense calcification and cystic degeneration, originating from posterior wall, and prolapsing into the LV cavity during diastole (Fig.1a,b). The mitral valve leaflets were thickened and mildly calcified. Mitral valve area was 3.5 cm2 by

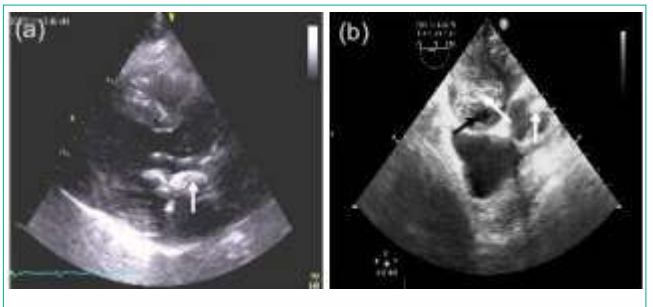


Fig.1 (a) Transthoracic Echo:Parasternal long axis view showing a large tumor in the left atrium (LA) (arrow) with calcification and prolapse(b)Transoesophageal Echo:showing multi-lobulated mass with calcification (white arrows) arising from posterior wall of LA with areas of cystic degeneration (black arrow).

planimetry. No regional wall motion abnormality was detected. LV ejection fraction was 55% with mild Mitral regurgitation. No Pulmonary hypertension was seen. In view of above atypical findings, not usually associated with myxoma, we reported it as posterior LA wall tumour, probably malignant type, to be confirmed after histopathological examination. Cardiac MRI done outside showed a large mass originating from the posterior wall of the LA in the vicinity of left lower pulmonary vein, without any extracardiac involvement. It was also reported as LA myxoma. Coronary angiography (CAG) done was normal. Open heart surgery was planned for the removal of LA mass.

Surgical Technique:

After mid-line sternotomy and establishment of routine cardiopulmonary bypass (CPB), right atrium (RA) was opened. Left atrium (LA) was approached through the interatrial septum (IAS). A large pearly white, hard mass measuring 4.5 x 3.5 cm was seen arising from the posterior wall of LA. There was no involvement of mitral valve, pulmonary veins or any extra cardiac structures (Fig 2a). Complete surgical resection of the mass was achieved by blunt dissection. Mitral valve was inspected and found to be competent. IAS and RA were then closed. CPB terminated, hemostasis achieved and sternotomy wound closed.

Fig.2 (a) Intraoperative image showing a large pearly white, hard mass arising from the posterior wall of LA (black arrow). (b)On excision show firm to hard, grayish white, nodular masses with cut surfaces having myxoid appearance interspersed with areas of dense calcification.

Due to the presence of unusual findings such as the appearance, size and abnormal location of the tumor, malignant or metastatic disease was also suspected by the surgeon. The entire tumor (47 grams in total) was sent for histo-pathological examination to confirm the clinical diagnosis of LA myxoma. Meanwhile, patient made an uneventful recovery and was discharged seven days after surgery.

Histo-pathological examination

Gross examination of the tumor showed firm grayish white nodular soft tissue masses, with cut surface having myxoid appearance interspersed with areas of dense calcification, cystic degeneration and necrosis. Microscopic examination of the tumor revealed hypocellular and hypercellular areas with nodular growth pattern and arborizing curvilinear blood vessels. Hypocellular areas were composed of spindle to stellate shaped cells and pseudolipoblasts. Hypercellular areas were composed of pleomorphic spindle cells with hyperchromatic nuclei arranged in sheets and fascicles admixed with cells exhibiting epithelioid morphology. The stroma showed extensive myxoid changes (Fig 3a,b,c) with islands of woven bone and osteoid intercepted by areas of hyalinization and dystrophic calcification (Fig 3d). The tumor had brisk mitotic activity (2-3 / hpf) with atypical mitotic figures.

Immunohistochemisty (IHC) showed negativity for Calretinin–the marker which is expressed in most cardiac myxomas. IHC markers for vascular tumors (CD34, CD31), smooth muscle tumors (SMA), neurogenic tumors (S100) and sarcomatoid carcinoma (AE1/AE3) were also negative. The only positive IHC marker was Vimentin, which indicated that the tumor was of mesenchymal origin. The cellular proliferation marker (Ki 67) was very high.

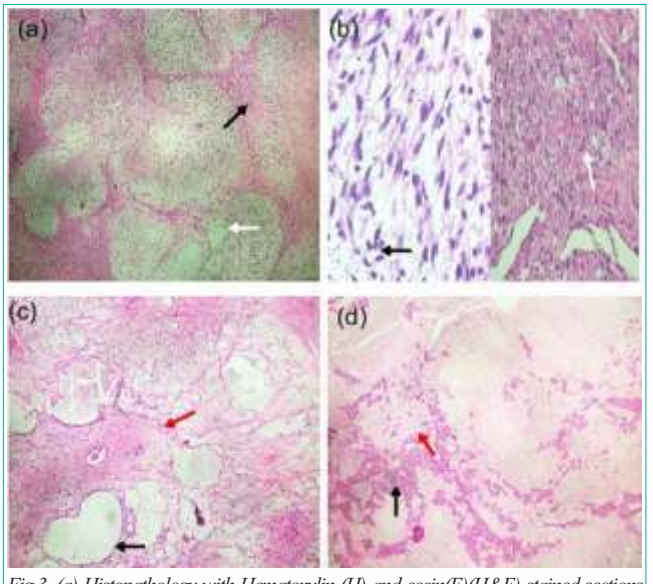


Fig.3. (a) Histopathology with Hematoxylin (H) and eosin(E)(H&E) stained sections show (a) Nodular pattern with arborizing blood vessels (black arrow) with myxoid stroma (white arrow). (b) Hypercellular areas with pleomorphic spindle cells (black arrow) and epithelioid cells (white arrow). (c) Hypocellular areas with few scattered spindle cells within a predominant myxoid (black arrow) and fibrous stroma (red arrow).(d) Scattered areas of woven bone (black arrows) and osteoid deposition (red arrow).

It was reported as Myxofibrosarcoma of left atrium with areas of transition showing undifferentiated pleomorphic sarcoma (UPS) with predominant osteoid component.

In view of the above diagnosis, 18 FDG PET/CT scan was done to study the extent of the disease. It did not demonstrate any metastatic foci in the body confirming it to be a primary cardiac tumor. Adjuvant chemotherapy and radiation therapy comprising of doxorubicin and ifosfamide was started. However, there was local tumour occurrence two months after surgery. She died 6 months after surgery due to aggressive tumour invasion into the pulmonary veins and the left atrial wall, leading to tumour embolisation and fatal stroke.

Discussion

MFS is a rare soft tissue tumor that is typically seen in adults in their 6th –8th decade of life[4]. They are usually found in the subcutaneous or deeper tissues of extremities (>77%), trunk (>12%), retroperitoneum or mediastinum (8%) and head (3%)[5]. About 80% of patients already have evidence of metastases at the time of the initial presentation,with lungs being the most common site. Indicators of poor prognosis include, age≥40 years, female sex, tumor size ≥4 cm, high grade on histology, incomplete tumor excision and patients not on any post-surgical treatment[3].

MFS may rarely arise in the heart also, with only few cases reported. A study review done by Sun et al, of total 31 cases, left atrium was found to be the most common location, affecting 18 patients (58.1%). The second most common location was posterior wall of left atrium with pulmonary vein involvement, which occurred in 5 patients (16.1%). Other locations included right heart (involving right ventricle, right atrium, and pulmonary artery) in 5 (16.1%), and left ventricle in 3 patients (9.7%)[3].

2D-ECHO and histo-pathological confirmation is mandatory for diagnosis. TEE and cardiac MRI are also helpful to study the location, dimensions and extension of the tumor. Primary cardiac MFS are usually large, without a pedicle, calcified, multicentric, may attach to interatrial septum or invade the posterior atrial wall, pulmonary veins or mitral valve. These features differentiate it from benign myxomas which are mainly attached to interatrial septum (in about 83% of cases) [6-8]. MFS demonstrates a wide spectrum of cellularity and nuclear pleomorphism, but invariably possesses a characteristic pattern that is curvilinear vascular arborization. The cellularity dictates tumor grade, though it does not predict it's clinical behavior. UPS is a diagnosis of exclusion. IHC studies are important, to rule out myogenic, melanocytic, neurogenic tumors as well as sarcomatoid carcinomas.

Sarcomas are very aggressive tumors with an average survival of approximately 11 months.Cardiac MFS are likely to present with local recurrences after surgery or distant metastasis. In a study by Sun et al[3], the rates of local recurrence and distant metastasis after surgery were found to be 42.9 % and 19.0%, respectively. Complete resection of the malignant tumor is ideal. Life expectancy is nearly twice as long in patients with complete tumor resection, compared to patients who undergo incomplete excision[9].

Though surgery is still the first-line treatment for MFS, other treatment modalities such as adjuvant chemotherapy, radiotherapy or combination of both is usually advised. Regular and long term follow up with appropriate imaging is very important to study tumor behavior. Role of heart transplantation as a treatment option is still controversial.

Conclusion

Primary cardiac MFS is a very rare malignant tumor of heart. It can easily be confused with benign myxomas.Various imaging techniques, such as echocardiography and cardiac MRI, coupled with histology and immunohistochemical studies play a important role in differentiating benign from malignant tumors. Due to aggressive behavior of this tumor, early detection and complete surgical resection may result in a longer survival. Adjuvant treatment with chemotherapy and radiation may delay local recurrences. Regular long term follow-up with imaging is very important to detect tumor recurrences.

Dr. Suresh Vijan, Consultant – Cardiology (Peer review comments) : Unusual and rare case of primary cardiac malignancy. The value of ECHO in diagnosis should be strongly emphasised. Increasing Cardiac MRI has provided good resolution and increased understanding of intra cardiac anatomy leading to better understanding of the relation between intracardiac mass and walls of the heart. The long term prognosis of cardiac tumours remains poor as seen in this case.I would congratulate the authors for their efforts in diagnosing and managing this difficult case.

REFERENCES:

1. Leja MJ, Shah DJ, Reardon MJ. Primary cardiac tumors. Tex Heart Inst J. 2011;38:261-62.
2. Kodali D, Seetharaman K. Primary cardiac angiosarcoma. Sarcoma. 2006; 2006:39130.
3. Sun D, Wu Y, Liu Y, Yang J. Primary cardiac myxofibrosarcoma: case report, literature review and pooled analysis. BMC Cancer. 2018; 18:512.
4. Angervall L, Kindblom LG, Merck C. Myxofibrosarcoma. A study of 30 cases. Acta Pathologica et Microbiologica Scandinavica. 1977; 85A:127-40.
5. Mansoor A, White CR Jr. Myxofibrosarcoma presenting in the skin: Clinico-pathological features and differential diagnosis with cutaneous myxoid neoplasms. Am J Dermato-pathol. 2003;25:281-86.
6. Shiga Y, Miura S, Nishikawa H, Sugihara H, Nakashima Y, Takamatsu Y, et al. Very rare case of large obstructive myxofibrosarcoma of the right ventricle assessed with multi-diagnostic imaging techniques. Intern Med. 2014;53:739-42.
7. Park H, Jo S, Cho YK, Kim J, Cho S, Kim JH, et al. Differential diagnosis of a left atrial mass after surgical excision of Myxoma: A remnant or a Thrombus? Korean Circ J. 2016;46:875-78.
8. Bortolotti U, Maraglino G, Rubino M, et al. Surgical excision of intra cardiac myxomas: a 20-year follow-up. Ann Thorac Surg. 1990; 49:449.53
9. Pathak R, Nepal S, Giri S, Ghimire S, Aryal MR. Primary cardiac sarcoma presenting as acute left-sided heart failure. J Community Hosp Intern Med Perspect. 2014;4, DOI:10.3402/jchimp.v4.23057

Case Report II: Cardiology

Transcatheter aortic valve-in-valve implantation with Edwards SAPIEN 3 in elderly with multiple co-morbidities: First case experience at our hospital.

Dr. Charan Reddy KV, MBBS, DNB (Cardiology), Junior Consultant - Cardiology
Dr. R. Hajari, MBBS, MD, Consultant - Anesthesiology
Dr. M. G. Pillai, MD, DM, FISE, Consultant - Cardiology
Dr. A. B. Gopalamurugan, Department of Interventional Cardiology and Transcatheter Valve & Endovascular therapies, Kauvery Hospital, Chennai, India
Dr. V. Ravishankar, MBBS, MS (General Surgery), DNB (General Surgery), MCh (Cardiothoracic Surgery),
Chief Operating Officer, Lilavati Hospital and Research Centre

Abstract

Degenerated bioprosthetic valves are a growing clinical problem with significant morbidity and mortality. The incidence of aortic bioprosthesis structural valve deterioration (SVD) requiring reintervention is 20% to 30% at 10 years and over 50% at 15 years. Repeat surgery using mechanical or tissue prosthesis was the preferred treatment for the last several decades. However, reoperation has a higher risk of complications due to technical complexity, advancing age and multiple comorbid conditions such as prior coronary artery bypass surgery(CABGS), diabetes mellitus (DM), chronic kidney disease (CKD) and cerebrovascular stroke.Recently, successful implantation of transcatheter Valve-in-valve (VIV) procedures have emerged, especially in high surgical risk patients with excellent results. The morbidity and mortality associated with valve reoperation seem likely to ensure that the VIV-TAVI will be appealing option to both patients and physicians.

Though transcatheter VIV procedure is less invasive compared to surgical aortic valve replacement, it is associated with specific complications requiring extensive preoperative work-up and planning by the heart team. Here,we report a first case of aortic Valve-in-valve (ViV) implantation with 23 mm Edwards SAPIEN-3 valve (S3),done in Lilavati hospital, on a elderly patient with multiple comorbidities, who was deemed high risk for surgical intervention.

Introduction

The concept of transcatheter insertion of heart valves as a treatment option for valvular heart disease has been around since the 1960s[1]. It was not until 2000 that the first implantation of a transcatheter pulmonic valve in a human being was realized[2]. Cribier et al, described the first percutaneous transcatheter implantation of an aortic valve prosthesis in a 57-year-old patient with calcific aortic stenosis in 2002[3]. The concept of transcatheter implantation of a new valve within the failing bioprosthetic valve (ViV) was first described by Walther et al, in 2007[4]. The first successful transcatheter aortic valve implantation for degenerated surgical aortic bioprosthetic valve was done by Wenaweser et al,in 2007[5].

Since then, several case reports from Europe and Canada have confirmed the successful implantation of off-label TAVI valves within failing bioprosthetic valves. With the transcatheter aortic valve replacement (TAVR) procedure expected to progress into younger patient populations, valve-in-TAVI (ViV-TAVI) may become a more frequent consideration as increasing number of surgically implanted bioprostheses will require re-intervention for structural valve deterioration in the future.

However, this procedure is not without it's inherent risks. The type, size, and implant position of the transcatheter valve has to be optimized for individual patients with knowledge of detailed dimensions of the surgical valve, radiographic and echocardiographic measurements of the patient's haemodynamics and structural anatomy. Moreover, there are higher rates of malposition, coronary occlusion, device underexpansion, and residual aortic stenosis in ViV-TAVI, compared to TAVI for native aortic valve disease .

Here we describe a case of aortic ViV-TAVI procedure in an elderly individual with degenerated bio-prosthetic valve and multiple co-morbidities,in addition to several anatomical constraints. The aim of this study is to contribute to the growing knowledge of this procedure, and management of these patients, who are deemed to be at high risk for any surgical intervention.

Case report

A 93-year-old male,known case of hypertension,chronic kidney disease,hypothyroidism and ischaemic heart disease, presented with the complaints of dyspnea on exertion (NYHA class III) and orthopnea for the last 3 months.He was frequently admitted during this period at a local hospital and managed conservatively with intravenous diuretics. However, his condition worsened over the last 15 days and was referred to our hospital . He gave a past history of aortic valve replacement(AVR) surgery with a 23mm SJM bioprosthetic stented (porcine) valve 15 years back and concomitant coronary artery bypass surgery(CABGS) with two grafts(LIMA-LAD and SVG-RCA) . There was no history of fever or chest trauma in the recent past.

On examination, pulse was regular with very brisk upstroke, large amplitude, and rapid collapse(water hammer pulse).JVP was raised(9 cm) with bilateral pedal oedema. Blood pressure was 150/30 mmHg. On auscultation of chest, S1 was normal and S2 was soft with a decrescendo, early-diastolic blowing murmur, best heard on the left lower sternal border (3rd and 4th intercostal spaces), with patient sitting up and leaning forward. The intensity of murmur increased on sustained hand grip .There were peripheral signs of AR and hill's sign was present(difference in the systolic blood pressure between the arm and the foot was 46 mmHg).There was no S3 gallop,but S4 heart sound was audible.

Electrocardiogram (ECG) showed left ventricular hypertrophy. X-ray of chest showed cardiomegaly,calcified aortic knuckle with unfolding of aorta.Haemoglobin was 8 gm/dl.Liver enzymes were raised(ALT and AST was 250 U/L and 320 UL respectively). N-terminal (NT)-proB-type Natriuretic Peptide (NT-proBNP) level was 9200 pg/mL.Serum creatinine level was 3.94 mg/dl.Transthoracic Echocardiography (TTE) showed dilated LA and LV.There was thickening and calcification of the tissue aortic valve leaflets with degeneration,causing moderate to severe aortic regurgitation. LV ejection fraction was 45% with mild hypokinesia of inferior myocardial wall with mild mitral and tricuspid regurgitation.Pulmonary hypertension was also mild (38 mm of Hg).AR pressure half time(PHT) was 195ms with regurgitant fraction(RF) of 48 ml.

CT aortogram showed moderate calcification in annulus. The ascending, arch and descending aorta showed mild calcification with tortuosity without any significant thoracic aortic aneurysms. The following diameters were measured on CT scan (Figure 1): annulus min/max; 19/22 mm, effective 20/20 mm (area/circumference), mid-sinus 26 mm, sino-tubular junction 23 mm, distance to the left coronary ostium 9 mm and to the right coronary ostium 13 mm. Both common iliac (9 mm) and femoral artery(8 mm) diameters were adequate (Figure 2) . CT-coronary angiography showed a patent LIMA-LAD graft but SVG-PDA graft was totally occluded with good retrograde collateral circulation to the distal RCA via epicardial vessels from left circulation.

In view of high surgical risk (STS score of 15%) with multiple co-morbidities, a transcatheter aortic ViV implantation with 23 mm Edwards SAPIEN-3 valve (S3) was planned on compassionate grounds.

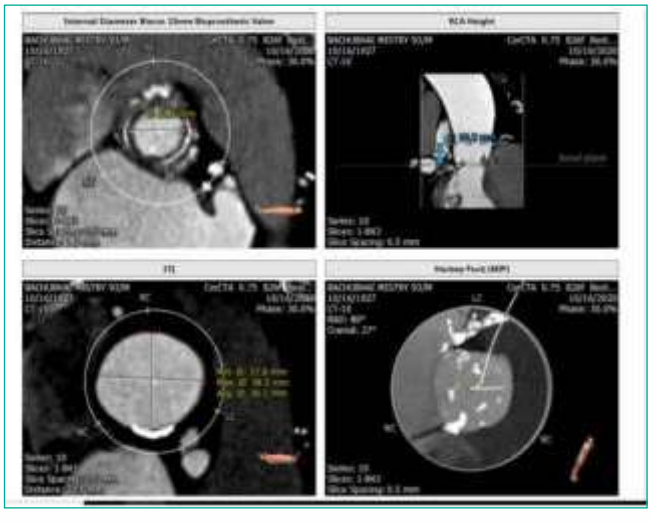


Figure 1: CT aortogram showing various dimensions of the aortic root

Figure 2 : CT image showing various dimensions of the peripheral arteries

Procedure

During the TAVI procedure, an Edwards 14 French sheath was inserted without complication and sutured into place. The Sapien 3 Commander delivery system was inserted and the valve was aligned in the descending aorta. The 23-mm Edward Sapien 3 valve was deployed with slow continuous inflation during rapid right ventricular pacing (200 bpm). The cranial edge of the Edwards S3 valve was aligned with the cranial radiopaque markers of bioprosthesis to minimize paravalvular leak. Post-deployment angiography, transesophageal echocardiography and aortogram confirmed good valve placement with only a mild aortic paravalvar leak and no increase in trans-aortic gradient when compared to a naïve 23 mm Biocor stented (bioprosthetic) valve (Figure-3a-d).Amount of contrast used during the entire procedure was 40 ml.This is even lower than the amount of contrast required to perform a basic coronary angiography.Patient made a uneventful recovery and was discharged on day 6 after procedure.

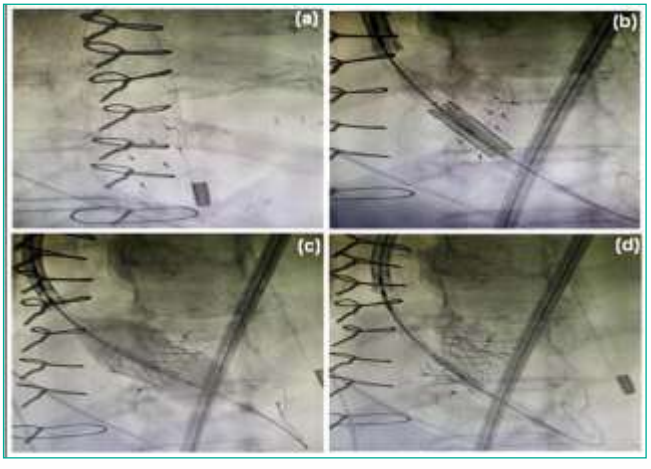


Figure 3:
(a). Angiographic film showing the sewing ring(arrows) of a older valve(23 mm Biocor bioprosthesis) which can be used as a marker during valve deployement. .
(b). Angiographic film showing the positioning of the 23 mm Edward Sapien-3 valve within the degenerated aortic tissue valve ring (Arrows).
(c). Angiographic film showing inflation of the balloon-expandable Edward sapien-3 valve within the older degenerated aortic valve (Arrows) .
(d). Angiographic film showing well deployed Valve-in-Valve(arrows) with 23 mm Edward sapien-3 aortic valve, in position and functioning well..

Discussion

Aortic bioprosthetic valves usually deteriorate in 10 to 20 years after surgery. The operative mortality for elective redo aortic valve surgery has been reported to range from 2% to 7%.However, this percentage can increase to >30% in high-risk patients[6].Traditionally, the management of degenerated aortic valve bioprosthesis classically requires redo surgery, but transcatheter aortic valve-in-valve implantation is now becoming a valid alternative in selected cases. However, transcatheter aortic valve implantation (TAVI) is still associated with a higher incidence of paravalvular regurgitation (PVR), permanent pacemaker (PPM) and vascular complications when compared to surgical aortic valve replacement. Moreover,the procedure can also be challenging in presence of complex anatomy and multiple comorbid conditions.Even though, transcatheter aortic valve replacement (TAVR) cases have grown substantially worldwide in recent years, but collective experience with transcatheter valve-in-valve placement remains relatively low.

The PARTNER 3 Trial was an independently evaluated, randomized clinical trial comparing outcomes between transcatheter aortic valve replacement (TAVR) and open-heart surgery. It showed all cause death (at one year) was 1.0% vs 2.5% and incidence of stroke was 1.2% vs 3.1%. TAVR with the SAPIEN 3 valve achieved superiority, with a 46 percent reduction in the event rate for the primary endpoint of the trial, which was a composite of all-cause mortality, all stroke and rehospitalization at one year. PPM placement was required within 30 days of TAVR in 6.7% patients and varied among those receiving self-expanding valves (25.1%) versus balloon-expanding valves at 4.3%[7]. In August,2020, the US Food and Drug Administration approved Sapien 3 and Sapien 3 Ultra, as well as the self-expanding CoreValve, Evolut R, and Evolut PRO valves, for the treatment of low-risk patients. The balloon-expandable device is now approved across the complete risk spectrum of symptomatic aortic stenosis.

Transcatheter valve-in-valve implantation (ViV-TAVI) has now evolved as an alternative to redo surgical valve replacement for high-risk patients with aortic bioprosthetic valve dysfunction. Advanced age, female sex, high preoperative New York Heart Association functional class, left ventricular dysfunction, renal failure, pulmonary disease, cognitive impairment, urgency of operation and technical difficulties caused by chest wall adhesions have been identified as predictors of higher reoperative risk.The above case highlights that in presence of CKD,liver dysfunction,past history of CABG surgery and advanced age,the patient was at a high risk for repeat surgery.Hence ViV-TAVI was considered.

In a meta-analysis on 489 patients, 227 underwent ViV-TAVI and 262 underwent redo-SAVR,showed that the 30 day mortality was similar in 2 groups (5% vs 4%; odds ratio [OR] = 1.08, 95% confidence interval [CI] = 0.44 to 2.62) despite the higher operative risk in the ViV-TAVI cohort as evidenced by significantly higher EuroSCORE I or II. There were similar rates of stroke

(2% vs 2%; OR = 1.00, 95% CI = 0.28 to 3.59), myocardial infarction (2% vs 1%; OR = 1.08, 95% CI = 0.27 to 4.33), and acute kidney injury requiring dialysis (7% vs 10%; OR = 0.80, 95% CI = 0.36 to 0.1.77) between 2 groups but a lower rate of permanent pacemaker implantation in the ViV-TAVI group (9% vs 15%; OR = 0.44, 95% CI = 0.24 to 0.81)[8].

The mechanisms of aortic bioprosthetic valve dysfunction are equally distributed as predominantly stenotic, regurgitant, or mixed.It was observed that there was a higher rate of stenotic dysfunction among stented and smaller (≤21 mm) valves, and a predominant regurgitant mechanism among stentless valves[9]. It is important for the operator to be familiar with the type and characteristics of the failing bioprosthesis for an optimal result.Type of surgically implanted valve also guides the choice of TAVR valve,since in valve-in-valve (VIV) procedure with a stented bioprosthesis, the sewing ring and frame provide an anchor for the THV; hence, the procedure can be performed with relative ease. In stentless valves, due to the lack of a stent frame and sewing ring results in the absence of radiopaque markers to allow proper VIV positioning, making it more challenging. Moreover, different sewing techniques and the proximity to the coronary ostia can make the VIV procedure technically more difficult[10].

Choosing the correct type and size of the THV device is also important. THVs are available either as balloon expandable or self-expandable valves. There is currently a stronger inclination to use the self-expandable THV with a nitinol frame when performing VIV in a stentless bioprosthesis and balloon expandable valves for stented bioprosthesis. Coronary obstruction following VIV implantation is a rare but life-threatening complication that requires immediate cardiopulmonary resuscitation and reinstitution of coronary blood flow. It was rarely seen in degenerated Mitroflow (Sorin) and Medtronic Hancock bioprosthesis[11].

The SAPIEN 3 valve is the only valve approved for valve-in-valve procedures in both the aortic and mitral positions, allowing patients at high or greater surgical risk to avoid an additional open heart procedure. Valve-in-valve TAVI with the Edwards S3 transcatheter heart valve for degenerative bioprosthetic aortic valves is technically feasible in most patients . The third generation Edwards S3-THV is associated to improved outcomes with lower rates of major vascular complications and PVR but has higher rates of new PPM compared to other valves[12]. It features a cobalt chromium alloy frame that provides a high radial strength for circularity and optimal hemodynamics. A low frame height and an open cell geometry, allows access to coronary vessels for future interventions and an outer polyethylene terephthalate (PET) skirt to minimize paravalvular leakage (PVL). The valve tissue consists of three leaflets manufactured from bovine pericardium.

As per the STS/ACC transcatheter valve-in-valve therapy registry(TVTR), a database extract performed on August 4, 2016, yielding 314 patients that had been treated with an Edwards SAPIEN 3 transcatheter heart valve, placed in a failed surgical aortic bioprosthesis, showed all-cause mortality of 2.5% at discharge and 4.5% at 30 days. The incidence of Ischemic stroke was 1.0% and minor vascular complications was 3.8% at discharge[13]. In a study by Kim et al, has shown that SAPIEN 3 THV with higher radial force, and may have more advantages as compared to other devices with lower radial force, in heavily calcified vessel anatomies[14].

Finally, acknowledging the current limitations of valve-in-valve procedures, and its potential of growth in the near future, it is imperative that the selection of valve type and technique during SAVR could be influenced by the convenience of a transcatheter valve-in-valve technique at a later time period. In younger individuals undergoing SAVR, the future availability of less invasive procedural options to treat structural valve failure could become an argument in favor of implanting a surgical tissue valve. Even though, current data supports the use of valve-in-valve procedures for most patients, a multidisciplinary heart team approach is strongly recommended for patient selection and optimization for better clinical outcomes.

Conclusion

With an improvement in life expectancy and lower age at which patients opt for a bioprosthetic valve, it is inevitable that an increasing number of patients will present with bioprosthetic valve dysfunction. Transcatheter valve-in-valve is an accepted treatment in high surgical risk patient. Growing number of TAVI procedures, with standardized pre-procedural diagnostic algorithms and well established intra-procedural steps, have resulted in a more simplified and safer procedure. High procedural success rates and reduced complications, has lead to a expansion of TAVI to include lower-risk patients as well as other specific subgroups. Understanding the complexities of the ViV procedure can lead surgeons to make choices during the original surgical valve implantation that can make a future ViV operation more technically feasible, years before it is required.

Peer Review Comments

Dr. Suresh Vijan, Consultant – Cardiology: Wonderful case. Redo cardiac surgery is a challenging operation particularly in elderly. Any procedure which could prevent this should be welcomed. Aortic VIV procedure in an increasingly acceptable option for patients who need repeat valve replacement after degeneration of bioprosthetic valves. We are now seeing use of Mitral VIV for degeneration of mitral valve bioprosthesis. Both these procedures will add to our ability to treat these difficult conditions. The fact that we can do this today in our hospital is a testimony to the skills available with us. Good Work.

Dr. Sanjeev Vichare, Consultant – Cardiovascular and Thoracic Surgery: Valve-in-valve is a procedure of choice in very high risk patients with prosthetic tissue valve degeneration. Although, it has its own pros and cons.

REFERENCES:

1. Davies H. Catheter mounted valve for temporary relief of aortic insufficiency. Lancet. 1965;1:250.
2. Bonhoeffer P, Boudjemline Y, Saliba Z, et al. Percutaneous replacement of pulmonary valve in a right-ventricle to pulmonary-artery prosthetic conduit with valve dysfunction. Lancet. 2000;356:1403-05.
3. Cribier A, Eltchaninoff H, Bash A, et al. Percutaneous transcatheter implantation of an aortic valve prosthesis for calcific aortic stenosis. Circulation. 2002;106:3006–8.
4. Walther T, Falk V, Dewey T, et al. Valve-in-a-valve concept for transcatheter minimally invasive repeat xenograft implantation. J Am Coll Cardiol 2007; 50: 56-60.
5. Wenaweser P, Buellesfeld L, Gerckens U, Grube E. Percutaneous aortic valve replacement for severe aortic regurgitation in degenerated bioprosthesis: the first valve in valve procedure using the Corevalve Revalving system. Catheter Cardiovasc Interv 2007; 70: 760-64.
6. Chikwe J, Filsoufi F. Carpentier AF. Prosthetic valve selection for middle-aged patients with aortic stenosis . Nat Rev Cardiol. 2010; 7: 711-71.
7. Fadahunsi OO, Olowoyeye A, Ukaigw A, et al. Incidence, Predictors, and Outcomes of Permanent Pacemaker Implantation Following Transcatheter Aortic Valve Replacement: Analysis From the U.S. Society of Thoracic Surgeons/American College of Cardiology TVT Registry. JACC Cardiovasc Interv 2016; 9 : 2189-99.
8. Neupane S, Singh H, Lämmer J, et al. Meta-Analysis of Transcatheter Valve-in-Valve Implantation Versus Redo Aortic Valve Surgery for Bioprosthetic Aortic Valve Dysfunction, Am J Cardiol, 2018; 121:1593-1600.
9. Tzifa T, Momenah A, Al Sahari et al .Transcatheter valve-in-valve implantation in the tricuspid position. Euro Intervention 2014; 10: 995-99.
10. Gurvitch R, Cheung A, Bedogni F, et al . Coronary obstruction following transcatheter aortic valve-in-valve implantation for failed surgical bioprostheses. Catheter Cardiovasc Interv 2011; 77: 439-44.
11. Ribeiro HB, Webb JG, Makkar RR, et al. Predictive Factors, Management, and Clinical Outcomes of Coronary Obstruction Following Transcatheter Aortic Valve Implantation: Insights From a Large Multicenter Registry. JACC 2013: 62: 29.
12. Sawaya FJ, Spaziano M, Lefèvre T, et al . Comparison between the SAPIEN S3 and the SAPIEN XT transcatheter heart valves: A single-center experience, World J Cardiol 2016 ; 8: 735-45.
13. SAPIEN 3 THV Valve-in-Valve-STS/ACC Transcatheter Valve Therapy Registry (TVTR) Analysis. 2016.
14. Kim WK, Blumenstein J, Liebetrau C, Rolf A. Comparison of outcomes using balloon-expandable versus self-expanding transcatheter prostheses according to the extent of aortic valve calcification. Clin Res Cardiol. 2017; 106 :995-1004.

Case Report III: Paediatric Surgery

Recurrence of Hodgkins Lymphoma in a Paediatric Patient - as an unusual extra nodal osseous classical Hodgkin's lymphoma after complete standard primary chemotherapy

Dr. Sushma A, DNB Resident Pediatric Surgery
Dr. Shruti Tewari, DNB Resident Pediatric Surgery
Dr. Rahul Deo Sharma, DNB Resident Pediatric Surgery
Dr. Surendra Singh, DNB Resident Pediatric Surgery
Dr. Abhay Bhave, MD, FRCPA Consultant - Haematology
Dr. Rajeev Redkar, MCh, FRCS (Paed. Surg.), MS(General Surgery), DNB, FRCS (Edin), FRCS(Glas), FCPS, IAS, Consultant - Paediatric Surgery

Background

We report a case of unusual recurrence of Hodgkins Lymphoma in a 12 years old male child, as an extra nodal osseous CHL, whose diagnosis was difficult and delayed and presenting a comprehensive review on the management of Hodgkins Lymphoma in children during chemotherapy.

Keywords

Classical Hodgkins Lymphoma, children, ABVD chemotherapy, Chemoport handling, biopsy, recurrence.

Abbreviations Used

AKT - Anti-Koch's treatment; MTB - Mycobacterial tuberculosis; FNAC - Fine needle cytology Aspiration; CHL – Classical Hodgkins lymphoma; PET-CT – Positron Emission tomography scan and Computed Tomography scan; USG - Ultrasound; ABVD - combined modality of Adriamycin (Doxorubicin) + Bleomycin + Vinblastine+ Dacarbazine; IJV - Internal jugular vein; 2DECHO - 2D Echocardiography; GLS - Global longitudinal strain score; LVEF - Left ventricular ejection Fraction; HDT- high dose chemotherapy; ASCR- autologous stem cell rescue; RS – Reed Sternberg cell

Case Report

A 12-year-old male child had history of persistent febrile episodes for about 2 and half months followed by a small swelling in the right supraclavicular region. Blood picture reported anaemia, neutrophilia, and thrombocytosis (560×109/L) while chest x-ray was normal. Ultrasound neck report was suggestive of cold abscess, so he was empirically started on AKT. Tuberculin test, sputum for AFB, and Gene Expert were negative for MTB but FNAC of the supraclavicular mass reported granulomatous lymphadenitis suggestive of Koch's, so continued on AKT. Despite treatment, the child had recurrent symptoms. Blood investigations were inconclusive. Repeat ultrasound neck reported bilateral significant necrotic cervical lymph nodes. Biopsy of the right cervical lymph node showed benign reactive lymphoid tissue. The patient was then advised PET-CT scan of the whole body which reported multiple lymph nodes in the mediastinum, neck, left axilla, focal lytic lesions in the pubic ramus, and many other sites as well. Repeat cervical lymph node biopsy was done and the patient was referred to our centre for further management.

On presentation, the patient had high-grade fever and body aches with right supraclavicular redness and abscess. All reports were reviewed and a repeat cervical lymph node biopsy report was traced, which reported classical Hodgkin's lymphoma. AKT was stopped and abscess drainage with biopsy was done. Parents were counselled about chemotherapy protocol.

Haemoncologist was involved and the patient was started on ABVD chemotherapy protocol, which was followed by immediate symptomatic relief. Chemo port was inserted in the left IJV and used for fortnightly chemotherapy. Before each cycle, strict aseptic measures were used for activation of chemo port and its patency was assessed by a good backflow of blood. The dose of the cardiotoxic chemotherapy agent was titrated based on the GLS score on the regular 2D-echo report. Eleven cycles of chemo were given successfully.

On regular follow up, small nonhealing scar noticed on the right supraclavicular region at the previous biopsy site, but on examination, there was no pus collection or discharge from the site. In the last session, on port activation, white cloudy fluid was aspirated instead of blood. It

was decided to discontinue chemo and ultrasound was done in suspicion of pus collection around chemo port. It reported a small thrombus along the chemo port in the left IJV of approximately 2 cm. Ultrasound of the right supraclavicular region was done to see any local subcutaneous collection as there was delayed healing of the biopsy site with a poor scar. But, there was no local purulent collection subcutaneously.

In view of the above finding, the patient underwent chemo port removal. Biopsy was sent from the non-healing scar and swab sent for culture. Post-op patient was stable, the last cycle of chemo was given through the peripheral line. Culture from the port site, tip of the catheter and the scar region over right supraclavicular region showed no growth and histopathology reported recurrence of Hodgkin's lymphoma.

On follow up, the wound was healthy on the port site as well as on the right supraclavicular region. Follow up with PET CT after three months is awaited.

During the last cycle, he developed a small swelling over the scalp in the parietal region, initially given history of fall at home, on palpation it was soft and fluctuant suggestive of hematoma, as no signs of head injury were present. No other swellings seen anywhere else in the scalp.

On follow up, after 20 days, he presented with yellowish discharge with offensive odour from the same scalp lesion. On examination, lesion increased in size, had irregular margins with red surface and yellowish discharge with offensive odour was seen. There was no history of fever and pain.

He had an enlarged cervical lymph node measuring 3 cm x 4cm on the right side of neck.

He also had a poor healing scar with raw area on right supraclavicular region where previous biopsy was taken. Ultrasound local was done suggestive of thrombus along the wall of left IJV, multiple conglomerated lymph nodes with areas of necrosis seen on bilateral neck region. No foci of subcutaneous collection over right supraclavicular region, possibility of recurrence with skin/soft tissue/ bony metastasis needs to be ruled out. Started on antibiotic, but discharge from the scalp lesion persisted and increased in amount, so planned for incision and drainage.

Histopath report of lymph node biopsy revealed in the paracortical region and replacing the node are seen a heterogenous population of small lymphocytes, neutrophils, several eosinophils and few histiocytes admixed with single large atypical cells, exhibiting features of

Fig.1A. Before debridement, lesion in the scalp

Fig.1B. After debridement

Fig.2A. Soft tissue scalp lesion

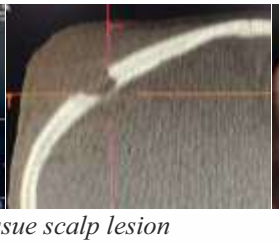


Fig. 2B. Bony cortical erosion in the skull in 3D view

CT Brain with contrast was done to assess the depth of lesion and bony changes if any. It was suggestive of bony cortical erosion in the outer and inner tables of skull with no gross brain parenchymal changes - suspected skull metastasis

Right cervical lymph node biopsy with debridement and biopsy of scalp wound was done. Swab culture from the wound shown no growth. Lymph node biopsy and debrided scalp lesion sent for TB culture and histopathology.

mononuclear and multinuclear RS cells and occasional typical binucleate RS cells. Tissue from the scalp lesion exhibited lined by hyperplastic keratinized stratified squamous epithelium. Dermis shows small lymphocytes & several large atypical cells exhibiting features of mononuclear and typical RS cells with neutrophilic micro abscess. Large cells are CD30, CD15, PAX5, MUM1, BOB-1 positive, LCA negative, OCT 2 negative. Small lymphocytes are predominantly CD3, CD5 positive T lymphocytes admixed with fewer CD20, Cd79a positive B lymphocytes. Lateral margins are free of tumour, but the tumour reaches the base of excision. Both biopsies confirmed classical Hodgkins Lymphoma {recurrence} with extra nodal osseous presentation on the scalp. TB culture is negative and the patient is discharged on Clexane injection therapy for left IJV thrombus.

Currently, on follow up, patient is clinically and haemodynamically stable and receiving Immunotherapy at some other centre, BRENTUXIMAB VEDOTIN and NIVOLUMAB , recommended once in every 2 weeks for 6 cycles of injections. So far, received 5 cycles, responded well, the supraclavicular lymph node biopsy site as well the scalp lesion healed to a greater extent.

Discussion

Hodgkin's lymphoma (HL) accounts for 5% to 6% of all childhood cancer. We report the case of 12 years male child whose diagnosis was delayed and management with ABVD protocol of chemotherapy. Reports from other developing countries showed that Pediatric HL occurred at a younger age with as many as 15% to 30% of cases occurring before 5 years of age, against 5% in developed countries1, 2-6.

Our patient presented with cervical lymphadenopathy, with body aches, spikes of fever spells on and off, not responding to medication. As per the Clinical staging of Ann Arbor staging system which distinguishes 4 stages according to the extension of the disease at the moment of the diagnosis, our patient classified as stage IV with osteolytic lesions extending into pubic ramus. In Western countries, 75% of newly diagnosed patients have early disease at presentation (stage I–II)2,7. In less economically developed countries, however, more than half of the patients have advanced disease (stage III-IV)4,6,8 perhaps because of delayed diagnosis and referral.

Lugano classification

The staging system used for Hodgkin lymphoma is the **Lugano classification,** which is based on the older **Ann Arbor system.**

It has 4 stages, labeled I, II, III, and IV. For limited stage (I or II) HL that affects an organ outside of the lymph system, the letter E is added to the stage (for example, stage IE or IIE).

Stage I: Either of the following means that the HL is stage I:

- HL is found in only 1 lymph node area or lymphoid organ such as the thymus (I).
- The cancer is found only in 1 part of 1 organ outside the lymph system (IE).

Stage II: Either of the following means that the HL is stage II:

- HL is found in 2 or more lymph node areas on the same side of (above or below) the diaphragm, which is the thin muscle beneath the lungs that separates the chest and abdomen (II).
- The cancer extends locally from one lymph node area into a nearby organ (IIE).

Stage III: Either of the following means that the HL is stage III:

- HL is found in lymph node areas on both sides of (above and below) the diaphragm (III).
- HL is in lymph nodes above the diaphragm and in the spleen.

Stage IV: HL has spread widely into at least one organ outside of the lymph system, such as the liver, bone marrow, or lungs.

A vs. B

Each stage may also be assigned a letter (A or B). B is added (stage IIIB, for example) if a person has any of these **B symptoms:**

- Loss of more than 10% of body weight over the previous 6 months (without dieting)
- Unexplained fever of at least 100.4°F (38°C)
- Drenching night sweats

If a person has any B symptoms, it usually means the lymphoma is more advanced, and more intensive treatment is often recommended. If no B symptoms are present, the letter A is added to the stage.

The vast majority of children with HL nowadays have an excellent chance of a definite cure. In our case, the clinical picture was mimicking tuberculosis, but the tests for Tuberculosis were negative. Lymphoma was considered as one of the differential diagnosis. Multiple biopsies were inconclusive, so the confirmation of diagnosis became difficult and delayed.Usually, chemo port handling is one of the most essential part of management.

There may be issues like port infection, migration and blockage resulting in chemo port failure. So, the port was activated under strict asepsis, by expertise from our department. After the first session of chemotherapy was given, there was immediate relief of fever, which was a persistent high grade for about two months.

Another most essential part of management is strict monitoring of the adverse effects of chemo agents. In our patient, there were acute side effects which included hair loss, nausea and vomiting, myelosuppression. No allergic reactions to Bleomycin and peripheral Neuropathy were seen. No delayed side effects of pulmonary toxicity, cardiac toxicity, and secondary malignancies occurred. To treat side effects, supportive care such as anti-emetics and blood cell growth factor {G-CSF} were administered. Blood counts were checked frequently while receiving chemotherapy. No fever or any sign of infection was present throughout chemotherapy.

As per ABVD protocol, Adriamycin [Doxorubicin] has Cardiac toxicity or Cardiomyopathy as a late side effect and the occurrence of Adriamycin-related cardiac toxicity is related to the total lifetime dose of Adriamycin, and increases sharply in people who receive a cumulative dose of more than 400 mg/m2. Almost all patients treated with ABVD receive less than this dose (for 6 cycles of ABVD, the cumulative Adriamycin dose is 300 mg/m2). Therefore, Adriamycin-related cardiac toxicity is very uncommon with ABVD.

Our patient was monitored with 2DECHO to watch the GLS (Global longitudinal strain score) and LVEF.

Echocardiographic global longitudinal strain (GLS) has been recommended as a means to follow patients at risk of cancer chemotherapy-related left ventricular (LV) systolic dysfunction9. Parallel to GLS, the dose of Adriamycin was titrated in every session.

As β-Blockers and angiotensin antagonists treatments were associated with better LVEF preservation, Carvedilol - a selective beta-blocker was given as a cardio protective agent in response to Adriamycin induced left ventricular changes and as a prophylactic to prevent further heart failure10. Our patient was haemodynamically stable although. Ultrasound local of previous lymph node abscess site was done to rule out any foci of infection.

Port was functional in the entire sessions, including the last session, where there was no backflow practically, but intraoperatively confirmed by flushing the port, no blockage seen.

As per the ABVD protocol, chemotherapy has been given successfully till now with no significant adverse side effects. The very first session was given by a peripheral line, followed by implantation of chemo port in left IJV and then the next ten sessions were given via chemo port and the last session by peripheral line.

The next follow up with PET CT after three months is awaited to see the remission of the disease. Here, this article is about the case report of a 12-year-old male child with delayed diagnosis with Hodgkins, received chemotherapy with careful chemo port handling and cardiac monitoring and dose adjustment of Adriamycin, thereby preventing the life-threatening cardiac side effects. Thus, a better prognosis of the patient is expected.

But , he presented with scalp lesion and recurrent multiple palpable lymph nodes soon after the course of chemotherapy.

Histopathologic examination led to a diagnosis of extranodal osseous Hodgkins Lymphoma, confirmed the recurrence of HL with skull metastasis. Diagnosis of extranodal osseous CHL is challenging, especially in this age group and location11. This suggests very unfavourable prognosis inspite of complete chemotherapy given, responded well from the first cycle till the last cycle. Hence, this case is reported as a case of relapsed HL after first primary standard chemotherapy and early recurrence with poor prognosis12.

More than half of the cases recur within 2 years of primary treatment and up to 90% occur before 5 years .Patients with relapsed HD have various treatment options including radiotherapy, conventional salvage chemotherapy, or high-dose chemotherapy (HDT) followed by stem-cell transplantation (SCT)13 . If relapse occurs, further staging and standard treatment option for chemo sensitive patients is HDT followed by ASCR to be planned. Even after HDT/ ASCR, if relapse occurs, treatment options are limited - largely palliative.

CONCLUSION

Inspite of complete standard treatment, delayed diagnosis can lead to recurrence

REFERENCES:

1. Dinand V, Arya LS. Epidemiology of childhood Hodgkin's disease: is it different in developing countries? Indian Pediatr 2006; 43:141–147.
2. Schellong G, Pötter R, Brämswig J, et al. High cure rates and reduced long-term toxicity in pediatric Hodgkin's disease: the German-Austrian multicenter trial DAL-HD-90. The German-Austrian Pediatric Hodgkin's Disease Study Group. J Clin Oncol 1999; 17:3736–3744.
3. Pritchard-Jones K, Kaatsch P, Steliarova-Foucher E, et al. Cancer in children and adolescents in Europe: Developments over 20 years and future challenges. Eur J Cancer 2006; 42:2183–2190.
4. Baez F, Ocampo E, Conter V, et al. Treatment of childhood Hodgkin's disease with COPP or COPP-ABV (hybrid) without radiotherapy in Nicaragua. Ann Oncol 1997; 8:247–250.
5. Sackmann-Muriel F, Zubizarreta P, Gallo G, et al. Hodgkin disease in children: results of a prospective randomized trial in a single institution in Argentina. Med Pediatr Oncol 1997; 29:544–552.
6. Arya LS, Dinand V, Thavaraj V, et al. Hodgkin's disease in Indian children: outcome with chemotherapy alone. Pediatr Blood Cancer 2006; 46:26–34.
7. Hunger SP, Link MP, Donaldson SS. ABVD/MOPP and low-dose involved-field radiotherapy in pediatric Hodgkin's disease: the Stanford experience. J Clin Oncol 1994; 12:2160–2166.
8. Cavdar AO, Pamir A, Gözdaşoglu S, et al. Hodgkin's disease in children: clinicoepidemiologic and viral (Epstein-Barr virus) analyses. Med Pediatr Oncol 1999; 32:18-24.
9. Hong Yang, Leah Wright, Tomoko Negishi, Kazuaki Negishi, Jennifer Liu, Thomas H. Marwick J Am Coll Cardiol Img. 2018 Aug, 11 (8) 1196-1201.
10. Yun S, Vincelette ND, Abraham I.Cardioprotective role of β-blockers and angiotensin antagonists in early-onset anthracyclines-induced cardiotoxicity in adult patients: a systematic review and meta-analysis.Postgraduate Medical Journal 2015;91:627-633
11. 11. Gomez M, Bem S, El-Zammar O, Naous R. Classic Hodgkin lymphoma with initial extranodal osseous presentation: a case report and literature review. AME case reports. 2019;3.
12. Josting A, Nogová L, Franklin J, Glossmann JP, Eich HT, Sieber M, Schober T, Boettcher HD, Schulz U, Müller RP, Diehl V. Salvage radiotherapy in patients with relapsed and refractory Hodgkin's lymphoma: a retrospective analysis from the German Hodgkin Lymphoma Study Group. Journal of Clinical Oncology. 2005 Mar 1;23(7):1522-9.
13. Canellos GP. Treatment of relapsed Hodgkin's disease: strategies and prognostic factors. Annals of oncology. 1998 Jan 1;9:s91-6.

Case Report IV: Plastic Surgery

Buccal Fat in the Maxillary Sinus in a fracture of the Zygomatico Maxillary Complex: A Diagnostic Dilemma

Dr. Sushil Nehete, Clinical Fellow - Department of Plastic Surgery
Dr. Saanchi Malhotra, Senior Resident - Department of Radiology and Imaging
Dr. Leena Jain, MS (General Surgery), MCh (Plastic Surgery), Consultant - Plastic Surgeon
Dr. Shrirang Purohit, MS (General Surgery), MCh (Plastic Surgery), Consultant - Plastic Surgery
Dr. Samir Kumta, MBBS, MS (General Surgery), MCh (Plastic Surgery), Consultant - Plastic Surgery

Introduction:

Zygomatico-Maxillary complex fractures are among the commonest of facial fractures[1]. These are very commonly associated with fracture of the infraorbital rim and / or orbital floor[2]. Prolapse of the orbital fat along with the inferior rectus muscle is also a frequent occurrence when the injury involves the floor of the orbit, seen as a radio dense shadow in the maxillary sinus.

We present a case of ZMC fracture with herniation of the retro maxillary fat pad masquerading as prolapsed orbital contents.

A 28 yrs old male presented to us with an alleged history of road traffic accident. On clinical examination he had superficial friction abrasions, few lacerations on his right cheek, swelling of upper and lower eyelids. There was no diplopia and extra ocular movements were normal in all directions.

A Non-contrast CT scan of the face showed a comminuted fracture of the lateral wall of the right maxillary sinus with hyperdense fluid (60HU) within, suggestive of haemo sinus. There was herniation of the retro maxillary fat from the right buccal space into the maxillary sinus via the defect in the lateral wall (figures 1). Comminuted fracture of the lateral wall and floor of the right orbit was also seen, with subcutaneous emphysema in the soft tissue of the cheek. During Surgery, fractures were seen at zygomatico-frontal junction, infraorbital rim and zygomatico-maxillary buttress.

A yellowish lipomatous globular lesion was noticed in the maxillary sinus without any connections with the orbital contents (figure 3), a small part was excised and sent for Histopathological examination which showed it to be fat. The fractures at the zygomatic-frontal suture, infraorbital rim and maxillary buttress were reduced and fixed with titanium plates. Forced duction test was done and free movement of the globe was noted in all directions. The facial wounds healed well and patient did not have enophthalmos. CT scan done after 2 years shows, well healed fractures with all the implants in situ with residual fat herniating into the sinus (figure 4).

Discussion

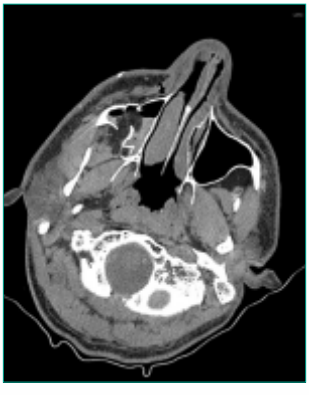


Figure 1: Retro maxillary fat seen on both sides; herniation seen into right sinus through lateral wall fracture

Figure 3: Intra-operative photograph showing herniation of fat resembling a lipoma

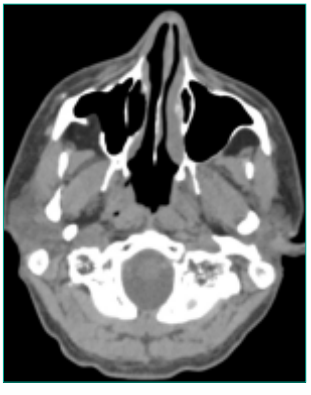


Figure 4: Post-operative CT scan showing residual fat protruding into the sinus

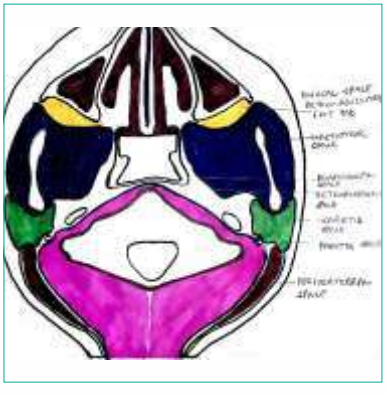


Figure 5: Illustration showing retromaxillary fat pad.

Orbital contents are commonly seen herniating into the maxillary sinus following orbital floor fracture. Usually, inferior rectus muscle and orbital fat herniates through the fracture into the sinus.

However, it is not very common to find retro maxillary fat herniating into the maxillary sinus[3].

In case of Fractures of the Zygomatico maxillary complex, the presence of fat in the maxillary sinus in the absence of enophthalmos, diplopia and a negative forced duction test should make us think of herniated retromaxillary pad of fat instead of orbital fat. It can easily be confirmed on a CT scan.

The buccal fat pad is a biconvex collection of fatty tissue, measuring approximately 10mL in volume, lying between the masseter and buccinator muscles[4]. The buccal fat pad protrudes in front of the anterior border of the masseter and just posterior to the site where the parotid duct pierces the buccinator to drain into the oral cavity figure 5). It does not need any special surgical management, unlike the infra orbital fat which has to be re positioned in the orbit.

Conclusion:

Zygomatico maxillary complex (ZMC) fractures are common fractures of the facial skeleton especially in the younger population following trauma. Many of these fractures are associated with fat in the maxillary sinus, which usually is prolapsed intra orbital fat.

Although not common, the retro maxillary pad of fat occasionally herniates into the maxillary sinus masquerading as prolapsed intra orbital fat and can pose a diagnostic dilemma.

Radiological finding of fat in the maxillary sinus with no signs of entrapment (diplopia, negative forced duction test, on table no prolapse of intra-orbital fat seen) points towards the retromaxillary fat herniating into the sinus.

REFERENCES:

1. Covington DS, Wainwright DJ, Teichgraeber JF, et al. Changing patterns in the epidemiology and treatment of zygoma fractures: 10-year review. J Trauma. 1994 Aug. 37(2):243-8
2. Gruss JS, Van Wyck L, Phillips JH, et al. The importance of the zygomatic arch in complex midfacial fracture repair and correction of posttraumatic orbitozygomatic deformities. Plast Reconstr Surg. 1990 Jun. 85(6):878-90.
3. Marano PD, Smart EA, Kolodny SC.Traumatic herniation of buccal fat pad into maxillary sinus: report of case.J Oral Surg1970;28:531–32
4. Tostevin PM, Ellis H. The buccal pad of fat: a review. Clin Anat 1995;8:403–06

BARIATRIC SURGERY is now covered under insurance

comprehensive WEIGHT LOSS SOLUTION FOR

TYPE 2 DIABETES

HEART PROBLEMS

HERNIA

KEY FEATURES OF CLINIC

- ✓ **Team of Renowned Bariatric Surgeons**
- ✓ **Cumulative Experience of Over 2 Decades**
- ✓ **Performed over 8000 Bariatric Procedures**

Safe & Precise Procedure

Long Term & Effective Obesity Treatment

Honest Pricing No Hidden Charges

Quick Recovery

FOR MORE DETAILS CONTACT:

022-2656 8354 / 8356

List of Publications (International)

S. No.	Author	Title of the Paper / Chapter	Name of Journal
1	Contributions by Consultants and residents of Pediatric Surgery, General surgery and spine surgery Dept. on behalf of Covid Surg	Timing of Surgery following SARS – CoV-2 Infection: an international prospective cohort study	Anaesthesia 2021; 76: 731
2	Collaborative and GlobalSurg Collaborative Contributions by Consultants and residents of Pediatric Surgery,	SARS-CoV-2 vaccination modelling for safe surgery to save lives: data	BJS Society, March 2021
3	General surgery and spine surgery Dept. on behalf of Covid Surg Collaborative and GlobalSurg Collaborative Dr. Hemant Mehta, Dr. Abhay Bhave, Dr. Wasiyeeullah Shaikh ,	from an international prospective cohort study Chronic myeloid Leukemia, ulcerative colitis and Nephrotic	European Journal of Biomedical AND Pharmaceutical sciences
4	Dr. Bhagyashree Gorakh, Dr. Pallavi Tanpure and Dr. Naval Kazi Dr. Rajeev Redkar, Dr. Vinod Raj, Dr. Shruti Tiwari, Dr. Rahul Deo Sharma, Dr. Shirin Joshi	Syndrome: what is the relationship? Ballon Venoplasty as Primary modality of Treatment in children with Budd-Chiari Syndrome	ISSN 2349-8870 Volume: 8 Issue: 1 424-427 Year: 2021 Journal of Pediatrics Surgery Volume 55 Issue 10 P 2183-2186 October 1-2020
5	Dr Prakash Sanzgiri, Dr Charan Reddy KV*, Dr Rohan Thanedar Dr Srinivas Kudva Dr. Gunjan S Desai, Dr. Prasad	Clinical Profile and Approach to Osteal LAD Lesion During Primary Angioplasty in Myocardial Infarction (PAMI) Late postcholecystectomy Mirizzi	Clinical Cardiology and Cardiovascular Medicine Volume 4 Issue 1 | PDF 129 | Pages 4 BMJ Case Rep 2019;12:e228156.
6	Pande, Dr. Rajvilas Narkhede, Dr. Prasad Wagle	syndrome due to a sessile gall bladder remnant calculus managed by laparoscopic completion cholecystectomy: a feasible surgical option	doi:10.1136/bcr-2018-228156
7	Dr Dattaraj Budkule, Dr Gunjan Desai, Dr Prasad Pande , Dr Rajvilas Narkhede , Dr Prasad Wagle , Dr Paresh Varty	An outcome analysis of videoscopic assisted retroperitoneal debridement in infected pancreatic necrosis: a single centre experience	Turk J Surg 2019; 35 (3): 214-222
8	Dr Prasad Wagel, Dr Rajvilas Narkhede, Dr Gunjan Desai, Dr Prasad Pande, Dr D R	Surgical management of large Hepatocellular Carcinoma: the first single-center study from Western	ABCD Arq Bras Cir Dig 2020;33(2):e1505
9	Kulkarni, Dr Paresh Varty Dr Charan Reddy KV,	India Impact of SARS-CoV-2 on Cardio-Pulmonary-Immune Signatures: Recent Developments and Future Outlook.	Auctores Publishing – Volume 3(2)-028 ISSN: 2690-8816
10	Dr Salil Mehta, Dr Prahlad Prabhudesai	Fundus Lesions in Patients Hospitalized With COVID-19 Infection in Mumbai, India: A Retrospective Review	Cureus 12(11): e11512. DOI 10.7759/cureus.11512

List of Publications (International) contd.

S. No.	Author	Title of the Paper / Chapter	Name of Journal
11	Dr Prakash Sanzgiri, Dr K. V. Charan Reddy	Newer and Aggressive Blood Pressure Goals to Treat Hypertension	Hypertension Journal Vol. 6:2 Apr-Jun 2020
12	Dr K.V. Charan Reddy Dr P. Kumar Dr. P. Sanzgiri Dr. A.M. George (MD)	Primary cardiac myxofibrosarcoma with osteoid differentiation mimicking a left atrial myxoma: A rare entity	Journal of Cardiology Cases 22 (2020) 253–256
13	Dr Salil Mehta, Dr Remco PH Peters, Dr. Derrick P Smit, and Dr Vishali Gupta	Ocular Tuberculosis in HIV-infected Individuals	Ocular Immunology And Inflammation 2020

List of Publications (National)

S. No.	Author	Title of the Paper / Chapter	Month of Publication
1	Dr. Tewari, S., Chigicherla, Dr S., Sharma, R., & Dr Redkar, R.	Multidisciplinary management for intestinal obstruction by gel ball ingestion.	Journal of Indian Association of Pediatric Surgeons, (2021). 26(2), 120-22. https://doi.org/10.4103/jiaps.JIAPS_49_20
2	Dr. V. Baxi, Dr. M. Kulaar Dr. A Kulkarni	Total Lung Lavage using THRIVE for Pre-oxygenation and Oxygen Insufflation During Intubation: Our Initial Experience of Two Cases	Journal of Anesthesia and Critical Care Case Report 2020 Sept-Dec 6 6(3); 11-13
3	Dr. Charan Reddy KV	Heart-gut axis: Targeting proprotein convertase subtilisin/kexin type 9 (PCSK9) to prevent cardiovascular disease through gut microbiota	Medicine in Microecology 7 (2021) 100033
4	Contributions by Consultants and residents of Pediatric and Pediatric Surgery	Parents Guidelines by IAP	Indian Academy of Pediatrics 2020-2021
5	Dr Gunjan S. Desai, Dr Prasad M. Pande, Dr Rajvilas A. Narkhede, Dr Prasad K. Wagle	Multimodality Management of Ruptured Large Hepatocellular Carcinoma and Its Recurrence: Rupture at Presentation Should Not Rupture Hope of Long-Term Survival	The Surgery Journal Vol. 6 No. 2/2020 2020-06-16
6	Dr Vinod Raj, Dr Rajeev Redkar, Dr Shruti Tewari, Dr Anant Bangar, Dr Swati Kanakia	A Case of Synchronous Malignancy with Novel Missense Mutation in a Child: Is This Li-Fraumeni Syndrome or a Novel Case Masquerading as Li-Fraumeni Syndrome??	Indian Journal of Medical and Paediatric Oncology | Volume 41 | Issue 5 | September-October 2020
7	Dr Shruti Tewari, Dr Shirin Joshi, Dr Vinod Raj, Dr A. Sushma, Dr Rajeev Redkar	Rare Association of Isolated Microphthalmia with Anorectal Malformation	Journal of Indian Association of Pediatric Surgeons | Published by Wolters Kluwer, Medknow 27-Oct-2020

Latest Additions

MOLECULAR LABORATORY

We have started a molecular pathology department with a state of art infrastructure equipped with the latest and advanced instruments to aid in timely and accurate reporting of molecular assays. The whole lab is designed into separate sections for various aspects of molecular biology. We have a set-up for BSL-3, well fitted with Thermo Fisher BSC-II (Biosafety cabinets-II) for de-contamination of infectious organisms and their nucleic acid extractions. This area is well segregated from the PCR set up section to avoid cross-contamination between samples and assays.

The main instruments are all newly procured from Qiagen, a company that has the #1 market leadership position in sample technologies used in every application in molecular biology. We have QIAsymphony, an automated nucleic acid extraction instrument that helps process up to 96 samples at a time; Qiagility, a compact benchtop instrument that enables rapid, high-precision setup of PCR experiments. We also have Rotor Gene-Q, an innovative instrument that utilizes an unique centrifugal rotary design for real time detection of results making it the most precise and versatile real-time PCR cycler currently available.

We have a dedicated team of a full time consultant molecular pathologist and along with well trained molecular technologists for handing the intricate and molecular tests and results interpretations. All in all the lab is well equipped and all set to handle molecular assays for hundreds of samples a day with the aim to provide rapid and precise molecular test results for better patient healthcare.

Services in molecular pathology will be offered in the following areas:

- Infectious diseases:
  - RT-PCR for SARS CoV2 testing
  - Detection of pathogens (qualitative tests) to their viral loads (quantitative)
  - Rapid TB detection & identification of drug susceptibilities in TB
- Oncology:
  - Diagnosis and prognosis of solid tumor cancers
  - Mutation testing for personalized therapeutics
  - Non-invasive method of detection and testing of cell-free DNA released from a tumor
- Clinical Hematology:
  - Diagnosis and monitoring disease progression for Leukemia's
  - Screening for Alpha and Beta thalessemia, sickle cell anemia
- Organ Transplantation:
  - HLA testing to match patient and donors for transplantation
  - Chimerism testing
- Reproductive health:
  - Identifying molecular defects of infertility
  - Pre-natal testing for thalessemia
  - Performing non-invasive prenatal testing (NIPT) to detect chromosomal abnormalities in fetus
- Pediatrics:
  - Diagnosis of autosomal and recessive disorders like Duschene Muscular Dystrophy (DMD), Buschene Muscular Dystrophy (BMD), Spinal Muscular Atrophy (SMA)
- Pharmacogenetics:
  - Detection of mutations in genes involved in drug metabolism to avoid drug toxicities

SONOCA 300 ULTRASONIC GENERATOR

The hospital has installed a SONOCA-300 Ultrasonic Generator in the Operation theatre primarily for use in Liver Transplants / Resection surgery. The equipment provides simultaneous tissue fragmentation, suction, and irrigation, allowing the surgeon to precisely remove tissue with accurate control.

AMBU PORTABLE FLEXIBLE, READY-TO-GO BRONCHOSCOPY SOLUTION

This will assist in a wide range of procedures, including:

- BAL and BW procedures
- Protected specimen brush sampling
- PDT procedures
- Airway inspection
- Intubation

FENO (FRACTIONAL EXHALED NITRIC OXIDE) TEST

The hospital has installed a FeNO (fractional exhaled nitric oxide) test in the Chest Medicine department. This is a quick non-invasive test which helps with the diagnosis and treatment of asthma by quantifying airway inflammation. The equipment measures and reports the level of nitric oxide gas in an exhaled sample of breath.

VYAIRE STATE OF THE ART PFT SYSTEM ALONG WITH BODY-PLETHYSMOGRAPHY

The BodyBox incorporates a sleek cabin design with more volume which reduces claustrophobia without compromising accuracy or reading sensitivity. The equipment utilizes a calibration-free and waterproof Ultrasonic flow sensor. The measurement capabilities of the system include :

The measurement capabilities of the system include :

a. Complete spirometry (FVC, SVC, MVV) pre/post dilator
b. Bronchial challenge testing
c. Lung Volumes
d. FRC by N2 washout
e. Body Plethysmography (FRC pleth, Raw)
f. SB diffusing capacity
g. SB diffusing capacity (Intrabreath)
h. MIP/MEP
I. IOS – Impulse oscillometry

VYAIRE STANDALONE (IOS) IMPULSE OSCILLOMETRY SYSTEM

Tidal breathing analysis with Impulse Oscillometry (IOS) has demonstrated to be informative and differentiated in the early detection and follow up of pulmonary diseases like asthma, COPD and idiopathic pulmonary fibrosis. IOS is almost independent of patient cooperation and can test a larger patient range than spirometry alone, from children to adult to geriatric patients.

Impulse Oscillometry is an attractive method for the determination of respiratory resistance of the lung as only simple tidal breathing is required. Impulse Oscillometry allows a detailed analysis of tidal breathing deriving clinically relevant results of changes in chest mechanics caused by disease and intervention that complement spirometry.

Features & Benefits

- Assessment and differentiation of airway function under quiet breathing conditions.
- Sensitive and early detection of pulmonary obstruction.
- Asthma patients may be asymptomatic with normal spirometry and still show levels of increased airway resistance. IOS measures impedance at different frequencies indicative of central and peripheral airway resistance.
- Allows differentiation of central (proximal) airways resistance and peripheral (distal) airways resistance.
- Bronchodilator therapy often does not reach the peripheral airways.
- IOS can provide objective response to drug therapy even when FEV1 can't.
- Monitor the effect of bronchial provocation on airway tone.
- Determination of expiratory flow limitation (EFL).

Call: 8291280428

between 8am to 6pm Monday to Saturday
(excluding Sundays and Public Holidays)

Straight from the Heart - Patient Testimonials

Ripal Tandel
Overall staff interaction was very good. Clean and proper Hygiene in view of Covid -19 situation was maintained very well. Keep it up!

A. Mhatre
Post COVID care health package was a really good way to ease my dad back to normal life under the observation of the best doctors and professionals. Ms.Shraddha, our coordinator, was helpful at every step along the way and really ready to manage everything at our every whim. One very special mention to Dr. Prabhudesai. He really stand true to his reputation of being one of the best doctors in the city!

T. S. B Arunkumar
The Coordination from the Health Check Up desk was simply superb, excellent in handling time and staff management

Farhan Kazi
The hospital staff was extremely courteous & hospitable. They were grateful & did their duty with deligence. Lilavati nurses are always been great in their service. Food service was also great. Thank you for the service.

A. Mishra
My father had liver transplant and I was the donor. I am very much pleased with your entire care team. Doctor took really good care of us during and post-surgery. Nurses were really helpful with respect to everything. Myself and my father recovered very soon due to this. I am very grateful to your team

Tarun Talreja
Thank you for all the love & care. Your comforting & reassuring words were more powerful than medicine/injection. The secret to my recovery is team who is simply extra ordinary

K. Gajwani
Since 2011, I had the problem of spine decompression. At the beginning it was manageable however last year especially last few weeks had been difficult making it impossible for me to stand for more than 5 minutes or walk beyond 500 meters. I was suggested to take treatment under Dr. Vishal Kundnani. He did micro endoscopic surgery on my spine and within few hours. I was able to walk with no numbness or pain. I thank the whole team of Lilavati Hospital. Staff are friendly, professional and brilliant. They looked after us very well hence I would not prefer any other hospital other than Lilavati Hospital!

THANK YOU

Patrons for posing faith in your Trusted Healthcare Partner &
all our Doctors and Staff for making Lilavati Hospital
the preferred Healthcare Destination

THE WEEK

The facts have spoken for themselves, **LILAVATI HOSPITAL** bags top rankings in
THE WEEK – HANSA RESEARCH BEST HOSPITALS IN INDIA SURVEY 2020

TOP 20 BEST HOSPITALS IN INDIA

TOP 3 BEST MULTISPECIALITY HOSPITAL IN WEST ZONE

TOP 5 HOSPITALS FOR INFERTILITY IN INDIA

WORLD'S BEST HOSPITALS 2020 Newsweek POWERED BY statista

Ranked amongst
Top 15 Best Hospitals in India
by Newsweek

CEO insights 10 BEST HOSPITALS 2019

Recognised as one of the
"10 Best Hospitals - 2019"
by CEO insights

Best Multispeciality Hospital –
Critical Care of the Year 2019 by
Prime Time 7th Global Healthcare
Excellence Awards & Summit 2019

Ranked Amongst
Top 15 Best Hospitals
in India by
THE WEEK - Hansa
Best Hospitals Survey 2019

VOTED BY CONSUMERS
TRUSTED HOSPITAL
2019
Reader's Digest

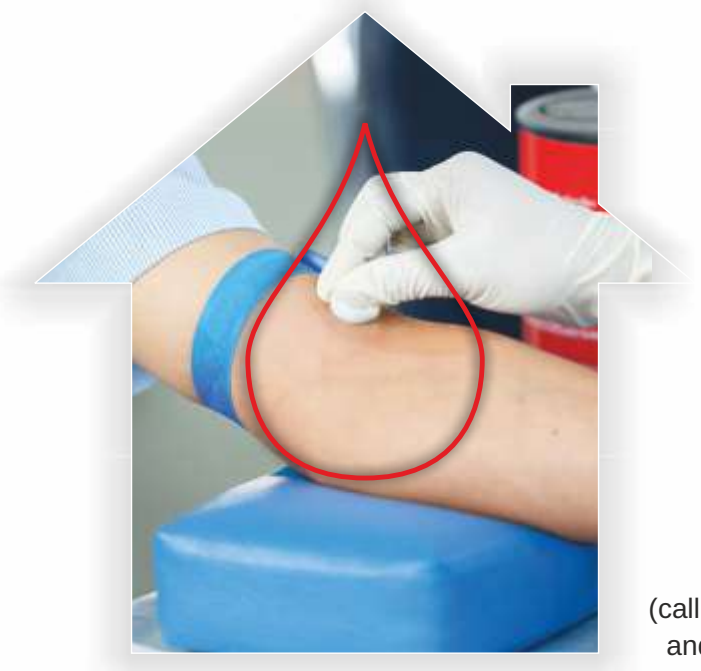
Trusted Hospital 2019
by Readers Digest

HEALTH CARE SURVEY
BEST HOSPITALS NATIONAL

Ranked No.1 in Mumbai and
Western Region & amongst
Top 10 hospitals nationally in various
specialities by All India Critical Care
Hospital Ranking Survey 2019
published by The Times of India

Home Sample Collection Across the City

• WESTERN LINE (Churchgate to Bhayander)
• CENTRAL LINE (CST to Kalyan) • HARBOUR LINE (CST to Panvel)



Collection Charges

₹ 250
per visit / per person

Appointments

8879677193 / 8879677196
(call between 9am to 9pm from Monday to Saturday and 9am to 3pm on Sunday and Public Holidays)

POST-COVID CARE *A New Beginning*

POST COVID HEALTH CARE PACKAGES

Basic Care Package	Advanced Care Package	Supreme Care Package
For patients managed at home or admitted in wards with NO oxygen requirement.	For patients admitted in wards with oxygen requirement.	For patients admitted in ICU

For details and appointment contact : 8291280428

Services Available

MEDICAL

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

SURGICAL

Bariatric Surgery
Cardiothoracic Surgery
Cochlear Implant Surgery
Colorectal Surgery
Diabetic Foot Surgery
Endocrine Surgery
ENT and Head & Neck Surgery
Gastro Intestinal Surgery
General Surgery
Gynecology, Obstetrics & IVF
Minimal Invasive Surgery
(Laproscopic Surgery)
Neuro Surgery
Onco Surgery
Ophthalmology
Orthopedics, Sports Medicine
Pediatric Surgery
Plastic & Reconstructive Surgery
Spine Surgery
Transplants: Heart, Corneal, Kidney & Liver
Urology, Andrology
Vascular Surgery

24 HRS IMAGING

CT Scan
Interventional Radiology
MRI
Non Invasive Cardiology
CATH Lab
Sonography
X-Ray

CRITICAL CARE

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

DIAGNOSTICS

Audiometry
EEG / EMG
Health Check-up
BMD
Mammography
Nuclear Medicine
PET & SPECT CT Scan
Urodynamics

24 HRS LABORATORY SERVICES

Blood Bank
Histopathology
Microbiology
Pathology

OTHER 24 HRS SERVICES

Ambulance
Emergency
Pharmacy
Roshni Eye Bank

HYDROTHERAPY CENTRE

Benevolence

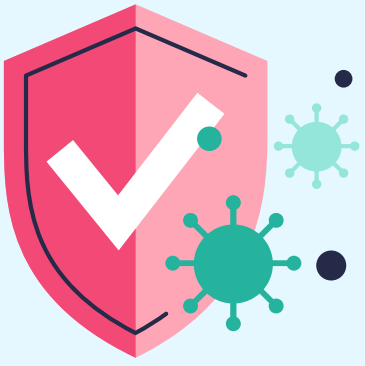
The social service wing of the hospital - SEWA serves to the health requirements of needy people. This department seeks to bridge the gap between the needy patients and the fast evolving medical technology. Various social activities such as free OPD, services to senior citizen, sending mobile vans to Adivasi areas to organize free health check-up camps, free 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, processing, storing, supplying and corneal transplantation.

Under this service Lilavati Hospital & Research Centre offers:

1. Free OPD
2. Health Check up Camps at Nana Nani Parks
3. Mobile Clinic
4. Roshni Eye Bank

BENEFICIARIES for F.Y 2020-2021	
Free OPD	14,382
Mobile Clinic	15,161

VACCINATED AGAINST COVID-19?



CHECK YOUR PROTECTION LEVEL

Introducing

SARS-COV-2 ANTIBODY TO SPIKE PROTEIN (QUANTITATIVE) TEST

Rs. 1200/-

WHY	WHEN
• To measure antibody levels developed against spike RBD protein of SARS-CoV-2 which is the target protein for most COVID-19 vaccine	• Before vaccination • 14 days after receiving the second dose of COVID-19 vaccine • 3-4 weeks post natural COVID-19 infection
BENEFITS	**KEY FEATURES**
• Detects immune response of vaccination • Regular monitoring may help identify the longevity of antibody levels post vaccination • Helps identify donors for convalescent plasma therapy	• Simple blood test. No fasting required • Reliable and high quality test results • Sensitivity of 98.8% and specificity of 99.9%

Get your home sample collection today

While booking appointment ask for

SPIKE PROTEIN (QUANTITATIVE) TEST

& NOT for Anti-SARS-COV-2 (Detection of Antibodies)

To book appointment call:

8879677193 / 8879677196 (from 9am to 5pm, Mon to Sat)

Important Telephone Numbers

Toll Free	**18002678612**
Emergency / Casualty	**8063 / 8064**
Hospital Fax	**+91 22 2640 7655**
Ambulance	**+91 9769250010**
TPA Fax	**+91 22 2640 5119**
Boardline	**+91 22 2656 8000 / +91 22 2675 1000**

Extensions

Admission Department	**8080 / 8081 / 8082**
AKD Counter	**8650 / 8651**
Appointment - OPD	**8050 / 8051**
Billing - Inpatient	**1586**
Billing - OPD	**8052**
Blood Bank	**8215**
Blood Bank Medical Social Worker	**8214**
Cardiology	**8236**
Cath Lab	**8137**
Chemist	**1579 / 1578**
CT Scan Department	**8044**
Dental	**8020**
Dermatology / Hydrotherapy	**8021**
EMG / EEG	**8249 / 8250**
Endoscopy	**8057**
ENT / Audiometry	**8232**
Health Check-up Department	**8354 / 8356**
IVF	**8226**
Medical Social Worker (SEWA)	**8361**
MRD	**8358 / 8359**
MRI Department	**8066**
Nuclear Medicine / PET & SPECT CT	**8092**
Ophthalmology	**8229**
Physiotherapy	**1536**
Report Dispatch Counter	**1620**
Sample Collection Room	**8028**
TPA Cell	**8089**
Transplant Co-ordinator	**8362**
Urodynamics	**8032**
Visa Section	**8248 / 8244**
X-Ray, Sonography Department	**8038**

Guidelines Speak

This section highlights newer / updated guidelines published for better patient care and could be practice changing

1. Blood Adv (2019) 3 (23): 3829–3866. ASH updated guidelines for ITP
   Link: https://doi.org/10.1182/bloodadvances.2019000966

Few Honorable Mentions

1 A recent publication from Stanford University introduced a database of top scientists and academicians from all over the world. This database includes names of the top researchers and thinkers who have contributed significantly to the growth of science in their respective fields. This study has been published in Bios Plus magazine. In this study Prof. Dr. Atul Goel, Consultant-Neurosurgery has achieved below rankings:

- Number 1 in India in the field of Neurosurgery & Neurosciences
- Number 1 in the World in Skull base surgery
- 2nd in World in Neurospine surgery

As far as the world ranking goes his name features amongst the top 0.4 % scientists in the list.

2 Indian Academy of Paediatrics has come up with 102 guidelines for the parents related to taking care of the children in both health and disease. This is second largest concise guidelines only second to American Academy of Paediatrics. These guidelines include contribution from 425 Pediatricians of Indian origin from across the globe. 16 of these convenors are from Australia, New Zealand, USA, UK and Middle East and another 21 from Indian Arm Forces. These guidelines are to bring in and improve awareness to the parents and the public regarding the common issues seen in children and to be available on the IAP website and easily downloadable by everyone.

It gives us immense pleasure in announcing that our faculty and many students including the past and present from the Department of Paediatrics Lilavati Hospital & Research Centre Mumbai have contributed to these guidelines, including Dr Deepak Ugra who is the National Coordinator of IAP, Dr Sheikh Minhaj Ahmed, Dr Swati Kanakia, Dr Rajeev Redkar, Dr Rajesh Nathani, Dr Priyam Gupta, Dr Shilpa Kulkarni, Dr Manish Arya, Dr Shaista Amin, Dr Ruchi Parekh, Dr Sunita Rajani, Dr Deepak Changlani, Dr Manisha Mukhija, Dr Ashwin Pandey, Dr Neha Dighe, Dr Amol Jaybhaye, Dr Amol Madave, Dr Ambreen Pandrowala, Dr Avinash Sangle, Dr Meghana Phadke, Dr Amarinder Oberoi, Dr Konika Bansal, Dr Shreya Agrawal and Dr Sowmya Dhulipala.Many of them are now settled in various parts of our Country and in UK.

Our Institute is working on joining hands with Indian Academy of Pediatrics to help dissemination of these very useful guidelines.

Department of Pediatrics
Lilavati Hospital & Research Centre

3. Dr. Chandralekha Tampi, Consultant – Histopathology – Received Reviewer Appreciation Certificate from the Indian Journal of Pathology & Microbiology for outstanding contribution in reviewing articles & maintaining high peer review standard of the Journal during the year 2019.

4. Dr. Hemant Mehta, Consultant – Nephrology – Article on Chronic Myeloid Leukemia Ulcerative Colitis and Nephrotic syndrome : What is the relationship? was published in European Journal of Biomedical and Pharmaceutical Sciences

5. Maharashtra Governor Shri Bhagat Singh Koshyari felicitates COVID warriors (Dr. P. V. Battalwar – Additional Medical Superintendent, Dr. Jalil Parkar – Consultant Chest Medicine, Dr. Prahlad Prabhudesai – Consultant Chest Medicine, Dr. Abha Mahashur – Consultant Chest Medicine) from Healthcare sector at a program organized by Medical and Health Information Management Association (MaHIMA) at Raj Bhavan, Mumbai on 14th Dec, 2020

Doctors Associated with Lilavati Hospital

Andrology
Dr. Shah Rupin S.

Anaesthesiology
Dr. Baxi Vaibhavi
Dr. Budhakar Shashank
Dr. Gandhi Nisha
Dr. Gaiwal Sucheta
Dr. Gawankar Prakash
Dr. Kharwadkar Madhuri
Dr. Khatri Bhimsen
Dr. Kulkarni Satish K.
Dr. Mahajan Anjula
Dr. Mascarenhas Oswald
Dr. Kothari Namrata
Dr. Patil Prajakta
Dr. Shah Falguni
Dr. Waradkar Samidha

Audiology & Speech Therapy
Mr. Bhan Satyan
Ms. Gorawara Pooja
Ms. Mallapur Shruti
Ms. Parulkar Bakul
Ms. Satam Sneha

Bariatric Surgery
Dr. Shah Shashank

Blood Bank
Dr. Saraswat Shubhangi

Cardiovascular & Thoracic Surgery
Dr. Bhamre Bipeenchandra
Dr. Bhanushali Amol
Dr. Bhattacharya S.
Dr. Chaudhri Babar
Dr. Honnekeri Sandeep T.
Dr. Irniraya Krishna Prasad
Dr. Jaiswal O. H.
Dr. Joshi Suresh
Dr. Kumar Pavan
Dr. Mehra Arun P.
Dr. Nand Kumar
Dr. Pandey Kaushal
Dr. Rachmale G. N.
Dr. Ravishankar V.
Dr. Vichare Sanjeev

Cardiology
Dr. Bajaj Harish
Dr. Ballani Prakash
Dr. Bang Vijay
Dr. Dargad Ramesh R.
Dr. Gokhale Nitin S.
Dr. Jhala Darshan
Dr. Kothari Snehal N.
Dr. Lokhandwala Yash
Dr. Mehan Vivek
Dr. Merchant S. A.
Dr. Menon Ajit R.
Dr. Mehta Haresh G.
Dr. Nabar Ashish
Dr. Pillai M. G.
Dr. Pinto Robin
Dr. Punjabi Ashok H.
Dr. Rao Anand
Dr. Ratnaparkhi Gajanan
Dr. Samuel K. Mathew
Dr. Sanzgiri P. S.
Dr. Shah Chetan
Dr. Sheth Siddharth
Dr. Suratkal Vidya
Dr. Vijan Suresh
Dr. Vyas Pradeep R.
Dr. Vora Amit
Dr. Vajifdar Bhavesh

Chest Medicine
Dr. Chhajed Prashant
Dr. Mahashur Abha
Dr. Mehta Sanjeev K.
Dr. Prabhudesai P. P.
Dr. Parkar Jalil D.
Dr. Rang Suresh V.

Colorectal Surgery
Dr. Chulani H. L.

Dentistry / Dental Surgery
Dr. Bhavsar Jaydeep P.
Dr. Deshpande Dilip
Dr. Gala Jigar
Dr. Joshi P. D.
Dr. Khatavkar Arun
Dr. Kamdar Rajesh J.
Dr. Parulkar Darshan
Dr. Sanghvi Sameer

Dermatology
Dr. Goyal Nilesh
Dr. Mehta Nimesh
Dr. Oberai Chetan
Dr. Parasramani S. G.

Diabetic Foot Surgery
Dr. Rege Tushar
Dr. Vaidya Sanjay

Diabetology
Dr. Panikar Vijay

Diabetology & Endocrinology
Dr. Joshi Shashank R.
Dr. Naik Vaishali

Dietician
Dr. Pai Veena

ENT
Dr. Dhingra Preeti
Dr. D'souza Chris E.
Dr. Jayashankar Narayan
Dr. Parasram Kamal S.
Dr. Pusalkar A.

Endocrine Surgery
Dr. Agrawal Ritesh

Endo Urology
Dr. Utture Anand

Gastro Intestinal Surgery
Dr. Bharucha Manoj
Dr. Kulkarni D. R.
Dr. Mehta Hitesh
Dr. Palep Jaydeep
Dr. Shaikh Taher
Dr. Varty Paresh
Dr. Wagle Prasad K.
Dr. Zaveri Jayesh P.

Foot and Ankle
Dr. Kini Abhishek

Gastroenterology
Dr. Barve Jayant S.
Dr. Choksi Mehul
Dr. Kanakia Raju R.
Dr. Phadke Aniruddha Y.
Dr. Parikh Samir S.
Dr. Shah Saumil K.

General Surgery
Dr. Dhumane Parag
Dr. Garud T. V.
Dr. Mehta Narendra
Dr. Nikam Narendra
Dr. Trivedi Narendra

Gynaecology
Dr. Agarwal Rekha
Dr. Coelho Kiran S.
Dr. Goyal Swarna
Dr. Medhekar Mansi
Dr. Nanavati Murari S.
Dr. Pai Hrishikesh
Dr. Pai Rishma D.
Dr. Palshetkar Nandita
Dr. Salunke Vivek
Dr. Shah Cherry C.

Haematology
Dr. Agarwal M. B.
Dr. Bhave Abhay

Hair Restoration
Dr. Agrawal Sumit
Dr. Nahar Raina

Headache & Migraine
Dr. Ravishankar K.

Healthcheckup Consultant
Dr. Desai Sandeep

Histopathology
Dr. George Asha Mary
Dr. Tampi Chandralekha

Infectious Diseases Consultant
Dr. Nagvekar Vasant C.

Intensivist / Physician
Dr. Jiandani Prakash
Dr. Kavita S.
Dr. Madkaikar Sneha
Dr. Shekade Kiran
Dr. Shrinivasan R.
Dr. Vas Conrad Rui

Interventional Neuroradiology
Dr. Limaye Uday S.

Interventional Radiology
Dr. Dharia Tejas
Dr. Rai Jathin Krishna
Dr. Sheth Rahul
Dr. Warawdekar Girish

Joint Replacement Surgery
Dr. Maniar Rajesh N.
Lactation Consultants
Dr. Joshi Mugdha
Ms. Temkar Swati
Liver Transplant
Dr. Mehta Naimish
Dr. Shaikh Taher
Nephrology
Dr. Mehta Hemant J.
Dr. Shah Arun
Dr. Suratkal L. H.
Dr. Upadhyaya Kirti L.
Neurology
Dr. Chauhan Vinay
Dr. D'souza Cheryl
Dr. Deshpande Rajas
Dr. Sirsat Ashok M.
Dr. Soni Girishkumar
Dr. Vyas Ajay
Neuropsycology
Ms. Panjwani Siddhika
Neuro Surgery
Dr. Ambekar Sudheer
Dr. Andar Uday
Dr. Dange Nitin
Dr. Goel Atul
Dr. Parekh Harshad
Dr. Ramani P. S.
Nuclear Medicine
Dr. Krishna B. A.
Dr. Shimpi Mahajan Madhuri
Oncology
Dr. Lokeshwar Nilesh
Dr. Menon Mohanakrishnan
Dr. Parikh Bhavna
Dr. Smruti B. K.
Oncosurgery
Dr. Bushan Kirti
Dr. Chabra Deepak
Dr. Jagannath P.
Dr. Katna Rakesh
Dr. Parikh Deepak
Dr. Rao Satish
Dr. Sharma Sanjay
Dr. Shah Rajiv C.
Ophthalmology
Dr. Agrawal Vinay
Dr. D'souza Ryan
Dr. Mehta Salil
Dr. Mehta Himanshu
Dr. Nagvekar Sandip S.
Dr. Parikh Rajul
Dr. Shah Manish
Dr. Shah Sneha
Dr. Vaidya Ashish R.
Orthopaedic Surgery
Dr. Agrawal Pranav
Dr. Agrawal Vinod
Dr. Amyn Rajani
Dr. Archik Shreedhar
Dr. D'silva Domnic F.
Dr. Garude Sanjay
Dr. Joshi Anant
Dr. Kasodekar Vaibhav
Dr. Kini Abhishek
Dr. Kodkani Pranjal
Dr. Kohli Amit
Dr. Mukherjee Sunirmal
Dr. Nadkarni Dilip
Dr. Nazareth Ritesh
Dr. Padgaonkar Milind
Dr. Panchal Lalit
Dr. Panjwani Jawahar S.
Dr. Shetty Nagraj
Dr. Vatchha Sharookh P.
Dr. Vengsarkar Nirad
Dr. Warrier Sudhir
Pathology
Dr. Chavan Nitin
Dr. Kamble Rahul
Dr. Mehta Kashvi
Dr. Rangwalla Fatema
Paediatric Surgery
Dr. Bangar Anant
Dr. Karmarkar Santosh J.
Dr. Nathani Rajesh
Dr. Redkar Rajeev G.
Paediatrics
Dr. Chittal Ravindra
Dr. Gupta Priyam
Dr. Haria Kamlesh
Dr. Lokeshwar M. R.
Dr. Sharma Shobha
Dr. Ugra Deepak
Paediatric Cardiology
Dr. Bhalgat Parag
Paediatric Critical Care/NICU
Dr. Arya Manish Kumar
Dr. Sheikh Minhaj Ahmed
Paediatric Endocrinology
Dr. Parikh Ruchi
Paediatric Hemato-Oncology
Dr. Kanakia Swati
Paediatric Neurology
Dr. Kulkarni Shilpa
Dr. Shah Krishnakumar N.
Paediatrics Nephrology
Dr. Ali Uma
Paediatric Opthalmology
Dr. Doshi Ashish
Paediatric Orthopedics
Dr. Aroojis Alaric
Paediatric Pulmonology
Dr. Khosla Indu
Pain Medicine
Dr. Baheti Dwarkadas
Dr. Jain Jitendra
Physicians / Internal Medicine
Dr. Ballani A. G.
Dr. Bandukwala S. M.
Dr. Dalvi Sunil G.
Dr. Gidwani Vinod N.
Dr. Jadwani J. P.
Dr. Medhekar Tushar P.
Dr. Medhekar Amey T.
Dr. Nair C. C.
Dr. Shimpi Shrikant
Plastic & Reconstructive Surgery
Dr. Barve Devyani
Dr. Dixit Varun
Dr. Jain Leena
Dr. Kumta Samir
Dr. Nehete Sushil
Dr. Prakash Siddharth
Dr. Purohit Shrirang
Dr. Wagh Milind
Psychiatry
Dr. Deshmukh D. K.
Dr. Shah Bharat R.
Dr. Vahia Vihang N.
Psychology
Ms. Chulani Varkha
Physician / Rheumatology
Dr. Sangha Milan
Physiotherapy
Ms. Garude Heena
Radiology & Imaging
Dr. Deshmukh Manoj
Dr. Dhedia Khyati
Dr. Doshi Pankaj
Dr. Gupta Kanchan
Dr. Kamath Satish
Dr. Lokhande Kaustubh
Dr. Mehta Mona
Dr. Tyagi Neha
Rehab Medicine
Ms. Shah Labdhi
Rheumatology
Dr. Chitnis Neena
Dr. Gill Niharika
Sleep Study Specialist
Dr. Samtani Anil
Spine Surgery
Dr. Bhojraj Shekhar
Dr. Chaddha Ram
Dr. Kundnani Vishal
Dr. Mohite Sheetal
Dr. Nagad Premik
Dr. Nene Abhay
Dr. Patel Priyank
Dr. Varma Raghuprasad
Urology
Dr. Pathak Hemant R.
Dr. Raina Shailesh
Dr. Raja Dilip
Dr. Sanghvi Nayan
Dr. Shah Sharad R.
Dr. Vaze Ajit M.
Urological Laparoscopy Surgery
Dr. Ramani Anup
Urodynamics Consultant
Dr. Dastur B. K.
Vascular Surgery
Dr. Patel Pankaj
Dr. Pai Paresh

LILAVATI HOSPITAL

proudly announces launch of state-of-the-art

MOLECULAR TESTING LABORATORY

Exceptional Specificity & Accuracy

Timely Diagnosis

Effective Personalized Treatment

BETTER MEDICAL OUTCOMES IN AREAS OF

- Infectious Disease
- Oncology
- Sexual & Reproductive Health
- Transplant
- TB Management

Lilavati Hospital and Research Centre

More than Healthcare, Human Care

NABH Accredited Healthcare Provider

A-791, Bandra Reclamation, Bandra (W), Mumbai - 400 050.

Tel.: +9122-2656 8000, +9122-2675 1000

Email: info@lilavatihospital.com • **Website:** www.lilavatihospital.com