VOLUME 56 | ISSUE 1 | OCTOBER 2025

pulse

Happenings at Sri Ramakrishna...

Sri Ramakrishna
Hospital (Multi-Speciality)

50 Years of Excellence

WORLD
STROKE
DAY
29th OCT 2025

www.sriramakrishnahospital.com

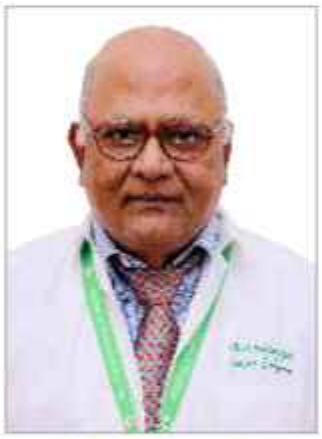
Shri.R.Sundar
Managing Trustee

October is a month of awareness, resilience, and hope. Across the globe, it is recognized as **Breast Cancer Awareness Month,** reminding us the power of early detection and the strength of collective awareness campaigns. At Sri Ramakrishna Hospital, we join hands with this noble cause, encouraging women and families to take proactive steps in safeguarding their health through timely screenings and medical guidance.

This month also shines a light on **World Mental Health Day,** which emphasizes that well-being is not just physical, but also emotional and psychological. In today's fast-paced life, mental health challenges affect people of all ages. By breaking the stigma and fostering open conversations, we create a healthier society where care goes beyond the body and reaches the mind and heart.

As we near the end of the month, **World Stroke Day** serves as a reminder that stroke can be prevented with awareness, timely intervention, and lifestyle care. Our hospital continues to stand as a beacon of advanced neurological and cardiac care, with specialized teams dedicated to prevention, treatment, and rehabilitation.

As an institution guided by service, our mission is to stand by every patient and family, offering not just medical expertise but also compassion. Let us take this October as a call to action – to prioritize health, support one another, and spread awareness. Together, we can shape a healthier tomorrow.



Dr.S.Rajagopal
Medical Director

October brings with it significant opportunities for awareness and action in the healthcare community. As we observe Breast Cancer Awareness Month, I urge every individual to understand the importance of preventive health check-ups, self-examinations, and early diagnosis. Breast cancer, when detected early, is highly treatable, and our hospital stands ready with advanced screening technologies and multidisciplinary care.

This month also highlights World Mental Health Day on October 10. Mental health is integral to overall well-being, yet often overlooked. Stress, anxiety, and depression are increasing concerns in today's world. At Sri Ramakrishna Hospital, we believe that mental health support is just as important as physical treatment. Through awareness programmes and counselling, we are committed to helping individuals find balance and resilience.

Finally, on World Stroke Day (October 29), we are reminded of the urgency of recognizing stroke symptoms early. Minutes can save lives, and timely medical attention can make the difference between full recovery and long-term disability. Our Neuro and Stroke Care teams are equipped with expertise and technology to provide immediate and effective treatment.

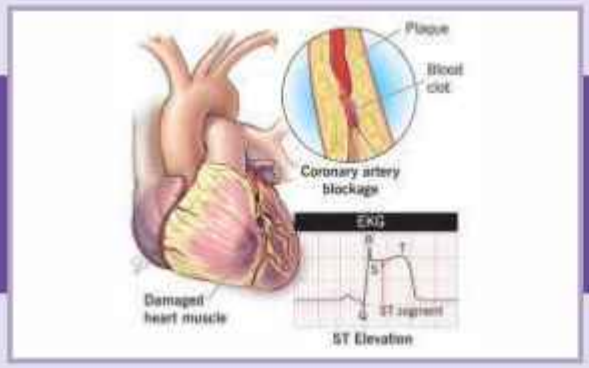
As we mark these important health days, I encourage everyone to adopt healthier habits, seek timely consultations, and remain vigilant towards preventive care. Healthcare is strongest when community and hospitals work together, and we are proud to walk this journey with you.

World Heart Day - Pachapalayam Camp - 28.09.2025

The Cardiology Camp held on 28th September 2025 was a remarkable initiative by the hospital to extend specialized heart care services to the community. The camp was launched with the gracious presence of Shri. R. Sundar, Managing Trustee, along with CEO Shri. C. V. Ramkumar, CAO Shri. D. Maheshkumar, Medical Director Dr. Rajagopal, and Medical Superintendent Dr. S. Alagappan. Their presence and encouragement reinforced the institution's commitment to making advanced cardiac healthcare accessible to all.

A dedicated team of Cardiologists and Cardio-Thoracic Surgeons participated in the camp, ensuring expert consultation and personalized care for every patient. The camp witnessed a great turnout, reflecting the trust people place in Sri Ramakrishna Hospital's expertise. Each attendee received thorough check-ups and medical guidance, with the doctors emphasizing the importance of early detection and preventive measures in reducing the risks of heart disease.

The services offered at the camp included free ECG, ECHO, Random Blood Sugar (RBS), Hemoglobin (Hb), and Body Mass Index (BMI) tests, enabling participants to understand their heart health better. The initiative successfully combined awareness, screening, and expert consultation, making a significant impact in fostering heart health within the community. This camp stands as yet another milestone in the hospital's journey of compassion, excellence, and service to society.



ST SEGMENT ELEVATION AND INCREASED TROP-I IN A PATIENT WITH ACUTE CHOLECYSTITIS THE BACKGROUND

ECG changes may be observed in patients with acute cholecystitis. Usually they are non specific and include bradycardia ,tachycardia, ST segment depression, and T wave inversion. However,ST segment elevation is distinctly rare . We report a patient , who presented with abdominal discomfort , diagnosed as cholecystitis , developed ST elevation and elevated Troponin the day after admission which caused alarm , regarding the possibility of associated acute occlusive myocardial infarction . This led to a therapeutic conundrum , whether to give antiplatelet agents ,anticoagulant or thrombolytic drug because administration of these agents would increase the risk of bleeding If surgery for gall badder disease is contemplated.

Case Report

A sixty year old gentleman presented to us with history of fever,abdominal discomfort and loose motions of two days duration . systemic blood pressure was low(80 mm of Hg).

Blood investigations revealed elevated leucocyte count (15,480/UL) and high blood sugar(302 mg/dl). Liver function tests showed elevated total bilirubin 5.4 mg/dl. Direct 1.7 mg /dl indirect 3.7 mg/dl. SGOT,SGPT and GGT were elevated but alkaline phosphatase was normal. Procalcitonin was 4.0 ng/dl indicating severe sepsis. Abdominal ultrasound showed distended gall bladder with sludge and wall thickening suggestive of acute cholecystitis (Figure -1). Magnetic Resonance Cholangio-pancreatography (MRCP) revealed distended gall bladder with sludge and wall thickening suggestive of acute cholecystitis (Figure-2)

Serial ECGs showed no ST elevation on the day of admission (fig-3) and ST elevation in L-1, L-2, avL, avF, V5 & V6. on the second day of admission (Fig-4) . Trop -I on admission was 10.4 pg/ml and on the day of ST elevation was16838.4 pg/ml. Echocardiography showed normal regional wall motions and normal LV ejection fraction on both days.

Fig-1. Abd.US showing distended gall bladder

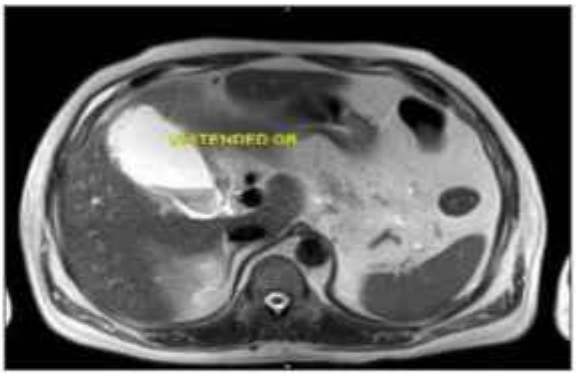


Fig-2. MRCP showing distended gall bladder

Fig.3 : ECG on admission No ST elevation

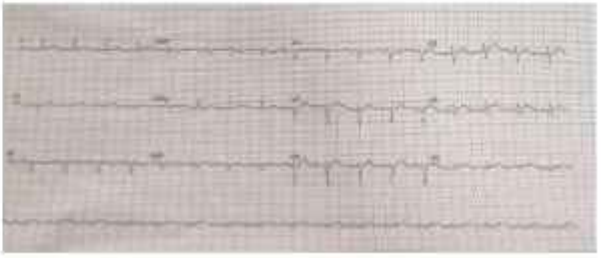


Fig: 4. ST elevation in L-1,L-2,avL,avF, V5&V6

Coronary angiogram showed normal epicardial coronary arteries.(Figures 5 & 6)

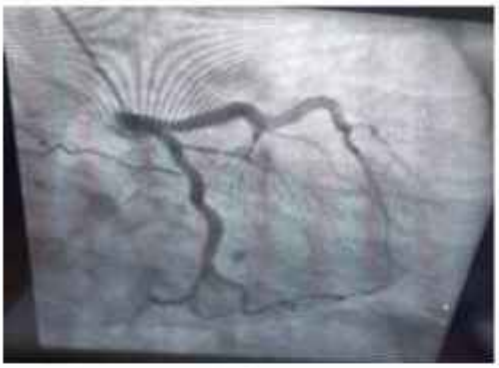


Fig.5 – normal left coronary artery

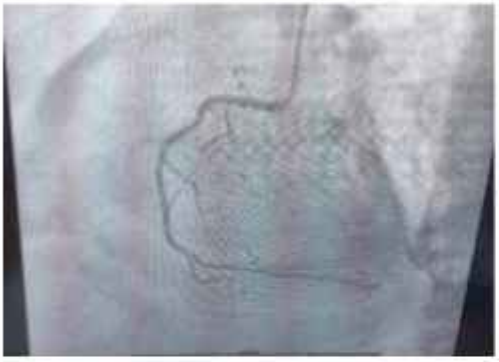


Fig.6 – normal right coronary artery

He was treated with IV fluids, antibiotics and other supportive drugs. He made good recovery. He is adised cholecystectomy.

Discussion: ECG changes like bradycardia, tachycardia , ST depression and T wave inversions are intrequently observed in acute cholecystitis. However, ST elevation with elevated Trop -I is rare. The possible mechanisms of ECG changes are: 1) Distended gall bladder initiates a cardio biliary reflux mediated by the vagal nerve. This can result in bradycardia and other non specific ECG changes but not ST elevation 2) Sympatheic nerve stumulation is also demonstrated in animal models with distended gall bladder. As both heart and gall bladder share the same sympathetic thoracic segments (T-5),reflex coronary artery vasoconstriction can occur in patients with distended gall bladder and result in transient coronary artery occlusion causing ST elevation in ECG.3) Another possible mechanism is the anatomical proximity of the gall bladder to the heart. Local inflammation of the gall bladder in cholecystitis can lead to irritation of the diaphragm and the inferior myocardial wall ,thus affecting the myocardial tissue due to its close proximity. This irritation may produce ST elevation in ECG predominantly in leads representing inferior and inferolateral wall as in our case. 4) Sepsis induced ST elevation and Troponin rise can rarely occur due to increased oxygen demand, transient hypoperfusion and endothelial damage. Yet another possibility is indeed fortuous simultaneous occurrence of acute atherosclerotic coronary occlusive myocardial infarction in a patient with acute cholecystitis. This would warrant administration of antiplatelet agents and anticoagulants if primary PTCA is contemplated or thrombolytics if thrombolysis is planned. These measures, if carried out, would significantly increase the risk of bleeding if surgery is contemplated for cholecystitis.Hence, if ST elevation is observed in acute cholecystitis, it is wisdom to perform coronary angiography as the initial procedure before giving any cardiac drugs to rule out any significant epicardial coronary artery disease.Inadvertant use of these agents should be avoided ,as they may increase bleeding risk if surgery is needed for cholecystitis.

Our patient along with ST elevation and elevated Trop -I , hadhigh procalcitonin indicating severe sepsis. Coronary angiography showed normal epicardial coronary arteries. He improved with intravenous antibiotis and supportive care. Liver enzymes, bilirubin and Trop I decreased. ST elevation disappeared. He is planned for elective cholecystectomy after two weeks.

Dr. S.MANOHARAN
Consultant Cardiologist & HOD
MD.(General Medicine)., DM (Cardiology)

TRANS CATHETER AORTIC VALVE IMPLANTATION IN A NONAGENARIAN

Transcatheter aortic valve replacement (TAVR) is an innovative approach to the treatment of severe aortic stenosis (narrowing of the aortic valve opening).

Traditionally aortic stenosis requires an open heart surgery with cardiopulmonary bypass to replace the aortic valve. With the advent of new technologies an artificial valve can be implanted through the femoral artery percutaneously under local anasthesia with mild sedation alone.

A compressed heart valve is advanced through the catheter and positioned directed inside the diseased aortic valve and deployed either with a balloon in some valves or through a self expanding mechanism.

We report the case of a TAVI procedure at Sri Ramakrishna Hospital in a 92 year old female patient recently

This healthy 92 year old female patient presented with 2 episodes of syncope with dyspnoea on exertion. ECG showed LVH with strain pattern. ECHO showed severe aortic stenosis with a mean gradient of 68mm of hg and a peak gradient of 110mm of hg. There was no significant AR

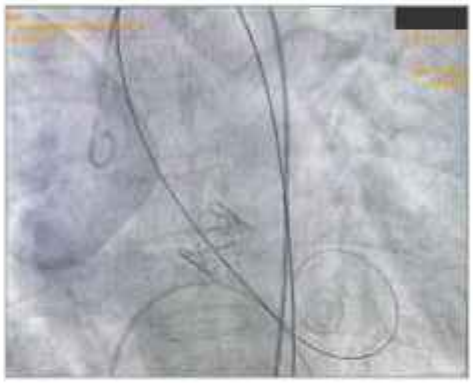
Coronary angiogram showed non obstructive disease.

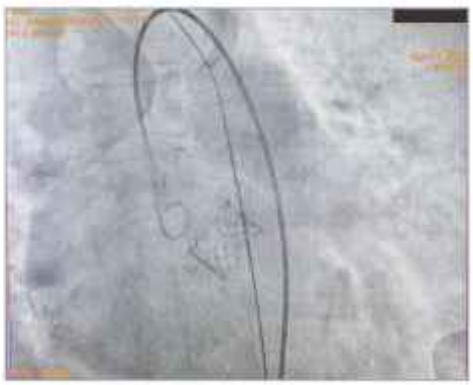
Considering her age and she was taken up for a trans catheter aortic valve implantation.

Right femoral arterial access was obtained with ultrasound guidance and a 23 mm Sapien 3 ultra balloon expandable valve was deployed. Femoral access was closed with Predeployed proglide and angio seal. Entire procedure was performed percutaneously under local anasthesia and patient recovered uneventfully in 24 hours

Transcatheter aortic valve implantation (TAVI) procedure is for patients suffering from aortic stenosis who are considered at high risk for surgery due to advanced age or other serious illness. The procedure is now being shown to be feasible in moderate risk patients who have aortic stenosis as well

This to our knowledge is the first case of TAVR in a nonagenarian in this region





Dr. S.BALAJI
Senior Consultant Cardiologist
MRCP (UK), FICC.

Dear Sir / Madam,

Warm Greetings from Sri Ramakrishna Hospital, Coimbatore.

Thank you for your eternal support to Sri Ramakrishna Hospital. It is our privilege and honour to connect with you, and great pleasure to bring to your kind notice that, We have developed a new mobile app named Dolphin Referral Management System(SRH-DRMS) which helps to track and service our referral patients electronically between you, patients and Sri Ramakrishna hospital.

The mobile app helps to Go Green and to avoid errors as well. Our marketing field force and the respective video product manual are designed, which helps you to enroll smoothly and patient referrals.

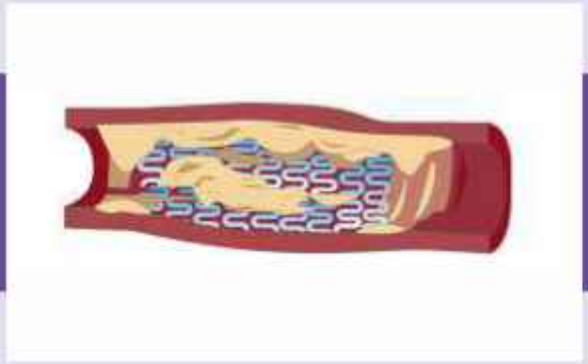
Request you to download the mobile app **SRH-DRMS** from the following links

Google Play Store Link for Android:
https://play.google.com/store/apps/details?id=com.drms.prod&pcampaignid=web_share

App Store Link for iOS:
https://apps.apple.com/in/app/srh-drms/id6466620577

We assure you the best of our services. In case of any queries, please feel free to contact me.

SANTHOSH VIJAYAKUMAR
Head - Corporate Relations & International Affairs
+91-422-450-0000 | Extn: 1870
sv@snrsonstrust.org



IN-STENT RESTENOSIS (ISR)

What happens and how do we tackle them

Stent deployment for coronary stenosis was introduced following significant restenosis following balloon angioplasty. And it was in the year 1987 when the first metallic stent was introduced. Over the years, significant advancement both with the stent design and drugs led to a drastic decrease in restenosis.

However, restenosis with drug eluting stents are still a challenging subset.

What is in-stent restenosis?

Reduction of more than 50% of the luminal diameter within the stented segment or within 5mm of the proximal and distal stent edge.

With imaging modalities, > 75% of the reduction within the stented segment is considered a significant ISR.

Presentation may be very variable, from asymptomatic status to acute coronary syndrome (ACS) with MI – plaque rupture and neo-atherosclerosis being the pathology.

Over the last two to three decades the incidence of in-stent restenosis has dropped from 30% to 5-10% and even lesser with the current generation stents.

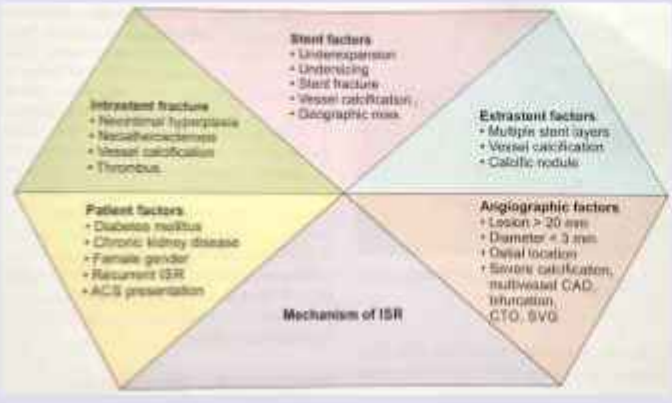


FIG.2: Factors contributing to ISR

Classification of ISR

Based on

- the length (<10mm/>10mm)
- the location (within or beyond stent borders) and
- Severity of restenosis (occluded or not)

Type I: Focal

Type II: Diffuse – within the stent

Type III: Diffuse – within and. beyond the stent

Type IV: Occlusive

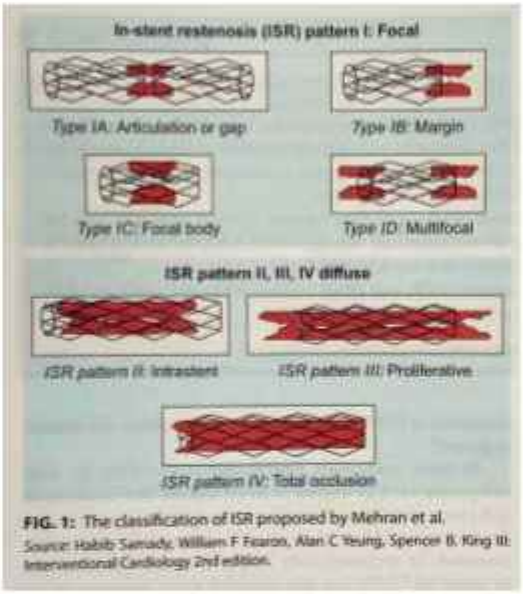


FIG. 1: The classification of ISR proposed by Mehran et al.
Source: Habib Samady, William F Fearon, Alan C Yeung, Spencer B. King III: Interventional Cardiology 2nd edition.

Intravascular imaging based classification

Table 1

SCAI (Society for Cardiovascular Angiography and Interventions) classification is based on time interval and mechanism of ISR.

Early, late and very late types – serve to guide treatment options and optimize outcomes.

Mechanism of ISR

CT – Coronary angiogram

Intravascular Imaging for ISR

- OCT – Optical Coherence Tomography

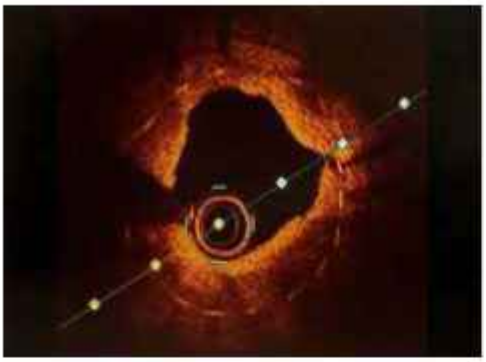
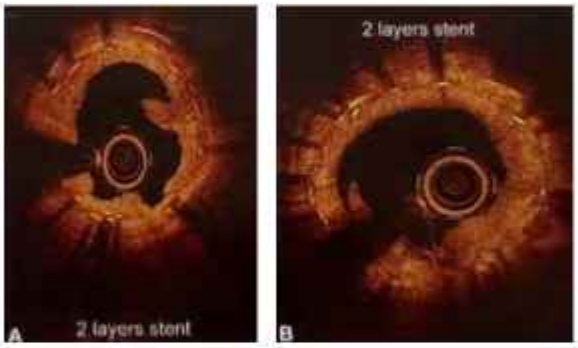


FIG.5: Optical coherence tomography image showing neointimal hyperplasia



FIGS. 6A & B: Optical coherence tomography images showing multiple stent layers

- IVUS – Intravascular Ultrasound

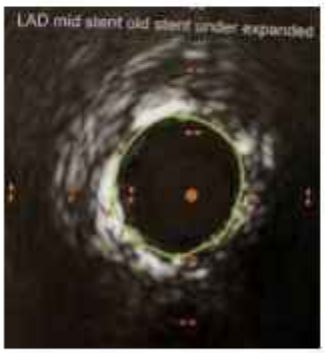


FIG.3: Intravascular ultrasound image showing stent inder expansion

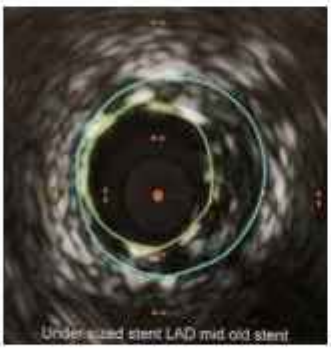


FIG.4: Optical coherence tomography image showing undersizing of the stent

Management of ISR

- Assess clinical significance of ISR
- Functional assessment plays a key role
- Drug-eluting Stents (DES)
- Drug-coated balloons (DEB)

Adjunctive therapy: Cutting or scoring balloon

Ablative therapy:

- Rotational Atherectomy – debulking procedure
- Excimer Laser Coronary Atherectomy –uses laser to ablate the tissue.
- Intravascular Lithotripsy – uses localized pulsatile sound waves

CABG surgery

Special scenarios:

Recurrent ISR's:

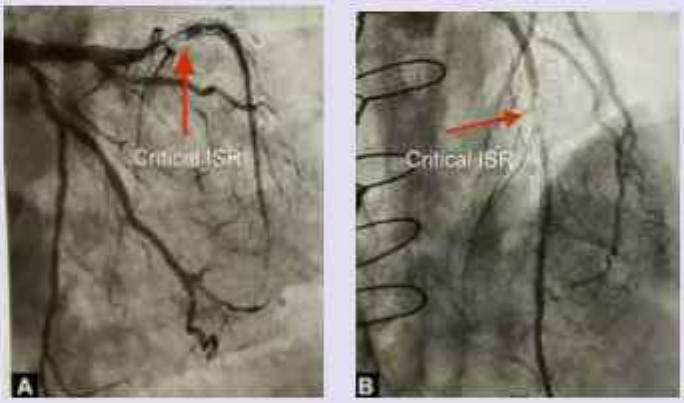
- DCB
- IVBT
- Stent under expansion/ stent fractures
- CABG is an option

ISR CTO

Higher risk due to procedural complexity and complications

DAPT (Dual Antiplatelet Therapy)

24 months for ISR-PCI



FIGs. 7A & B: Coronary angiographic images showing critical in-stent restenosis (ISR) lesions.

Dr.T.R.NANDA KUMAR
MBBS, MD (Internal Medicine),
DNB (Cardiology), FESC, FSCAI (USA)

Consultant & Interventional Cardiologist

LIPOPROTEIN A - Most Known Facts

Lipoprotein(a) is a genetically determined lipoprotein that has emerged as a significant cardiovascular risk factor worldwide. Despite increasing evidence linking elevated Lp(a) levels to atherosclerotic disease, gaps remain in understanding its precise impact and optimal management strategies. I have summarised the current knowledge in this field

- Lp(a) contains the LDL apolipoprotein B-100, linked via a disulfide bridge to apo (a) molecule which is highly homologous to plasminogen.
- Lp (a) is highly atherogenic, proinflammatory and prothrombotic.
- Atherogenic property is contributed by Apo B moiety which leads to lipid accumulation in the arterial wall.
- Apo (a) – binds to extracellular matrix proteins and carries oxidized phospholipids, triggering inflammation and calcification contributing to the proinflammatory property of Lp(a).
- Lp(a) is prothrombotic because its apolipoprotein (a) component is similar to plasminogen, leading to inhibition of fibrinolysis by competing for fibrin binding.
- Lp(a) particle is about 6 times more atherogenic than LDL particle, but we usually have markedly more LDL particles than Lp(a) particles.
- Lp(a) levels are strongly genetically determined and it varies with ethnicity.
- High Lp(a) level is very common – about 1 in 5 individuals have high Lp(a) levels
- Lp(a) is a independent risk factor for atherosclerotic cardiovascular disease with strong association to coronary artery disease, peripheral artery disease and aortic valve stenosis.
- Risk increases significantly at Lp(a) values >30-50mg/dl (>125nmol/L).
- In individuals with coronary artery disease, those carrying high levels of Lp(a) have a greater prevalence of the form of vulnerable plaque known as thin-cap fibroatheroma (TCFA).
- Lp(a) levels approach adult levels by 15 months of age.
- Current guidelines advocate Lp(a) level measurement in all adults at least once in lifetime.
- If Lp(a) level is not considered in estimation, ASCVD risk might be substantially underestimated.
- Never see Lp(a) in isolation – look at context with additional risk factors.
- Measuring Lp(a) level only after the first CVD event is too late.
- Family cascade screening in case of high levels of Lp(a) should be done.
- With high Lp(a) level, early treatment of all risk factors is even more important.
- The standardization of commercial assays for Lp(a) has been problematic owing to dependance on the apo(a) size, however commercial assays that can measure Lp(a) independently and separate from apo(a) size are now available.
- The data regarding the use of Lp(a) as a biomarker in certain high-risk groups, such as those with chronic kidney disease or known coronary artery disease remain controversial.
- Lifestyle has minimal effect on Lp(a) level.
- Statins have no effect on Lp(a) level.
- PCSK9 inhibitors (eg., Inclisiran, evolocumab, alirocumab) shows modest reduction of ~20 – 30 %, but has variable effect and is not sufficient for patients with very high levels of Lp(a).
- Potent Lp(a) lowering drugs are in clinical trial but are not yet available.
- Emerging RNA interference therapies such as lepodisiran, have demonstrated the ability to reduce Lp(a) by more than 94% after a single dose, which lasts nearly a year, in early-phase clinical trials.

R. VICKRAM VIGNESH
Cardiologist & Electrophysiologist
MBBS, MD, DM (Cardiology)

Department of Cardiology

Cardiac Electrophysiology & Pacing Unit

If your patient experience

- Irregular heartbeat
- Palpitations, fluttering, or racing heart
- Syncope
- Dizziness, Giddiness or fatigability
- Shortness of breath

These may be signs of severe arrhythmia

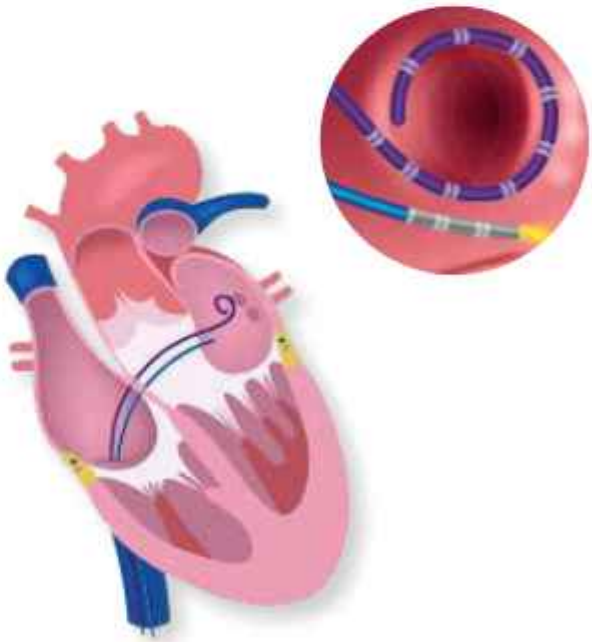
Why Early Detection Matters ?

1 in 3 people worldwide is at risk of developing a serious cardiac arrhythmia during their lifetime. Early detection and treatment can prevent stroke, heart failure, and other complications.

Radiofrequency ablation & Cryoablation Offers Cure

Who Should Visit Arrhythmia Clinic?

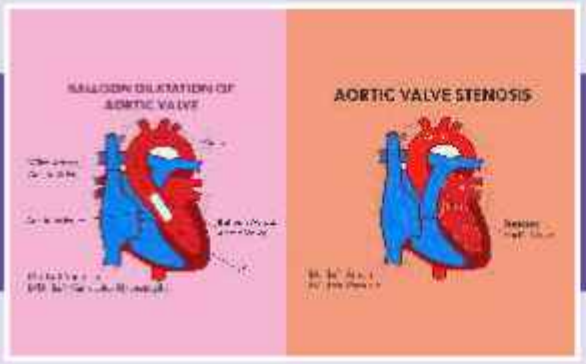
Anyone with symptoms of palpitations, dizziness and loss of consciousness or a history of Atrial fibrillation (Afib), Supraventricular tachycardia (SVT), Ventricular arrhythmias, Unexplained fainting episodes, Resuscitated Cardiac Arrest and family history of sudden cardiac arrest.



What Patients say after EPS & Radio Frequency ablation?

" I could feel my heart beating in a normal rhythm right away and I was thrilled " - Patient treated in Sri Ramakrishna Hospital in January 2025.

Center of Excellence for Cryoablation & EPS + RFA in Coimbatore



SAVING TINY HEARTS: EMERGENCY BALLOON AORTIC VALVULOPLASTY FOR CRITICAL CONGENITAL AORTIC STENOSIS

Introduction: Critical congenital Neonatal aortic stenosis is a rare but life-threatening condition. Severe obstruction of the aortic valve in neonates can lead to rapid hemodynamic deterioration. Balloon aortic valvuloplasty (BAV) provides immediate relief, serving as a bridge to definitive surgery.

Clinical Snapshot

- 6-day-old male, 3 kg, referred from Erode GH
- Severe respiratory distress, mechanical ventilation
- Severe LV dysfunction (EF 20%), Severe MR, Large PDA (R®L), Severe PAH
- Diagnosis: Critical congenital aortic stenosis

Case Report: On admission, the neonate was intubated and ventilated (FiO_2 100%, PIP 25 cm, PEEP 6 cm), on multiple inotropes, and had severe metabolic acidosis. Echocardiography showed a thickened, doming aortic valve with severe stenosis, severe MR, large PDA with right-to-left shunt, and severe PAH.

Emergency BAV was performed on 13.08.2025 via right femoral arterial access. 4 mm and 6 mm Tyshak Mini balloons were used. The LV–AO gradient reduced from 60 mmHg to 15 mmHg. Mild AR was noted post-procedure. No complications occurred. Post-procedure, the baby improved gradually. Ventilation was weaned (Day 5 – CPAP, Day 8 – LFNC, Day 12 – room air). Repeat echo showed improved LV function, gradient 25/11 mmHg, mild MR, mild AR, closed PDA, and reduced PAH. The baby tolerated oral feeds and was discharged stable.

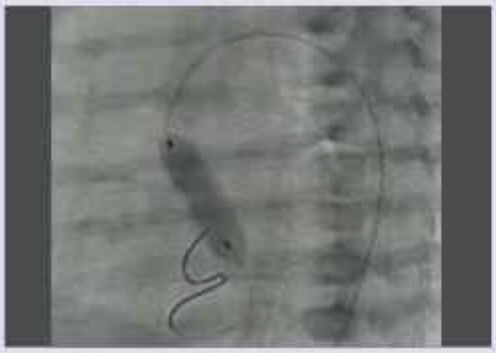


fig 1 tyshak 2 mini 6MM balloon inflated across aortic valve

Procedural Pearls

- **Early referral and stabilization are key**
- **Balloon valvuloplasty is effective in neonates**
- **Teamwork between NICU, cardiology, and cath lab ensures success**

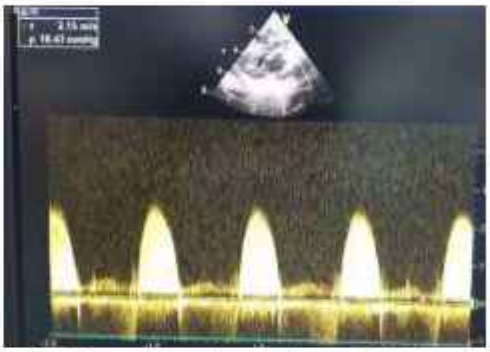


Fig:2. post procedure echo - aortic valve gradient decreased to 18

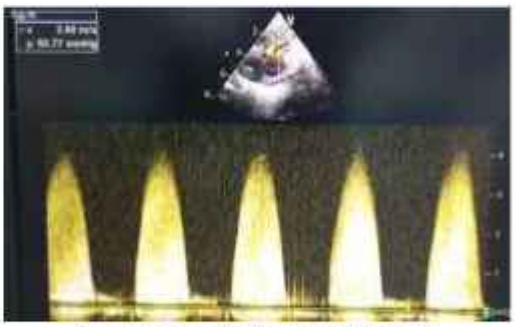


Fig:3. echo - gradient across aortic valve 60MMhG - severe aortic stenosis

At Admission

Discharge Photo

Discussion: AS represents the severe end of neonatal aortic valve disease. These neonates often present with duct-dependent systemic circulation. Balloon valvuloplasty is the preferred initial therapy as it improves systemic perfusion, supports ventricular recovery, and defers surgical valve replacement. Recent literature reports procedural success in 80–90% of neonates with AS. Survival rates exceed 75% at 1 year. However, re-intervention is common, highlighting the need for careful follow-up.

Conclusion: Emergency neonatal balloon aortic valvuloplasty is lifesaving in critical congenital aortic stenosis. Prompt recognition, referral, and intervention are essential for survival and long-term outcomes.

Key Message

Early diagnosis and timely balloon valvuloplasty can dramatically improve outcomes in neonates with critical congenital aortic stenosis.

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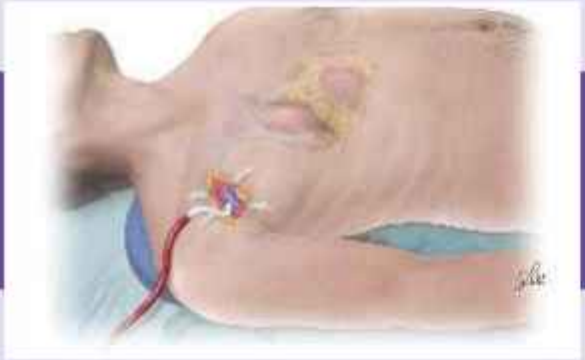
Dr. S. DEVAPRASATH
Consultant Interventional Paediatric Cardiologist
MD (Paediatrics), FNB (Paediatrics Cardiology)..



MINIMALLY INVASIVE DOUBLE VALVE REPLACEMENT VIA TRANSAXILLARY APPROACH

Case Report: Minimally Invasive Double Valve Replacement via Transaxillary Approach

A 40-year-old male, known case of rheumatic heart disease (RHD) with severe mitral regurgitation (MR) and severe aortic regurgitation (AR), diagnosed five years ago, presented to our OPD in September 2025 with exertional dyspnea (NYHA Class II) for one week.

Preoperative Evaluation: 2D echocardiography revealed RHD with moderate to severe MR, calcific aortic valve with severe AR, moderate aortic stenosis (Pmax/mean: 44/26 mmHg), global hypokinesia, severe LV dysfunction (LVEF: 25–30%), moderate pulmonary hypertension with moderate tricuspid regurgitation (RVSP: 60 mmHg), and features of congestive heart failure. The patient also had elevated TSH (45), for which thyroxine 150 mcg was initiated. Estimated surgical risk was 10%.

Procedure: The patient underwent minimally invasive transaxillary double valve replacement (MICS-TAX DVR). With the patient positioned in right lateral mini-thoracotomy, a 2-inch incision was made two fingerbreadths posterior to the anterior axillary line, entering through the 4th intercostal space. Standard precautions were taken for defibrillation with disposable AED pads.

Femoral artery and vein were exposed, followed by femoral cannulation (21Fr arterial, 23Fr venous). After systemic heparinization (3 mg/kg unfractionated heparin), cardiopulmonary bypass was established, and the patient was cooled to 32°C. Aortic cross-clamping and oblique aortotomy were performed. Del Nido cardioplegia (1108 ml) was administered, achieving diastolic arrest.

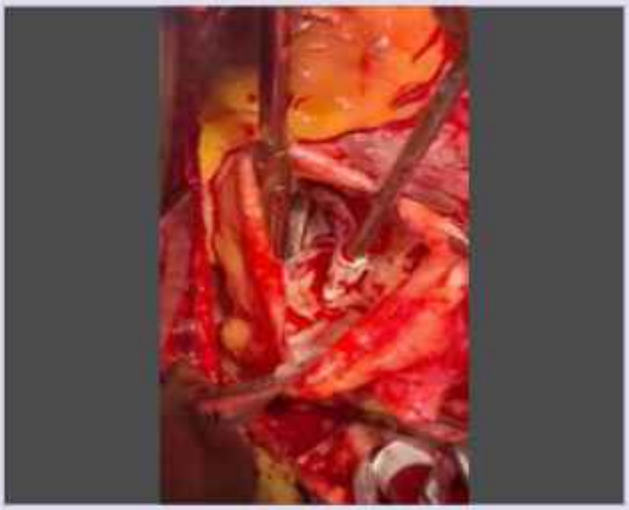
Both valves were inspected and excised. The mitral valve was replaced with a 29 mm Miltonia mechanical valve, and the aortic valve with a 21 mm Miltonia mechanical valve. Valve leaflet mobility was confirmed, and standard closure, deairing, and rewarming protocols were followed. The patient was successfully weaned off bypass and transferred to ICU with stable hemodynamics.

Postoperative Course: The patient was ventilated for 12 hours and extubated the next day (23/9/25). Adrenaline infusion was tapered off over 72 hours. Postoperative echocardiography showed good valve function and improving LV function.

Cosmetic and Functional Outcomes: The transaxillary approach resulted in a smaller, cosmetically favorable scar with reduced postoperative pain and faster healing.

Incision taken 2 finger behind anterior axillary line. One drain , pacing wire

Valve being Inserted

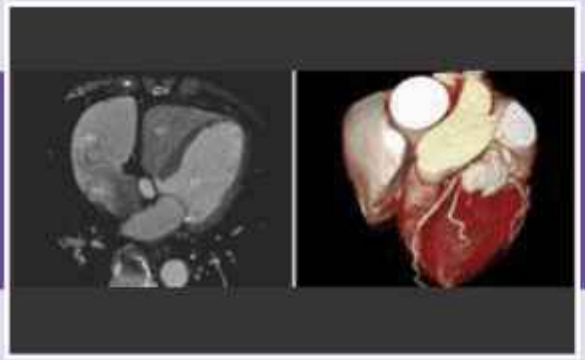


Mitral valve anterior leaflet being excised

Discussion: Double valve replacement (DVR) carries a high morbidity and mortality risk, with conventional DVR in good LV function carrying up to 10% mortality. Performing DVR via a minimally invasive transaxillary approach is technically challenging, especially in patients with poor LV function, global hypokinesia, and dual regurgitant lesions. Worldwide, very few centers offer MICS-DVR, making this case unique.

Our center has successfully performed a large number of valve replacements (single, double, and triple) with consistently satisfactory outcomes in terms of ventilation duration, ICU stay, hospital recovery, cosmesis, and overall patient satisfaction.

Dr.S.THIAGARAJA MURTHY
Chief Consultant Cardiothoracic Surgeon
MS., FRCS – (General Surgery).,
FRCS – (Cardiothoracic Surgery)



THE RIGHT ATRIAL ANEURYSM: A RARE CARDIAC ANOMALY

The human heart is a masterpiece of biological engineering, but occasionally, congenital or acquired anomalies can disrupt its perfect form. Among the rarities is an exceedingly rare congenital cardiac malformation of these, the right atrial aneurysm (RAA) - a localized dilation of the right atrial free wall that can lead to significant morbidity and mortality. While often asymptomatic and found incidentally, this condition can pose a significant risk of complications, including arrhythmias, thrombosis, and systemic embolism. Despite its rarity, understanding its clinical presentation and management is crucial for paediatric cardiologists and cardiac surgeons.

A glimpse into the past: Early Discoveries

The first documented case of a right atrial aneurysm is attributed to French physician Jean-Baptiste de Sénac in 1749. However, the condition remained largely a pathological curiosity, primarily identified during autopsies. The lack of diagnostic tools meant that living patients with RAAs went undetected.

It wasn't until the mid-20th century, with the advent of advanced imaging techniques like angiography and echocardiography, that the clinical significance of RAAs began to be appreciated. The first documented description of a right atrial aneurysm is often attributed to Bailey in 1955, who described the pathology of a right atrial diverticulum. The first successful surgical excision of an RAA was performed by Morrow and Behrendt in 1968. Since then, around a century of cases have been reported worldwide, highlighting the condition's extreme rarity. These early procedures were fraught with risk, but they paved the way for the more refined surgical techniques used today. The development of cardiopulmonary bypass was a game-changer, allowing surgeons to operate on the still heart with greater precision and safety.

The Facts: Understanding the Right Atrial Aneurysm

A right atrial aneurysm is defined as a non-ischemic, localized saccular or fusiform dilation of the right atrial free wall. It is considered a congenital anomaly in most cases, though some researchers suggest a genetic predisposition or a link to connective tissue disorders.

Acquired aneurysms can result from trauma, previous cardiac surgery, or as a late complication of a myocardial infarction. The clinical presentation of an RAA is highly variable. Many patients remain asymptomatic throughout their lives, with the aneurysm discovered incidentally during an imaging study for an unrelated reason. When symptoms do occur, they are often related to the size of the aneurysm or the complications it causes. The most common symptoms are:

- Arrhythmias: The dilated atrial wall can become a focus for abnormal electrical activity, leading to palpitations, atrial fibrillation, or supraventricular tachycardia.
- Thrombosis and Embolism: Stagnant blood within the aneurysm can form a clot (thrombus). If this clot breaks off, it can travel to the lungs, causing a pulmonary embolism, or, in the case of a patent foramen ovale, to the brain, leading to a stroke.
- Dyspnoea and Congestive Heart Failure: A very large aneurysm can compress surrounding structures, including the superior vena cava, or interfere with the heart's normal function, leading to shortness of breath and symptoms of heart failure.

Diagnosis of RAA relies on non-invasive cardiac imaging. Echocardiography, particularly transthoracic echocardiography, is the first-line diagnostic tool. It provides a detailed view of the heart's structure and function and can effectively visualize the aneurysm. Further confirmation and more detailed anatomical information can be obtained with trans-oesophageal echocardiography, cardiac MRI, or computed tomography (CT).

The Clinical Case : A Glimpse into our clinical encounter with this rare RAA at SRH

A two-month-old baby presented with recurrent tachyarrhythmia. He had been previously evaluated for tachycardia in the neonatal period and diagnosed with SVT, which required synchronized cardioversion to restore a normal sinus rhythm (NSR). A subsequent echocardiogram & ecg-gated cardiac CT revealed a massive, giant aneurysm of the right atrial wall. Given the stable condition at the time, the patient was started on Aspirin for thromboprophylaxis and Inderal

(propranolol) to control the arrhythmia, and advised close follow-up.

CXR

Echo

CT – Coronal view

However, a month later, the infant was admitted to the hospital again with an emergency tachyarrhythmia. Following another successful cardioversion to NSR, a crucial decision was made. The recurrent symptomatic episodes of arrhythmia, a clear indication for surgical intervention, led to the recommendation for surgical excision of the aneurysm.

The surgical procedure was performed with routine bicaval cannulation and cardioplegic arrest. We opened the right atrium and excised the majority of the free wall anterior to the crista terminalis. The right atrial wall was then primarily closed, and the suture line was reinforced with bovine pericardial strips to ensure its integrity.

Intra-operative view of RAA

Intra-atrial view of normal TV

Post op view of RAA

Post-excision showed a normal tricuspid valve and restored the right atrial size to near normal.

The postoperative period was largely uneventful. The baby was extubated after 48 hours of elective ventilation and recovered well. He was discharged on a low dose of Tab. Inderal and continued to do well at subsequent reviews. The biopsy report of the excised tissue showed near-normal features of the right atrial wall, with no evidence of other underlying pathological processes.

This case perfectly illustrates the two main management approaches for RAA:

- Conservative Management: As seen in the initial phase, this involves medications like Aspirin for thromboprophylaxis and beta-blockers for arrhythmia control, along with close follow-up. This is an option for asymptomatic patients or those with mild symptoms.
- Surgical Intervention: This is the definitive treatment and is indicated for patients with recurrent atrial arrhythmias, evidence of an intra-atrial thrombus, or compression of other heart chambers. Anecdotal reports of off-pump resections also exist, but on-pump surgery remains the standard of care for these fragile hearts.

The right atrium is a fascinating and complex chamber of the heart, and as this case shows, it can be the origin of some very rare but treatable lesions. The successful surgical outcome for this young patient underscores the importance of prompt diagnosis and decisive intervention when clinically indicated.

Dr. POORNA CHANDRAN
Junior Consultant, Cardiac Surgeon

Dr. S.VIJAY SADASIVAM
Consultant Paediatric Cardiothoracic Surgeon
MS, MCH, (CTVS), DNB

Sri Ramakrishna Hospital

WORLD BREAST CANCER DAY - 30.09.2025

Spreading Awareness Through Innovation – World Breast Cancer Awareness Month 2025Sri Ramakrishna Hospital and the Sri Ramakrishna Institute of Oncology and Research (SRIOR) proudly observed World Breast Cancer Awareness Month 2025 with a unique initiative to create greater impact in the community. For the very first time, SRIOR launched Instagram Reels on Breast Cancer Awareness, with 25 specially curated reels designed to deliver valuable health information in an engaging and visually impactful way.

The campaign was inaugurated by Smt. Priyanka Karthikeyani, Managing Director, P&S Group of Companies and CEO, Nav Hindustan Spinners, and was presided over by Sri R. Sundar, Managing Trustee, SNR Sons Charitable Trust. Their presence added significance to this milestone initiative that blends healthcare with digital innovation to reach people of all ages.The event began with a warm welcome address by Dr. P. Guhan, Director and Medical Oncologist, SRIOR, and concluded with a heartfelt vote of thanks by Dr. K. Karthikesh, Consultant Surgical Oncologist, SRIOR.

The program highlighted Sri Ramakrishna Hospital's continued commitment to spreading cancer awareness and early detection, ensuring that the message of hope, prevention, and timely treatment reaches every household.

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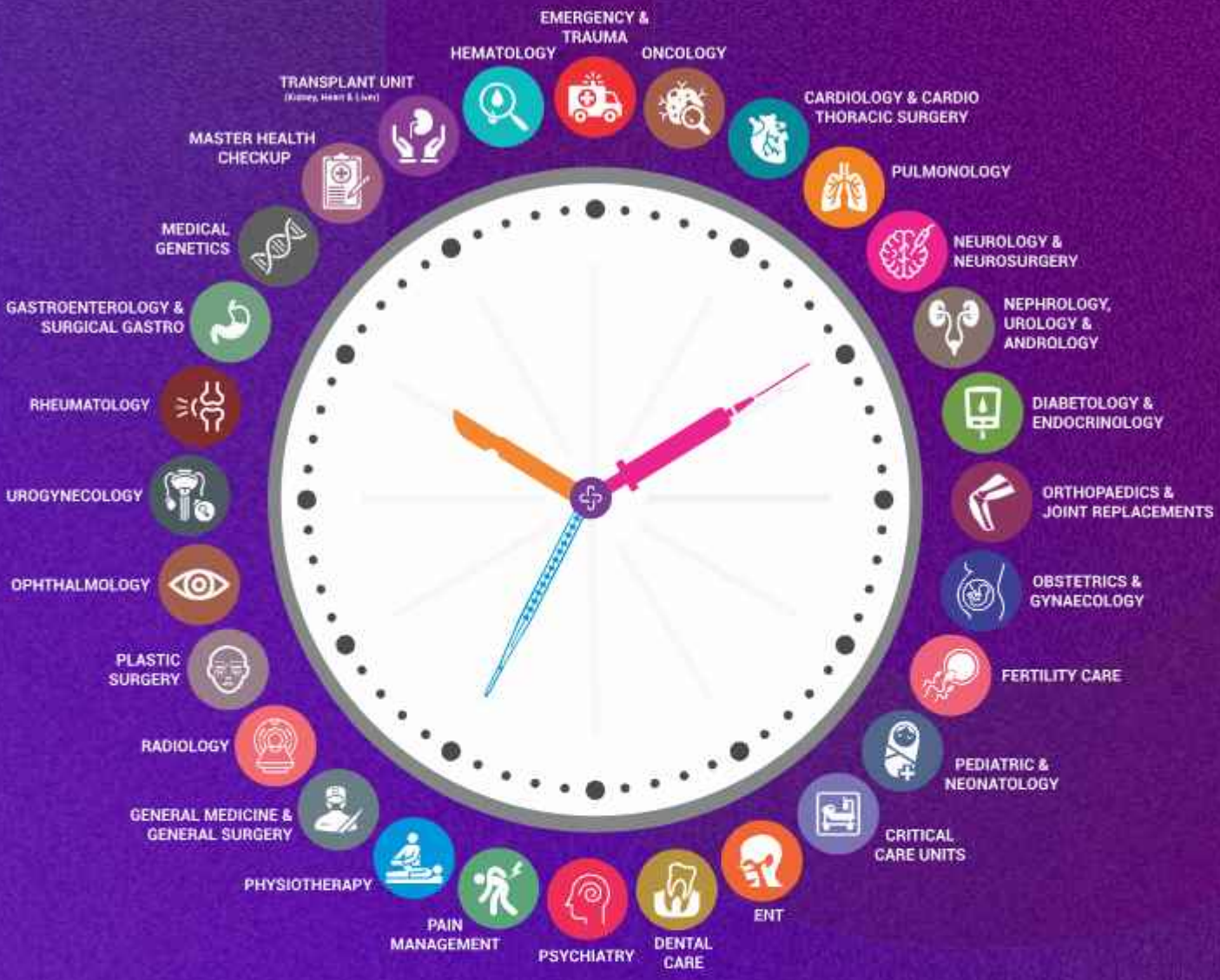

Sri Ramakrishna
Hospital (Multi-Speciality)

395, Sarojini Naidu Road, Siddhapudur, Coimbatore

For appointments: 0422 - 4500 000 / 3500 000

info@sriramakrishnahospital.com | www.sriramakrishnahospital.com

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