SOUTHERN RAILWAY

SOUVENIR

CME PROGRAMME ON

"COMMON PAEDIATRIC CARDIAC DISEASES THEIR MANAGEMENT and PREVENTIVE CARDIOLOGY"

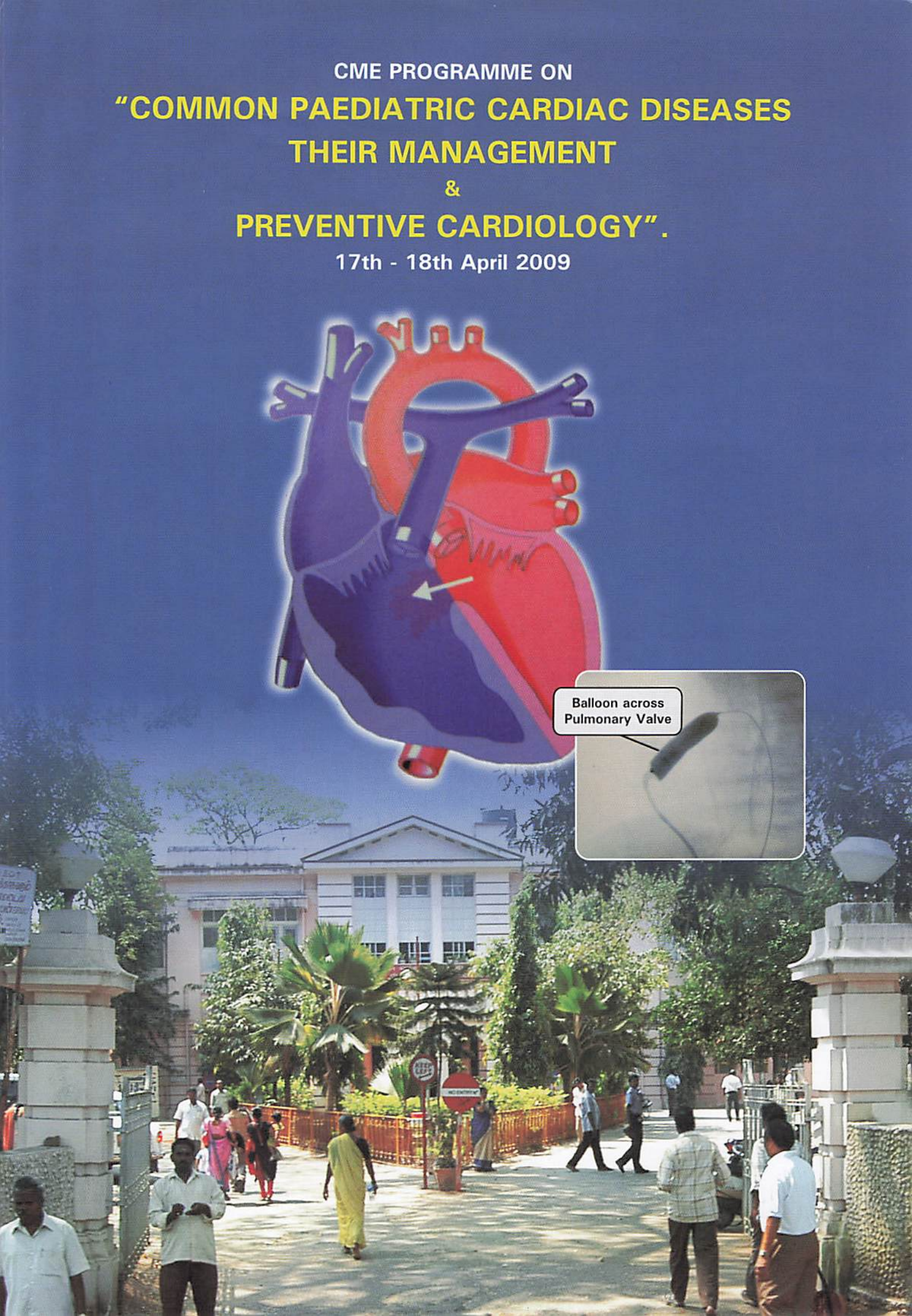
17th - 18th April 2009

Southern Railway Head Quarters Hospital, Perambur, Chennai.

CME PROGRAMME ON

"COMMON PAEDIATRIC CARDIAC DISEASES THEIR MANAGEMENT & PREVENTIVE CARDIOLOGY".

17th - 18th April 2009



Dr. APJ Abdul Kalam
Former President of India
10, Rajaji Marg, New Delhi – 110 011, India

सत्यमेव जयते

8 April 2009

MESSAGE

I am delighted to know that the Headquarters Hospital of Southern Railways is organizing a continuing medical education programme during the period 17 – 18 April 2009 on the topic "***Common Paediatric Cardiac Diseases and their management and on preventive Cardiology***" for the Doctors and para-medical personnel. Continuing education programme is an important requirement for all professionals, which will enable them to be current with the latest technological inputs. I understand that there are special problems involved in treating diseases including diabetes, heart diseases, obesity and metabolic syndrome due to the lack of unique, reliable, quantifiable, easily measured biomarkers that correlate well with disease progression. This aspect in respect of paediatric cardiac disease may be emphasized by the faculty members.

My best wishes to all the participants of continuing medical education programme success in their mission of excelling in quality delivery of medicare to railways personnel.

A.P.J. Abdul Kalam

APJ Abdul Kalam

सत्यमेव जयते

रेल राज्य मंत्री
भारत सरकार
नई दिल्ली - 110 001
Minister of State for Railways
Government of India
New Delhi - 110 001

MESSAGE

I am glad to know that the Southern Railway Headquarters Hospital is organizing a CME programme on 17th and 18th April 2009 at Railway Hospital, Perambur, Chennai.

I congratulate the Cardiologists and doctors of Southern Railway Headquarters Hospital, Chennai for choosing " Common Paediatric Cardiac Disease, their Management and Preventive Cardiology" as the theme of this CME programme.

I wish the conference a grand success.

(R. VELU)

सत्यमेव जयते

भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
नई दिल्ली-110 001
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)
NEW DELHI-110 001

MESSAGE

I am happy that the Cardiology Department of Southern Railway Head Quarters Hospital is conducting a Continuing Medical Education programme on "Common Paediatric Cardiac Diseases, their Management and Preventive Cardiology" at Southern Railway Headquarters Hospital, Chennai on 17th and 18th April, 2009. Medicine has been expanding exponentially with path-breaking discoveries and advances over the last few years in all the specialities. With improvement in primary care, more and more children are detected early with cardiac diseases. This meeting will be good forum for doctors from all over the Indian Railways to understand the newer management techniques in the field of Paediatric Cardiology.

Preventive medicine is an evolving area of medicine which focuses on strategies for disease prevention and optimal utilization of the available resources.

I wish the Conference achieves its objective.

(DR.V.K. RAMTEKE)
Director General/
(Railway Health Services)
Railway Board

सत्यमेव जयते

भारत सरकार
रेल मंत्रालय, (रेलवे बोर्ड)
नई दिल्ली-110 001
GOVERNMENT OF INDIA
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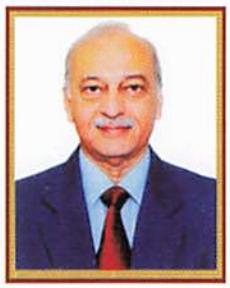


MESSAGE

I congratulate the Southern Railway Headquarters Hospital and the Cardiology Department for organizing the All India Railway Conference on the advances in the field of "Common Paediatric Cardiac Diseases, their Management and Preventive Cardiology" on 17th and 18th April 2009 at Railway Hospital, Perambur, Chennai.

I am sure that the conference will provide proper platform and ample opportunity to all the participants to upgrade their knowledge and skills.

(**Rakesh Chopra**)
Member Engineering
Railway Board

M. S. Jayanth
General Manager

Southern Railway and
Integral Coach Factory
Chennai - 600 038.

SOUTHERN RAILWAY

MESSAGE

It is the matter of great pleasure to know that the Southern Railway Headquarters Hospital and the Cardiology Department is organizing the All India Railway Conference on the advances in the field of "Common Paediatric Cardiac Diseases, their Management and Preventive Cardiology" on 17th and 18th April 2009 at Railway Hospital, Perambur, Chennai.

I am sure the conference will offer the participants an excellent opportunity to share information and discuss important issues related to the topics.

(M. S. Jayanth)

Dr. A. ELANGOVAN
DNB, DLO, FRCS (Edin)
Chief Medical Director,
Southern Railway,
MMC, IVth Floor, Park Town,
Chennai - 600 003.

SOUTHERN RAILWAY

Chief ENT Surgeon,
Perambur Railway Hospital,
Ayanavaram, Chennai - 600 023.

MESSAGE

The Headquarters hospital of Southern Railway is a tertiary care referral hospital for the entire Indian Railways. The various specialities and super specialities have been providing the best of the medical care for the Railway beneficiaries since its inception.

In this endeavour, the Continuing Medical Education programme in the various fields has been an ongoing policy of this hospital, so as to educate, learn and teach doctors and para medical personnel to provide the best of the medical care to the Railway beneficiaries.

Towards this, a CME programme has been organised on 17th and 18th April, 2009. The theme of the programme for this year has been focussed on "Common Paediatric Cardiac Diseases, and their management and Preventive Cardiology" as these are not commonly discussed. To take part in this deliberations, in the presence of Director General of Railway Health Services, New Delhi, all the doctors from Indian Railways have been invited.

I wish all the success for the CME programme.

(Dr. A. Elangovan)

Dr. S. Vijayakumar,
M.S. FRCS (ENG.) FRCS (EDIN)
Medical Director
431-D, Pilkington Road,
Ayanavaram, Chennai - 600 023.

SOUTHERN RAILWAY

Railway Hospital,
Perambur,
Chennai - 600 023.

MESSAGE

I am happy that the Department of Cardiology at Railway Hospital, Perambur is conducting the All India Railway CME on 'Common Paediatric Cardiac Diseases & Management and Preventive Cardiology'. With the experience the hospital has got in the field of Cardiology and Cardiovascular surgery, this may be of great help to all the practicing Physicians and also will help in improving the techniques being done in our hospital.

I wish the organisers and the conference success in their venture.

(Dr. S. Vijayakumar)

Dr. A. G. Narayanaswamy,
Sr.DMO/Cardiology

Railway Hospital,
Perambur,
Chennai - 600 023.

SOUTHERN RAILWAY

MESSAGE

It is a matter of immense pleasure and privilege for us to welcome you to the "CME Programme on Common Paediatric Cardiac Diseases their Management and Preventive Cardiology" being held in the Auditorium of Southern Railway Headquarters Hospital on 17th and 18th April 2009.

We have structured the programme, so that it is interactive and not confined to didactic lectures, to get the best.

We hope to make your stay in Chennai, enjoyfull and pleasant and it remains in the memory of all of us for a long time.

Let us share our thoughts, ideas and be friends for life.

With warm regards,

[Dr. A. G. NARAYANASWAMY]

SCIENTIFIC PROGRAM

COMMON PAEDIATRIC CARDIAC DISEASE, THEIR MANAGEMENT

17 - 04 - 09 Friday - Session I

08.00 – 09.00	: Breakfast	:	Radiology Block Auditorium Southern Railway Head Quarters Hospital, Perambur.
09.00 – 09.45	: **Session - I** **Congenital Heart Disease**	:	**Chair Person** : Padmasri Dr.K.A.Abraham MD, DM, FACC, MRCP Formerly Chief Cardiologist & CMD/S.Rly Presently Sr.Consultant Cardiologist, Vijaya Heart Foundation, Chennai.
	Introduction of Our Teacher	:	Dr.C.V.N.Murthy,DNB(Med.) DNB(Card) Sr.DMO/Cardiology/RH/PER.
	Introduction and Overview of CME	:	Dr. K.A.Abraham, MD,DM,FACC,MRCP
	Approach to Congenital Heart Disease	:	**Speaker :** Dr. R. Krishna Kumar MD,DM,FACC Prof. & HOD, Paediatric Cardiology Amrita Institute of Medical Science, Kochi.
09.45 – 10.15	: Medical management of Congenital Heart Disease	:	**Speaker** : Dr. M.S.Ranjit MD.,D.Ch. Professor, Paediatric Cardiologist, Sri Ramachandra Medical College and Research Institute, Chennai.
10.15 – 11.00	: Catheter based management of Congenital Heart Disease.	:	**Speaker** : Dr. R. Krishna Kumar MD,DM,FACC Prof. & HOD, Paediatric Cardiologist Amrita Institute of Medical Science, Kochi.
11.00 – 11.15	: **TEA BREAK**		
11.15 – 12.00	: Surgical management of Congenital Heart Disease	:	**Speaker :**Dr.K.R.Balakrishnan, MS.M.Ch. Director, Cardiac Sciences, Malar Fortis Hospital, Chennai.
12.00 – 12.45	: X-Ray in children with Congenital Heart Disease	:	**Speaker** : Dr. Shivakumar MD., D.Ch., DM., DNB Cardiologist, MIOT Hospital, Chennai.
12.45 – 13.30	: ECG and arrhythmias in children with Congenital Heart Disease	:	**Speaker** : Dr. Joy M.Thomas MD, MD, DM, FACC Sr.Consultant Cardiologist & Electrophysiologist Frontier Life Line Hospital, Chennai.
13.30 – 14.30	: **LUNCH BREAK**		
14.30 – 15.15	: Rheumatic fever – Present status	:	**Speaker** : Dr. R. Suresh Kumar MD,DM Sr.Consultant Paediatric Cardiologist Institute of Cardiovascular Diseases, Chennai.
15.15 – 16.40	: Overview of Interventional and Surgical Procedures in Congenital Heart Disease at Railway Hospital/Perambur.		
15.20 – 15.40	: Management strategies in Congenital Heart Disease Anaesthesiologist perview	:	**Speaker** : Dr. N.M.Kumar MD. Sr.DMO/Cardiac Anaesthesia/RH/PER.
15.40 – 15.50	: **TEA BREAK**		
15.50 – 16.10	: Surgical management of Children with valvular heart disease - Our experience.	:	**Speaker**: Dr.P.Srinivasa Reddy, MS, M.Ch. Sr.DMO/Cardiac Surgery/RH/PER.

16.10 – 16.30	: Surgical management of Children with Congenital Heart Disease - Our experience.	:	**Speaker** : Dr. R.Jaganathan MS,M.Ch. Sr.DMO/Cardiac Surgery/RH/PER.
16.30 – 16.40	: Overview of interventional Procedures in children with Congenital Heart Disease – Our experience.	:	**Speaker** : Dr. A.G.Narayanaswamy MD,D.Ch.,DNB(Paed), DNB(Card) FACC Sr.DMO/Cardiology/RH/PER.
17.00 – 18.00	: **INAUGURAL FUNCTION**	:	Inauguration by Dr. V.K.Ramteke, Director General Railway Health Services, Railway Board, New Delhi.

18 - 04 - 09 Saturday - Session II

PREVENTIVE CARDIOLOGY

08.00 – 09.00	: **BREAKFAST**		
09.00 – 09.45	: Recent management strategies in Hypertension.	:	**Speaker** : Dr. P.Ramachandran MD,DM Senior Consultant Cardiologist Apollo Hospitals, Chennai.
09.45 – 10.30	: Preventive strategies in Coronary Artery Disease.	:	**Speaker** : Dr. S.Shanmugasundaram MD,DM. Senior Consultant Cardiologist Vijaya Heart Foundation, Chennai.
10.30 – 10.45	: **TEA BREAK**		
10.45 – 11.30	: Oral anticoagulation in Heart Disease.	:	**Speaker** : Dr. V.C.Reddy MD,DM Senior Consultant Cardiologist Apollo Hospitals, Chennai.
11.30 – 12.15	: Interesting Echos	:	**Speaker** : Dr. Alagesan MD,DM Prof. & HOD of Cardiology (Retd.) Madras Medical College, Chennai.
12.15 – 13.00	: Vascular Interventions	:	**Speaker** : Dr. Santosh Joseph MD. Professor of Radiology Sri Ramachandra Medical College and Research Institute, Chennai.
13.00 – 14.00	: Interactive session.	:	
Moderator	: Dr. A.G.Narayanaswamy	:	Sr.DMO/Cardiologist.
Panellists	: Dr. N.Kannan, MD, D.Ch.	:	Chief Paediatrician
	: Dr. Sriram Rajagopal MD, DM. (Card)	:	Sr.DMO/Cardiologist.
	Dr. A.Kalanidhi, MD	:	Sr.DMO/Physician
	Dr. V.S.Shanthi MD,DM(Gastro)	:	Sr. DMO/Gastroenterologist.
	Dr. Sai Dhandapani, MS.	:	Sr. DMO/General Surgeon.
	Dr. N.R.Ravishankar MS., M.Ch.	:	Sr. DMO/Cardio Thoracic Surgeon.
	Dr. P.S.Seshadrinathan MD, DNB(Card)	:	Sr.DMO/Cardiologist.
	Dr. Lakshmi Gopalakrishnan MD, DNB(Card)	:	Sr.DMO/Cardiologist
	Dr. P.V.Thanuja DNB(Gen.Med) DNB(Card)	:	DMO/Cardiologist
14.00 – 14.10	: Valedictory address	:	Dr. N.Kannan MD, D.Ch, CSS/Admn./RH/PER.
14.10	: **LUNCH.** onwards.		

INVITED FACULTY

Dr. K. A. Abraham, MD., DM., FACC., MRCP., Senior Consultant Cardiologist, Vijaya Heart Foundation, Chennai.	**Dr. M. S. Ranjit,** MD., D.Ch., Professor, Paediatric Cardiologist, Sri Ramachandra Medical College, Chennai
Dr. Alagesan, MD., DM., Prof. & HOD of Cardiology (Retd.,), Madras Medical College, Chennai.	**Dr. Y.V.C. Reddy,** MD., DM., MRCP., FACC., Senior Consultant Cardiologist, Apollo Hospitals, Chennai.
Dr. K. R. Balakrishnan, MS., M.Ch., Director, Cardiac Sciences, Malar Fortis Hospital, Chennai.	**Dr. Santosh Joseph,** MD., Prof. of Radiology, Sri Ramachandra Medical College, Chennai.
Dr. Joy M. Thomas, MD., MD., DM., FACC., Sr.Consultant Cardiologist & Electrophysiologist, Frontier Life Line Hospital, Chennai.	**Dr. S. Shanmugasundaram,** MD., DM., Senior Consultant Cardiologist, Vijaya Heart Foundation, Chennai.
Dr. R. Krishna Kumar, MD., DM., FACC., Prof. & HOD, Chief Paediatric Cardiologist, Amrita Institute of Medical Sciences, Kochi.	**Dr. Shivakumar,** MD., D.Ch., DM., DNB., Senior Consultant Cardiologist, MIOT Hospitals, Chennai.
Dr. P. Ramachandran, MD., DM., Senior Consultant Cardiologist, Apollo Hospitals, Chennai.	**Dr. Suresh Kumar,** MD., DM., Sr.Consultant Paediatric Cardiologist, Apollo Hospitals, Chennai.

ORGANISING COMMITEE OF CARDIOLOGY CME - 2009

CHIEF PATRON:
General Manager,
Southern Railway.

PATRON:
Dr. A. Elangovan,
DLO., DNB (ENT) FRCS. Chief Medical Director.

CHAIRMAN:
Dr. S. Vijayakumar,
MS., FRCS. Medical Director.

ORGANISING SECRETARY:
Dr. A.G. Narayanaswamy,
Sr.DMO/Card./RH/PER.

SCIENTIFIC COMMITTEE:
Dr. N.Kannan,
CSS/Admn./RH/PER.

Dr.Prasanna Kumar,
Sr.DMO/Admn./RH/PER

Dr. Sriram Rajagopal,
Sr.DMO/Card./RH/PER.

Dr. C.V.N. Murthy,
Sr.DMO/Card./RH/PER.

TREASURER:
Dr. P. S. Seshadrinathan,
Sr.DMO/Card./RH/PER.

RECEPTION COMMITTEE:
Dr. Debatosh Mitra,
Sr.DMO/Lab./RH/PER.

Dr. R. Chitra,
Sr.DMO/Surgery/RH/PER.

Dr. Lakshmi Gopalakrishnan,
Sr.DMO/Card./RH/PER.

Dr. R. Saravanan,
Sr.DMO/Opth./RH/PER.

Dr. P. V. Thanuja,
DMO/Card./RH/PER.

TRAVEL & ACCOMMODATION:
Dr. K. Jayamohan,
Dy.CMD/H & FW/MAS.
Dr. K. Suresh,
Sr.DMO/Opth./RH/PER.
Dr. Soumitra Sinha Roy,
Sr.DMO/Physician/RH/PER
Dr. A. P. Preetam,
Sr.DMO/ENT/RH/PER
Dr. K. Sathiya Babu,
Sr.DMO/Physician/RH/PER.
Dr. A. Anil Lionil,
DMO/Anaesth./RH/PER.
Mr. P. Santhanagopal,
DHO/RH/PER.
Mr. R. Srinivasan,
Electrical Supervisor/ICF

CATERING:
Dr. Prasanna Kumar,
Sr.DMO/Admn./RH/PER.

Dr. T. N. Sailesh,
Dy.CMD/ T& A/MAS.

CULTURAL PROGRAMME:
Dr. C.M. Ravi,
Sr.DMO/Derm./RH/PER.

Dr.A.P.Preetam,
Sr.DMO/ENT/RH/PER

ADVISORS:
Dr. R. Champakalakshmi,
CSS/Chief Dentist / RH/PER.

Dr. M. Meenakshi,
CSS/Sr.Surgeon/RH/PER.

Dr.Kanakaraj .K,
Sr.DMO/Radiology/RH/PER

Dr. M.R. Ravikumar,
Sr.DMO/Ortho/RH/PER.

Dr. A. Kalanidhi,
Sr.DMO/Physician/RH/PER.

Dr.Usha Rajendrakumar,
Sr.DMO/Psy./RH/PER

Dr. Sai Dhandapani,
Sr.DMO/Surgery/RH/PER

Dr.Kusuma Mathai,
Sr.DMO/Aneas./RH/PER

Dr.Santha Bhaskar,
Sr.DMO/Obs & Gyn/RH/PER

Dr.Radha Vijayaragavan,
Sr.DMO/Neph./RH/PER

SECRETARIAL ASSISTANCE:
Mrs. Krishna Dwarakanath,
Pvt Secy. to MD.

Mrs. Janaki Radhakrishnan,
Confidential Asst., MD/O/RH/PER.

Mr. J.Prabhakaran,
Sr.Stenographer, CMD/O/MAS.

Mr. R.Gangadhar,
Clerk, MD/O/RH/PER.

Mr. R.Sadalingam,
J.Peon, MD/O/RH/PER.

ORGANISING COMMITEE OF CARDIOLOGY CME - 2009

Dr. T.N. Sailesh, Dr. P.S. Seshadrinathan, Dr. A. Anil Lionil, Dr. K. Suresh, Mr. P. Santhanagopal, Dr. A.P. Preetam, Dr.Debatosh Mitra, Dr. K.Sathiya Babu, Dr. C.V.N. Murthy, Dr.Soumitra Sinha Roy, Dr. C.M. Ravi, Dr. P.V. Thanuja

Dr. Prasanna Kumar, Dr. N. Kannan, Dr. K. Jayamohan, Dr. A. Elangovan, Dr. S. Vijayakumar, Dr. A. G. Narayanaswamy, Dr. Sriram Rajagopal, Dr. R. Chitra

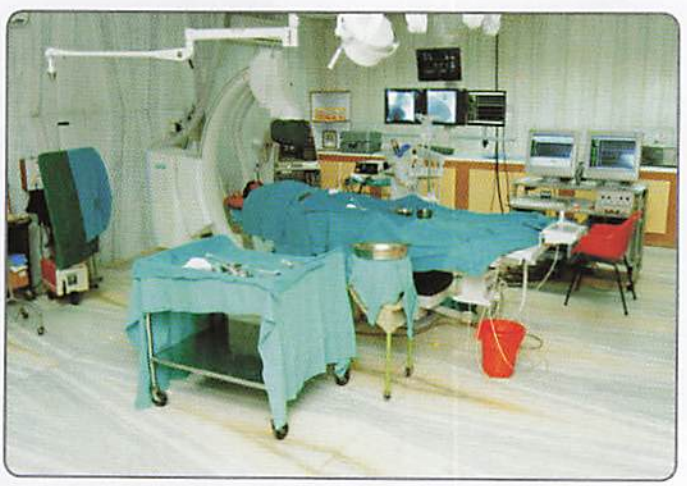
SOUTHERN RAILWAY HEADQUARTERS HOSPITAL

THE INITIAL YEARS

Starting in 1925 as a hospital for Madras and Southern Maratha railways (MSM railways), the hospital had taken shape in 1928 as a 40-bedded Hospital with one Senior Surgeon, four assistant doctors and twelve nurses. With each passing year, the hospital kept on expanding. By 1930 the operation theatre, radiology department, laboratory services and OP services were started. A breakthrough came in 1960s with the starting of cardiothoracic department under the leadership of Padmabhushan Dr. T. J. Cherian, who was responsible for building the infrastructure for future development. Following his footsteps, Dr. Y. N. Mehrotra, stabilized the existing facilities and improved other disciplines like General surgery and Radiology. By 1978, all departments were functional including a 20-bedded ward for cardiac patients and attained the present bed strength of 505 beds. The hospital has evolved rapidly since the 80's in all specialties acquiring many modern and sophisticated equipment and the expertise to operate these.

CARDIOLOGY

Facilities for cardiology and cardiac surgery were commenced under the leadership of Padmabushan Dr. T.J. Cherian, who was a physician with the skills of a surgeon. The infrastructure for the development of the cardiology and cardiothoracic departments were largely the product of his vision and dedicated work. A major step in the Indian Railways was the establishment of cardiology unit in 1979. The first modern



Cardiac Catheterization Laboratory

catheterization laboratory was set up in January, 1980 and since then there was no looking back. The department has grown to its present stature under the stewardship of Dr. K.A. Abraham, the then Chief Cardiologist and Chief Medical Director. The unit is an all India referral centre for cardiovascular diseases. The department offers a complete range of services, including adult and pediatric cardiology, coronary and peripheral interventional procedures and electrophysiology services. The department has many firsts to its credit and has been a pioneer in coronary angioplasty and carotid stenting. Till date over 40,000 cardiac catheterisations and about 9000 interventions have been performed. The interventions include balloon valvuloplsties, coronary angioplasties, peripheral intervention procedures and pace-maker implantations. Device closure of congenital heart diseases was started in 1998 and till date innumerable such procedures have been performed. Anti-arrythmic devices (ICD) and bi-ventricular pacing devices have been successfully implanted. The average outpatient attendance in cardiology department is around 250 per day.

Cardio Thoracic Surgery Operation Theatre

CARDIAC SURGERY

The Department of Cardiac Surgery was started in early 1970s by Dr. T. J. Cherian. The twin cardiac surgery operation theatres were installed in the new block in 1980. The first Coronary Artery Bypass Graft Surgery (CABG) in the country was done at this hospital. Since inception the department retained its prime position in national and international circles. Cardiac Surgery unit performs 1000 surgeries on an average in a year and one fourth of these are for congenital heart diseases. The spectrum of work includes coronary artery bypass grafting, valve repairs and replacements, corrective surgeries for congenital heart diseases and peripheral vascular surgeries. The institution has the credit of performing beating heart bypass surgeries since 1990. It continues to be in the forefront of recent advances performing Arrhythmia Surgeries and surgeries for aortic aneurysms. Left ventricular reconstruction procedures (DOR) are performed regularly.

Plasma Sterilizer

CARDIAC ANAESTHESIA

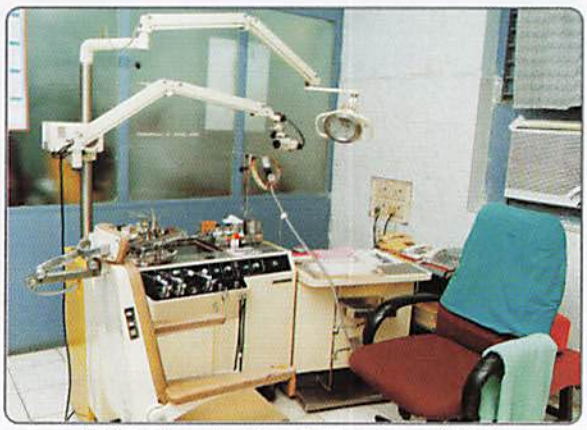
The term cardiac anaesthesia as a sub speciality of anaesthesia was coined in this hospital in 1994. The department has maintained high standards, since inception. The twin operating rooms are of international standards with advanced monitoring gadgets and facilities for invasive

pressure monitoring. The anaesthetic care extends to the post operative wards, cardiac catheterisation laboratory and the intensive care units. Fast tracking anaesthesia, one lung anaesthesia using bronchial blockers and anaesthesia for VAT procedures are already in place. The currently recommended environmental friendly sterilisation methods like plasma sterilisation have been functioning in the operation theatres for the last two years.

ENT

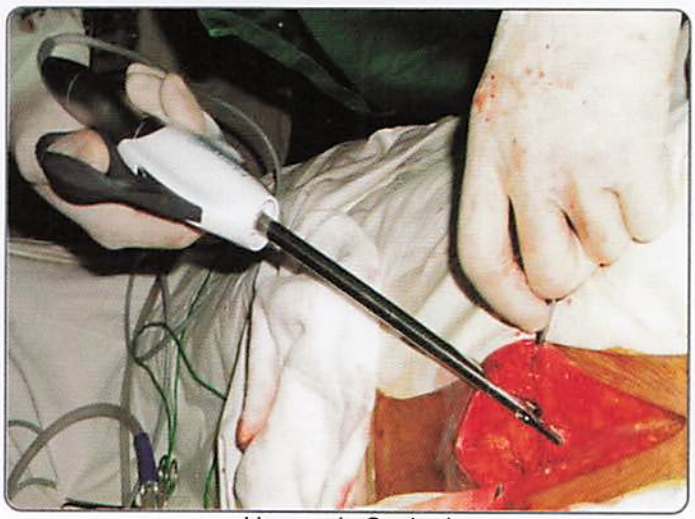
Laser Surgery (ENT Dept.)

The department of Otorhinolaryngology and head and neck surgery has grown tremendously over the last four decades. Apart from the routine surgeries like mastoedectomy, Tympanoplasty and stapedectomy, Flexible Bronchoscopy, Awake Fibreoptic assisted intubation and Functional Endoscopic sinus surgeries using microdebrider are done regularly. This is a pioneering institute for laser surgeries in India which was started 20 years back by Dr. A. Elangovan, Chief Medical Director and Chief ENT surgeon, who has presented eight papers at the International Laser Congress. Laserization of vocal nodules, polyps, subglottic haemangioma, and laryngeal papillomas are carried out as a day care procedure. The Cochlear implant programme had been initiated from 2006 under the guidance of Dr. A. Elangovan, Chief Medical Director and Chief ENT surgeon. Three children have undergone successful cochlear implantation till date.



ENT Examination & Treatment Unit

GENERAL SURGERY



Harmonic Scalpel

This Deparment is a major wing of the hospital now and has seen a vast increased in surgical procedures over the years. Led by Dr. S. Vijayakumar, Medical Director and Chief Surgeon, Railway Hospital Perambur is presently the pioneer in conducting laser-assisted surgery in the city of Chennai. The Department has expertise in advanced surgical procedures including Laser surgical procedures, complicated Adrenal and Renal malignancies with extension of tumours into IVC, surgeries on Advanced Pancreatic tumours, and laparoscopic

Equipment for Laser Surgery

bowel surgeries. The first bariatric surgery was performed in the history of Indian Railways in 2008. The department gets referral cases for its advanced surgical procedures from all over Indian Railways. State of Art equipments like ND YAG laser and Diode laser and Harmonic Scalpel are available for these advanced surgical procedures. Dr. S. Vijayakumar, Chief Surgeon and Medical Director, has presented papers on laser and pancreatic surgeries in International Conferences including World Congress of Laser surgeries and the World Congress held at Beijing.

ANAESTHESIA

The department of Anesthesia caters to the requirements of all surgical specialties. Apart from providing anaesthesia services in the operating theatre, anaesthetists are involved in resuscitation, intensive care, pain relief services and chronic pain management. Epidural analgesia for relief of labour pain is also provided. Modern techniques using Peripheral Nerve Stimulators are used for guiding peripheral nerve blocks. Ultrasound guided regional techniques and central venous cannulations will be our future endeavour.

GENERAL MEDICINE

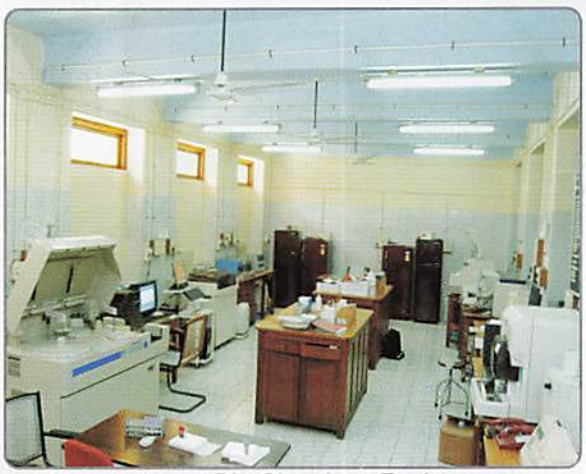
This department is the nodal point in the hospital. The medical ICU, the center of activity in any hospital, was inaugurated in 1973 along with an 80-bedded new medical ward. The 10-bedded intensive care unit is known for its quality work and performs like a critical care unit. The ICU is equipped with an Ultrasound machine, ABG machine, central multi parameter monitor, CRRT machine along with other essential gadgets like ventilators, defibrillators and infusion pumps. Invasive procedures like bone marrow biopsies, liver biopsies, pleural biopsies, renal biopsies are performed routinely. As a tertiary care centre, variety of rare and complicated cases of the divisions and various railway zones are attended. Endoscopic interventions like variceal sclerotherapy or banding or injection therapy for bleeding gastric/duodenal ulcers are performed even on emergency basis.

Medical ICU

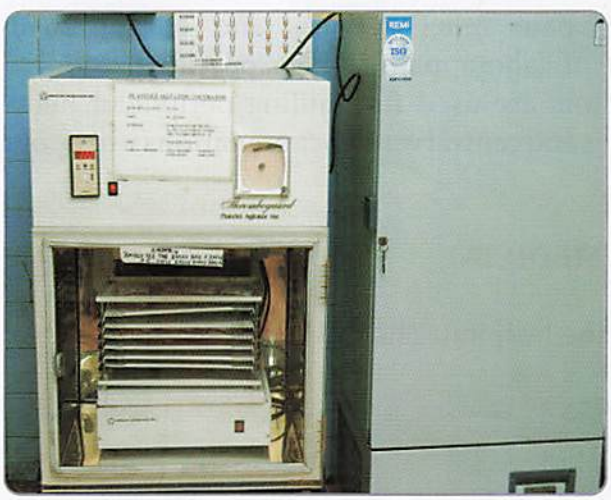
The Nephrology unit, which is a referral center for the Indian Railways, has all therapeutic measures for patients with ESRD. The department caters to pre & post surgical dialysis for cardiac and cardiothoracic patients. A transplant programme in collaboration with a private hospital is in place through which about 25 cases for renal transplantation are done every year. There are 6 hemodialysis machines which cater to the need for dialysis round the clock. CAPD was started about 2 years back and CRRT was initiated a year ago. Chest ward takes care of both pulmonary cases and HIV patients. Two medical officers trained by WHO monitor the DOTS programme.

LABORATORY

The Department of Laboratory Sciences was established during 1950's with Biochemistry and Clinical Pathology departments. Subsequently, it has grown over the years and today has full fledged facilities and has State-of-Art equipments in the areas of Clinical Pathology, Biochemistry, Microbiology and Histopathology. In addition, we have a licensed Blood Bank with



Automated Bio-Chemistry Equipment

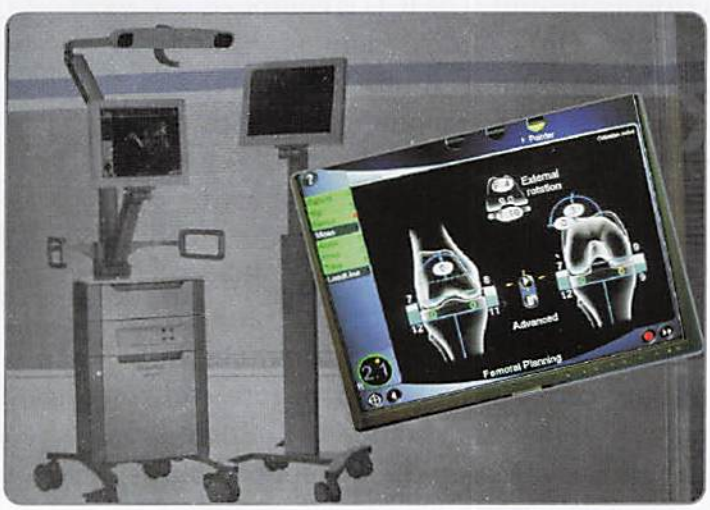


Blood Component Separation Facilities

Component facilities to cater to the needs of the entire hospital. The Laboratory Information System has interfacing with most of the equipments and on line reporting is possible now. We have External Quality Assessment Programmes running in all the areas with reputed organisations like CMC, Vellore and Bio-Rad EQAS and performing consistently well in all these programmes.

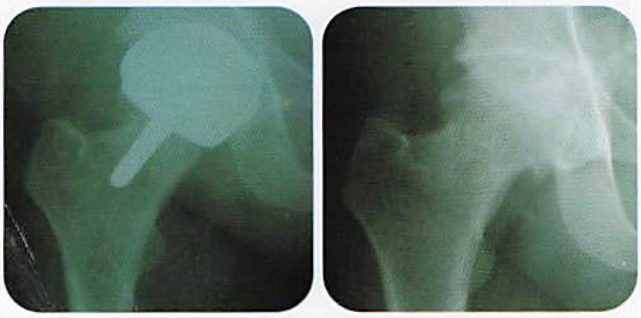
ORTHOPAEDICS

The Department of Orthopaedic Surgery has its main focus on Advanced Trauma Management and 24 Hours Fracture Care. The latest techniques including Locking Compression Plates and Periarticular Plates are used in the many high speed road traffic injuries. Hip and Knee Arthroplasty are being done for the last twenty five years. Relatively younger patients with Hip and Knee



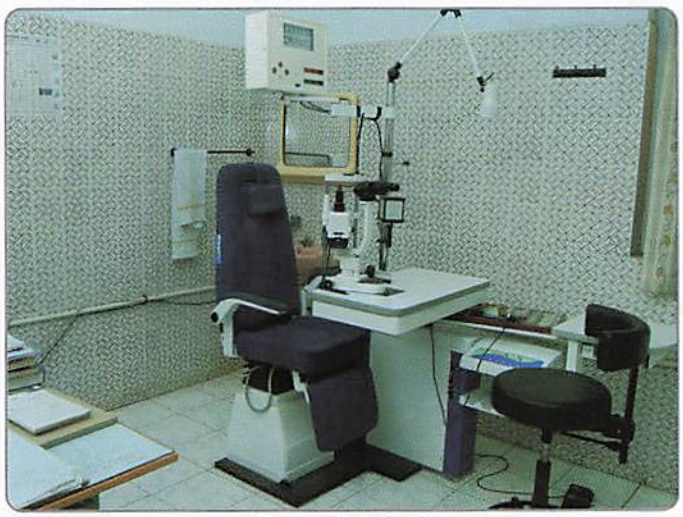
Navigation Knee Arthroplasty

Arthritis are treated with Hip Surface Replacement and Total Knee Arthroplasty with Mobile Bearing. Pedicle Screw fixation is done for Degenerative Spinal Diseases and other Developmental and Congenital Diseases. The Department uses the Navigation System for advanced orthopaedics surgical procedures for Hip, Knee, and Spine surgeries.



Hip Surface Replacement

OPHTHALMOLOGY



Refraction Unit

The department of ophthalmology offers state of art services to the patients. The outpatient department has the latest automated refractometer, refraction unit with mounted slit lamp biomicroscope, automated lensometer, keratometer, 90 D non contact fundus lens and indirect opthalmoscope. The eye operation theatre is equipped with the latest Takagi operating microscope. The surgeries undertaken include a variety of cataract surgeries from ECCE to the latest Clear Corneal phacoemulsification with foldable and multifocal intraocular lens implantation and topical SICS. Glued IOL, a state of art procedure for complicated and sub-loculated cataracts is performed. Dacryocystorhinostomy for nasolacrimal duct obstruction is one of the minimally invasive procedures being done. Stem cell autograft is performed for advanced and recurrent pterygium and for cases with chemical injuries.

OBSTRETICS and GYNAECOLOGY

Set up in 1960 primarily as a maternity ward, the department of Obstetrics and Gynaecology has come of age. The focus is on high risk obstetric cases and cases with concomitant cardiac diseases. Facilities of NICU, postnatal surfactant therapy and membrane oxygenator has made it possible to salvage fetuses of 1 kg/28 weeks. Cord blood banking for stem cell harvesting for a case of beta thalassaemia and myeloid leukaemia were done as well as Fetal blood transfusion in Rhesus negative sensitized patients.

The department uses laparoscopy and hysteroscopy aided, video assisted gynaecological procedures including LAVH and minimally invasive urogynaecology procedures. Intervention radiological procedures like uterine artery embolisation for uterine fibroid and for AV malformation of the uterus have been done recently. Plans are underway to start Assisted Reproduction Technology Center (ART) in the near future.

RELHS Clinic

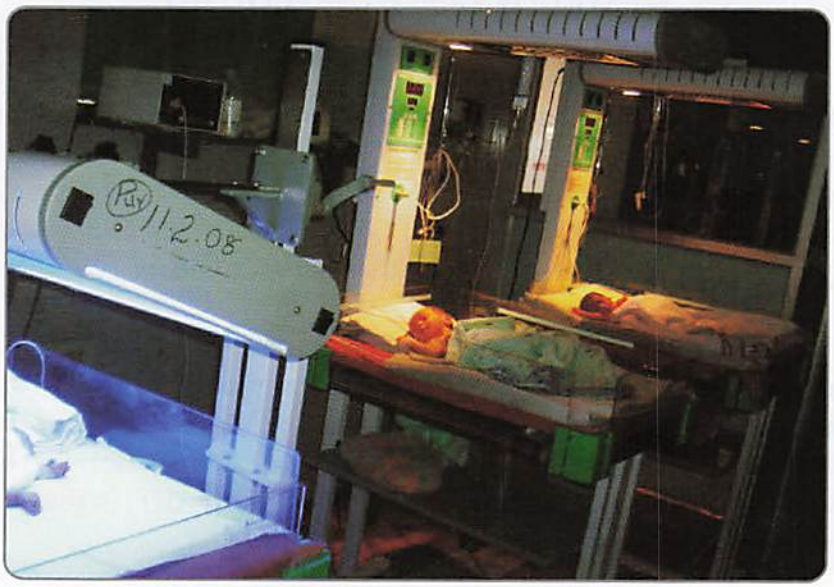
OUT PATIENT SERVICES

The general OPD is the nerve centre of the hospital and has witnessed a huge increase in patient attendance over the years. It caters to about 2000 patients a day and has been streamlined for patient convenience with adaption of many specialised clinics. The Retired Employees and the Senior citizens have separate clinics. The OPs cater to all the patients referred from the Divisions as well as to those from various zones of Indian railways.

PAEDIATRICS

Over the years, Paediatrics has always been a centre for the high standards of care and had received considerable attention in planning. The ward has 50 beds, along with 10 beds exclusively for the neonates. A separate Neonatal Intensive Care Unit is functional, which imparts Level III neonatal care to the newborns. Dr. N. Kannan Chief Paediatrician, and Chief Staff Surgeon, was instrumental in the setting up of the NICU. The Paediatric OP also runs various subspeciality clinics as well as the Immunisation Programmes in accordance with the recommendations of the IAP.

Paediatric Ward



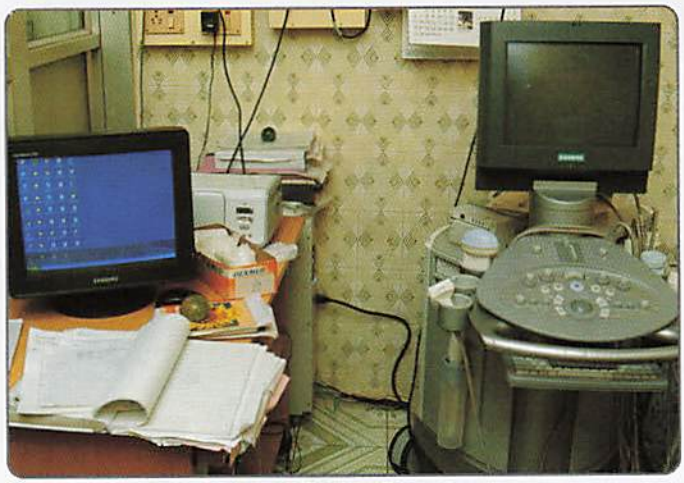
Neonatal Intensive Care Unit

PSYCHIATRY

The Department of psychiatry is a full fledged department with psychiatrists and a psychologist. Detoxification and Deaddiction programmes on outpatient basis and short term inpatient detoxtprograms have been taken up. The Department conducts programs on mental health awareness, substance abuse awareness, and stress management in the hospital and the Loco and Carriage workshops. In order to detect early dementia, the department has started a MEMORY CLINIC for the senior citizens, which is the first of its kind in the Indian Railways.

RADIOLOGY

With the rapid development of newer imaging modalities, this department is all set for a transition, in the devoted hands of Dr. K. Kanakaraj, Sr.DMO/SR /Radiology. A new radiology block is coming up to house all the newer imaging modalities like CT scan and MRI scans. A Digital Colour Doppler - Acuson Antares-is already functioning for all ultrasonography and doppler studies. Facilities which are to commence shortly include:



Digital Colour Doppler

1. New x-ray plant 500 ma with image intensifier for all fluoroscopic and contrast procedures.

2. Digital Radiographic System for the routine radiology work.

3. A net-working system to connect the Digital Radiographic Images as well as Computed Radiographic images to all the important wards.

DENTAL SURGERY

The Department of Dental Surgery undertakes root canal treatment with preservation of teeth and periodontic treatment (treating gum diseases). Management of Oro-Facio-Maxillary fracture cases by oral plate fixation is performed. Pre-surgical evaluation of Nephrology & Cardiology cases is done routinely.

DERMATOLOGY

Apart from management of routine skin ailments, the Department has acquired expertise in PUVA chamber treatment of Vitiligo and Psoriasis and has protocols for managing these conditions. For dermato-surgical conditions, procedures like Liquid nitrogen cryotherapy, high frequency radiotherapy and Electrocautery are in place.

HOSPITAL INFORMATION MANAGEMENT SYSTEM

The computerization of hospital started in 1986 in a small way and expanded in 1989 with addition of a supermini system having 25 terminals under the visionary guidance of Dr. Y. N. Mehrotra then Chief Medical Officer, Southern Railway. Periodic updating of HIMS continued. At present it covers OPD registration, IPD registration, clinical data, discharge summaries and operation notes. The drug and consumables stores section is totally computerized with online stock, annual indents and purchase orders. About 6 lakh railway beneficiary and outsiders are registered in the system.

Yoga Session for Cardiac Patients

PREVENTIVE MEDICINE

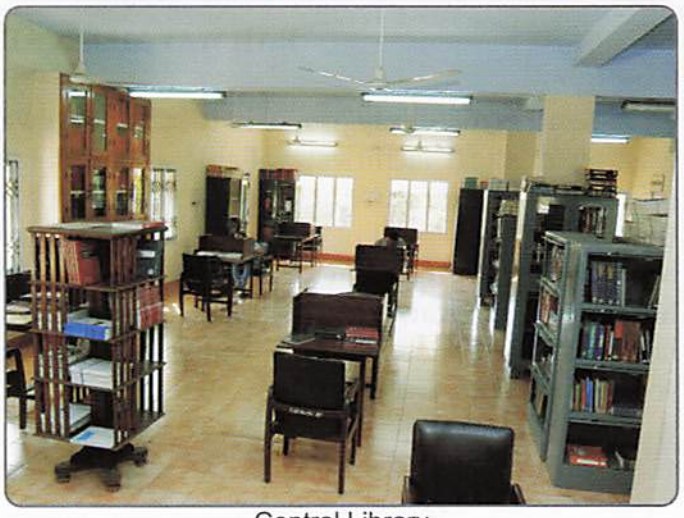
Cardiovascular diseases are a leading cause of mortality and morbidity and therefore a vital target for preventive medicine and public health. In an innovative move, under the guidance of the Chief Medical Director, Dr. A. Elangovan, Railway Hospital, Perambur had initiated the Healthy Heart Programme in September 2008. This programme offers yoga therapy to cardiac patients as part of preventive care and postoperative care and is conducted in coordination with the departments of Cardiology, Physiotherapy and Psychiatry. It involves the active participation of the Perambur Corps of the St. John's Ambulance Brigade. Two physiotherapists and Seven SJAB members guide each session of five days, held twice a month.

TELEMEDICINE

Realizing the importance of communications and information technology for delivery of medical care, the Southern Railway Headquarters Hospital developed the first telemedicine network in Indian Railways connecting GOC/RH at Trichy to Perambur Railway Hospital in 2004 under the guidance of Dr. G.C. Raju, the then Chief Medical Director. Over the next four years, the facility was extended to three zonal railways – Danapur (ECR), Guwahati (NFR) and Allahabad (NER). The new telemedicine unit connecting Perambur Railway Hospital to the six Divisional Hospitals of Southern Railway at Madurai, Trichy, Palghat, Trivandrum, Salem and Arrakonam will commence shortly.

New Tele Medicine Room

ACADEMIC



Central Library

Learning and Teaching has always been the motto at Railway Hospital, Perambur. Successive generations of doctors from IRMS as well as from non service categories have been trained as specialists in various fields. Doctors from other Zonal Railways attend for various periods of training in different specialities. Every Department has its teaching schedule apart from the weekly clinical meetings. The hospital has been recognised by the National Board of Examinations for postgraduate training from 1989. Presently it has recognised DNB courses in Anaesthesia, Cardiothoracic Surgery, Cardiology, General Medicine, Family Medicine, General Surgery, Orthopaedics, Paediatrics, Radiology, Obstretics and Gynaecology. The Department of General Surgery is recognized by Royal College of Surgeons, Edinburgh for conducting MRCS Part III including clinicals since 1991. The hospital has been associated as a principal investigator in various international trials including, the CREATE Study, the PROFESS Study and the POISE Study. It is also a recognised training centre for Nursing Courses for three Nursing Colleges.

NEW HOSPITAL COMPLEX FOR RH/PER

New Hospital Complex

The hospital which developed over the last eight decades has kept pace with advances in every field. But, the existing building has outlived its life. The physical infrastructure does not match the general quality standards required for a modern hospital. Thus a new Southern Railway Headquarters Hospital was envisaged during 2005 and was sanctioned by the Railway Board. The plan includes a total build up area of approximately 5 lakh sq. feet with a provision for 600 beds. The work on this project has commenced and is expected to be completed in another two years' time. The plan is designed to meet the latest standards of health care to patients.

RAILWAY MEDICAL COLLEGE

Southern Railway proposes to start a Railway medical college by making use of the existing medical facilities available at the Perambur Railway Hospital. The plan , in principle, is to convert the present Perambur Railway Hospital into a Railway Medical College for the benefit of employees. The expression of interest from private parties has been called to run the medical college with private participation, for which the existing hospital premises and the proposed new hospital complex will be available. That this is the national referral hospital for all zones in Indian Railways in the super specialities, speaks volumes of its expertise.

Complete View of New Railway Hospital - Perambur

RAILWAY HOSPITAL – PERAMBUR

Past | Present | Future

The history of a hospital evokes profound enthusiasm to all those who had a contribution in its progress. The targets and achievements of these men and women makes an odyssey of science and medicine progressing through decades.

It has been a slow but stunning transformation of a non-descript hospital of the 20th century into a colossal institute of the 21st century. In 1928, the necessity to provide healthcare to the employees was the reason to set up a small unit at Perambur. However, after that it needed a lot of painstaking work to build up the hospital brick by brick. But there was no dearth of active and energetic personnel. PADMABHUSHAN DR. T. J. Cherian was the main personality to transform this hospital into its present status. He was succeeded by equally capable and determined professionals who continued with the same determination. If cardiac surgery and cardiology had taken an early lead, the pioneering work in laser surgeries from ENT and General Surgery Departments hold the forte now.

Academic pursuit has been the favourite past time of this institute and it had won many accolades in its long span. It has an association with many prominent national and international Institutes.

At every stage the hospital had received great benevolence from the top railway administrators who were ever supportive of the numerous demands set forth from time to time by the specialists at Perambur. This could be the prime reason for a rapid progress and transformation of this institute.

Perambur Railway Hospital is an example of how dedication and hard work can turn a hospital into an institution. No one individual can claim to be the sole inheritor of the name Perambur, as all those who stepped onto this soil brought new ideas and fresh vigour, progressing the cause of RH/PER. Led by doctors, who are dedicated professionals and master administrators, the institution has been the product of endless and selfless work by the numerous, unnamed paramedical and medical personnel. It is these dedicated soldiers who helped many a doctor attain their fame in this sacred place.

With the commencement of the new hospital for Perambur and the Medical College for the Railways, this hospital is set to go global. For the present generation this might look like a normal transition, but for the many workers in the history of this hospital, this is PERAMBUR's tryst with destiny. Let us consider it a privilege to work on these premises and uphold the spirit of continuous updation of knowledge in all the fields of medicine and surgery.

Diagnosis and Management of Congenital Heart Disease in Adults

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Congenital heart disease (CHD) is a term that encompasses a large number of cardiac malformations, each with its own unique anatomy, physiology, clinical features and natural history. Fortunately, however, the broad physiologic categories of CHD are limited and can usually be recognized through clinical examination, ECG and chest X-ray.

In this article a simplified classification of CHD will be presented to familiarize the reader with the conditions that are likely to be seen in a typical adult practice.

What congenital cardiac conditions are encountered in adults?

The entire population of adults with CHD is constituted by patients whose cardiac malformations have a natural history allows survival into adulthood and patients with CHD who have undergone corrective or palliative procedures in childhood. (Fig. 1) In India, the former constitutes the majority because specialized pediatric cardiac services are limited to very few centres.

Figure 1:

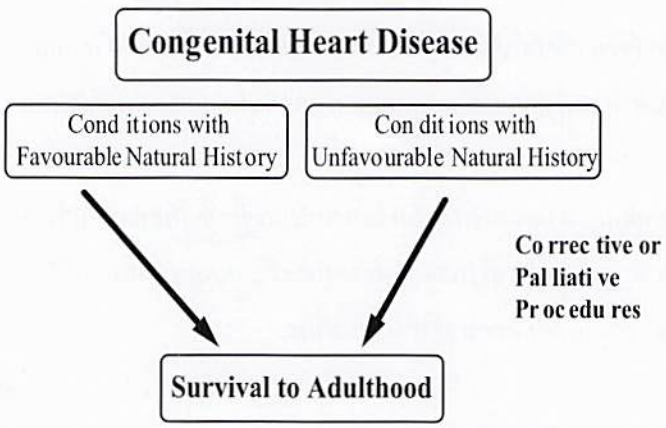


Table 1: Congenital Heart Diseases with Unfavorable Natural History

Conditions that Seldom Permit Survival Beyond the Neonatal Period.
Critical Obstruction to Pulmonary Blood Flow (duct dependent pulmonary circulation)
• Pulmonary atresia with inadequate aorto-pulmonary collaterals (tetralogy of Fallot's with pulmonary atresia, pulmonary atresia with intact ventricular septum, pulmonary atresia in association with any other cardiac malformation)
• Critical Pulmonic Stenosis
• Severe forms of Ebstein's Malformation of the tricuspid valve

Critical Obstruction to Systemic Blood Flow (duct dependent systemic circulation)

- Hypoplastic left heart syndrome
- Critical Aortic Stenosis
- Aortic atresia
- Arch interruption
- Coarctation

Transposition of great arteries with intact ventricular septum

Obstructed form of total anomalous pulmonary venous drainage

Conditions that seldom permit survival or correction beyond early childhood

Complex defects associated with increased pulmonary blood flow

- Single ventricle, double outlet right ventricle, tricuspid atresia, transposition with ventricular septal defect, corrected transposition with ventricular septal defect, persistent truncus arteriosus, common AV canal

Large Post-Tricuspid Left to Right Shunts*

- Large ventricular septal defects
- Large patent ductus arteriosus
- Aorto-pulmonary window

Severe left ventricular inflow obstructions (alone or in combination with other malformations)

- Congenital pulmonary vein stenosis, cor-triatriatum, supra-mitral ring, mitral atresia, congenital mitral stenosis

Severe left ventricular outflow obstruction

- Severe AS in infancy
- Severe Coarctation in infancy

Anomalous origin of the left coronary artery from the pulmonary artery

Defects associated with severely reduced pulmonary blood flow**

- " Severe" tetralogy of Fallot's, single ventricle with severe PS, double outlet right ventricle with severe PS, corrected transposition with VSD and severe PS, tricuspid atresia with severe PS, transposition with ventricular septal defect and severe PS, pulmonary atresia in association with any of the above.

With the availability of corrective or effective palliative procedures for most of congenital conditions , many infants with CHD can look now forward to adulthood. Indeed the group of operated CHD patients constitutes a sizable proportion of adults with CHD in developed countries. The situation in India closely resembles that of the developed countries before the widespread availability of infant heart surgery. Most adults with CHD here are patients who have survived the process of natural selection. The congenital heart defects that are encountered in adults are listed in table 2.

Table 2: Congenital Heart Defects Typically Encountered in Adults

Left Sided Obstructive Lesions

- Bicuspid aortic valve*
- Sub-aortic membrane

- Coarctation

Right Sided Obstructive Lesions

- Valvar pulmonic stenosis
- Double Chamber Right Ventricle

Left to Right Shunts

- Atrial Septal Defects
- Small Patent Ductus Arteriosus**
- Small Ventricular Septal defects**

Conditions associated with reduced pulmonary blood flow

- Tetralogy of Fallot's and conditions with related physiology (VSD-PS Physiology)

"Less severe" forms of Tetralogy of Fallot#, Complex Defects with "Balanced Circulation" (conditions in which the pulmonic stenosis just severe enough to protect the lungs from excessive pulmonary blood flow, examples include, single ventricle, double outlet right ventricle, tricuspid atresia, corrected transposition)

- Tetralogy of Fallot's with pulmonary atresia
- Ebstein's Anomaly of the Tricuspid Valve

Eisenmenger Syndrome (Severe pulmonary artery hypertension with shunt reversal)

- Large Ventricular Septal defects, Patent Ductus Arteriosus, Atrial Septal Defects and other conditions associated with increased pulmonary blood flow.

Cyanotic conditions with normal pulmonary blood flow

- Pulmonary arterio-venous fistula
- Left superior venacava to an unroofed coronary sinus

Cyanotic heart disease with increased pulmonary blood Flow

- Unobstructed total anomalous pulmonary venous drainage

Aneurysm of Sinus of Valsalva With or Without Rupture

Coronary Arterio-venous Fistula

Uncomplicated Corrected Transposition of Great Arteries

Congenital Complete Heart Block

Bicuspid aortic valve is the most common form of CHD seen in adults. Isolated bicuspid aortic valves may be stenotic or non-stenotic to start with. The non-stenotic BCAV may remain functionally normal throughout a normal life span to start with. It may become stenotic through fibrocalcific thickening or may become regurgitant.

Aortic regurgitation may occur either spontaneously or after an episode of infective endocarditis.

Subaortic Membrane: This condition is characterized by a membrane of variable thickness located in the left ventricular outflow tract that results in varying degrees of obstruction. Additional complications include aortic regurgitation and infective endocarditis.

Coarctation: Coarctation should always be considered during the work-up of hypertension, particularly in the young adult. Serious morbid events that can occur in an adult with coarctation include, aortic dissection, rupture of a congenital cerebral aneurysm, and left ventricular failure (beyond the age of 40).

Valvar Pulmonic Stenosis: Like other obstructive lesions the age at presentation generally reflects the severity of the condition. The most severe forms of valvar pulmonic stenosis present in the neonatal period. The less severe forms can present anytime in childhood, adolescence, or later during adulthood. A small proportion of adults with valvar PS can develop right ventricular failure .

Double chambered right ventricle: This condition is usually associated with a perimembranous ventricular septal defect of varying size, often small. Other associations include sub-aortic membrane. The physiology and clinical manifestations are quite similar to valvar pulmonic stenosis.

Atrial Septal Defects (ASD): This condition typically presents during adulthood. It is the commonest form of CHD requiring intervention during adulthood. The age at presentation varies from early childhood to 6th or the 7th decade. The long term complications of ASDs include the development of pulmonary arterial hypertension, atrial arrhythmias, increasing shunt and heart failure with reduction in LV compliance (age related or as a result of development of systemic hypertension)

Patent Ductus Arteriosus: PDA identified for the first time in adults is typically small and not associated with symptoms. The only significant risk is that of infective endarteritis. Patients with large PDAs who survive to adulthood usually have irreversible elevation in pulmonary vascular resistance with differential cyanosis.

Ventricular Septal Defects: The situation with VSD is quite similar to that of PDA. Patients with small VSDs survive to adulthood without major difficulty. The risks include infective endocarditis, and with sub-arterial VSDs, development of aortic regurgitation.

Eisenmenger Syndrome: A small but significant subset of patients with large left to right shunts (resulting from a large VSD, PDA or any lesion with increased pulmonary blood flow) typically present in adulthood with irreversible elevation in pulmonary vascular resistance. This results in reversal of shunt from left to right to a right to left shunt. Often there is no record or memory of a diagnosis of heart disease in childhood.

Tetralogy of Fallot's and conditions with similar physiology (VSD-PS physiology):

These conditions account for the vast majority of adults with cyanosis. Patients in this category represent a small fraction of survivors of a group of conditions with a high attrition. For example only 25% of patients of tetralogy of Fallot's survive the first decade of life and 10% survive the first 20 years. The attrition rates are even higher with other conditions that have a very similar physiology (Table 2).

TOF with Pulmonary Atresia: Adequate aorto-pulmonary collateral flow may allow survival of a small percentage of patients with pulmonary atresia to survive to adulthood.

Coronary Arterio-venous Fistula: Patients with coronary A-V fistula are typically asymptomatic and seek attention because of an incidental diagnosis of a continuous murmur. Significant issues with coronary A-V fistulae relate to the development of ischemia as a result of coronary steal and, exceptionally, heart failure in patients with large shunts.

Aneurysm of the Sinus of Valsalva: Aneurysms of the sinus of valsalva, typically, result in no symptoms unless they rupture (usually into the right ventricle or right atrium) or burrow into the conduction system. Rupture of a sinus of valsalva aneurysm usually occurs presents in adolescents and young adults. The condition is commoner in males. The onset of symptoms may be quite dramatic. Rupture is usually associated with significant hemodynamic deterioration and heart failure.

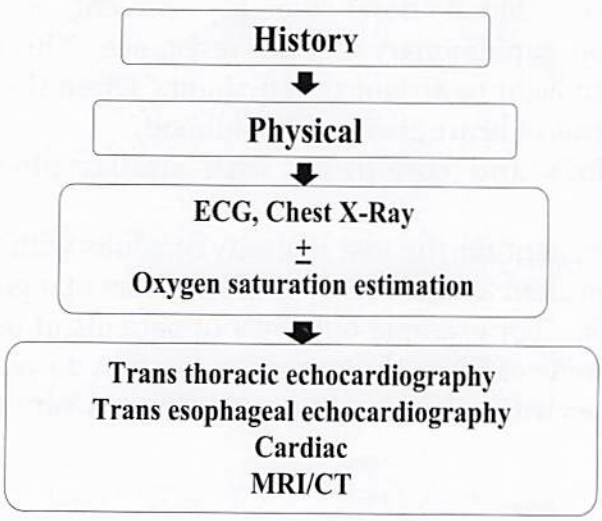
Ebstein's Anomaly of the Tricuspid Valve: This condition has a bimodal presentation. The first peak is typically seen in newborns. These patients are typically very ill and duct dependent. The second peak occurs much later in life. Medical attention is sought because of progressive cardiac enlargement cyanosis and symptoms related to supraventricular tachyarrhythmias.

Congenital Complete Heart Block: Complete heart block in the young adult in absence of structural heart disease is usually congenital. Symptoms are related to bradycardia. They include syncope/presyncope, sudden death and heart failure.

Congenitally Corrected Transposition of Great Arteries: Adults with "Uncomplicated" corrected transposition can remain asymptomatic or may develop heart failure as a result of systemic (right)ventricular dysfunction.

Pulmonary arterio-venous fistulae: This condition typically manifests as cyanosis without symptoms or significant murmurs and may be associated with familial telangectasia.

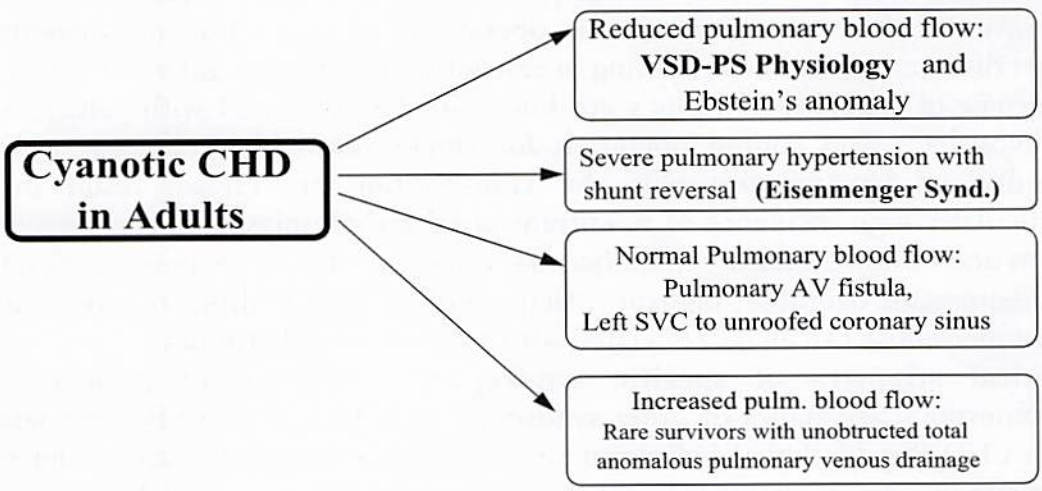
Diagnostic Approach to Adult CHD



The following clinical features indicates a strong possibilty of underlying CHD. These features also help in identifying the physiologic category of the CHD.

Cyanosis and Polycythemia: Central cyanosis involving the mucous membranes and trunk along with the lips and extremities in absence of obvious respiratory difficulty strongly suggests the likelihood of CHD. Clubbing of the nail beds invariably accompanies cyanosis. Polcythemia is also frequently associated. cyanosis can be masked by anaemia. For patients in whom mild degrees of desaturation (saturation varying from the high 8os to the mid 90s) is suspected on basis of the clinical condition, it is very useful to obtain an oxygen saturation with a pulse oxymeter probe. The presence of cyanosis limits the diagnosis to a few physiologic categories.

The Broad Physiologic Categories of Adult Cyanotic Congenital Heart Disease



The bold typeface indi cate conditions that are relatively common
All the conditions listed here may not have visible cyanosis and,
in some situations, no detectable desaturation

History of difficult feeding and poor growth: The parent of an adolescent or a young adult with a large L-R shunt may recall that the child had difficulty with feeds. The history may be of slow feeding, small volumes consumed during each feed, tiring easily following feeds and requirement of periods of rest during feeds. Not infrequently, no history of feeding difficulty may be obtained, but examination of the growth charts will reveal that the child's growth rate is not appropriate for age. The parent or the patient may recall that they were smaller than most of their peers during school.

Difficult Breathing: A history of subcostal or intercostal retractions together with flaring of nostrils alae nasii together with tachypnoea during infancy may be recalled by the parent.

Later in life dyspnea on effort may result from a variety of reasons. These include progression of stenotic lesions (typically with increasing severity of aortic stenosis), development of pulmonary vascular obstructive disease and increasing desaturation.

History of frequent respiratory infections in infancy or early childhood: Respiratory infections that are frequent, severe (often requiring hospitalization) and difficult to treat are common in infants with CHD associated with large left to right shunts resulting in increased lung blood flow. Not infrequently, heart disease may be detected for the first time during an episode of respiratory tract infection.

Syncope: The congenital cardiac conditions that need to be considered in patients with syncope include, congenital complete heart block (in absence of structural heart disease or in patients with corrected transposition) and severe AS. Syncope may also result from tachyarrhythmias (see below)

Palpitations: Palpitations from cardiac tachy-arrhythmias can occur in a variety of CHDs. These include older patients with ASD, TOF (and related conditions) and Ebstein's anomaly, Arrhythmias, both ventricular and supraventricular, can follow cardiac operations for correction of congenital heart disease. Operations resulting in scar formation in the right ventricle such as repair of tetralogy of Fallot's are known to be associated with ventricular tachycardia. The Fontan operation for single ventricle physiology or the Senning or Mustard procedure for transposition are known result in a particularly high incidence of re-entrant atrial arrhythmias. For a emergency room doctor it is useful to remember that organophosphates exposure, tricyclic antidepressant overdose, digoxin toxicity, antiarrhythmic drug treatment and substance abuse can all be associated with a variety of arrhythmias.

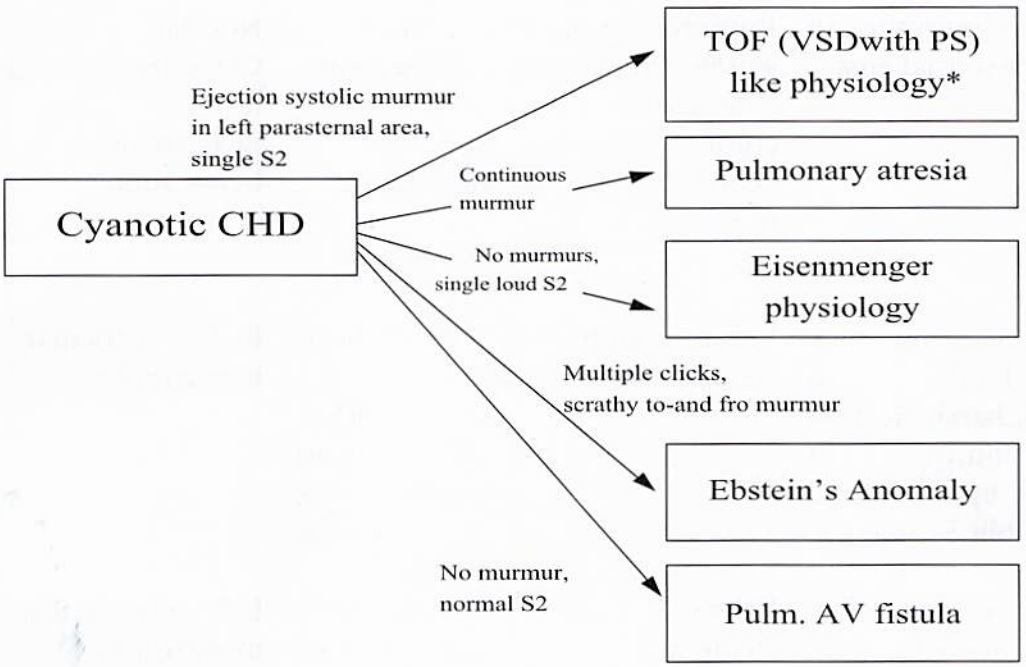
Clinical stigmata of specific syndromes: Evidence of presence of chromosomal anomalies or other syndromes that are known to be associated with CHD should alert the clinician to the presence of specific cardiac defects that are known to be associated with these conditions. The list of such conditions is a long one. Trisomy 21 is the commonest chromosomal anomaly that is associated with heart disease. Other common examples include: Turner's Syndrome, Noonan's Syndrome, Velocardiofacial and the Di-Georges's Syndrome.

Cardiovascular examination: A thorough and systematic cardiovascular examination provides valuable clues to the presence of congenital heart disease and helps identify the physiologic category. With practice such an examination can be accomplished in a short time. It is useful to answer the following questions that can serve as a checklist for a preliminary cardiac examination. This checklist is, not at all, comprehensive and is designed primarily for answering the question: Does the patient have heart disease? It can also help identify the broad physiologic category of heart defect.

1. **Are the arterial pulsations normal?**
2. **Is the JVP elevated?**
3. **Does the precordium feel normal?**
4. **Are the heart sounds normal?**
5. **Is (or are) there a murmur (or murmurs)? If so:**

Measurement of Oxygen Saturation: This is easily accomplished using a digital probe with a pulse oxymeter. The test is particularly useful in borderline situations where it is not clear from physical examination whether cyanosis is present or not.

Summary of diagnostic features of various physiologic categories:



*The conditions with a TOF like physiology include: single ventricle with PS, double outlet right ventricle with PS, corrected transposition with VSD and PS, tricuspid atresia with PS and transposition with ventricular septal defect and PS.

Table 3: Diagnosis of Acyanotic CHD

Physical Findings	Diagnostic Category	Chest X-ray	ECG
Wide Fixed S2, Basal ejection systolic murmur, short mid-diastolic murmur in the parasternal area	Atrial Septal Defect	Cardiac enlargement, increased lung vasculature	Incomplete RBBB, right axis suggests secundum defect; left axis: primum defect
Harsh pan-systolic murmur, normal S2	Small ventricular septal defect	Normal / mild cardiac enlargement with increased vasculature	Normal / prominent mid-precordial voltages

Continuous murmur in the left upper sternal area	Small patent ductus arteriosus	Normal / mild cardiac enlargement with increased vasculature	Normal / prominent mid-precordial voltages
Continuous murmur in the left para-sternal area	Ruptured Sinus of valsalva aneurysm (RSOV) or coronary arterio-venous fistula (AVF)	Cardiac enlargement with increased vasculature nay accompany RSOV	Normal: Coronary AVF RSOV: biventricular hypertrophy
Inconstant ejection click (click louder in expiration), harsh ejection systolic murmur in loudest left upper sternal area, wide split S2, soft P2	Valvar pulmonic stenosis	Normal heart size. Bulge along upper left heart border, s/o post stenotic dilation	Right ventricular hypertrophy
Constant ejection click (click not changing with respiration), harsh ejection systolic murmur loudest in right upper sternal area with carotid radiation	Valvar aortic stenosis	Normal heart size, LV type of contour	Left ventricular hypertrophy
Harsh ejection systolic murmur loudest in left upper sternal area, Single S2	Ventricular septal defect with pulmonic stenosis or rarely isolated infundibular PS (double chamber RV)	Normal heart size, normal lung vasculature	Right ventricular hypertrophy
Diminished lower limb pulses with brachio-femoral delay	Coarctation of Aorta	Rib notching, Heart Size: normal Prominent aorta	Left ventricular hypertrophy

MANAGEMENT STRATEGIES FOR ADULTS WITH CONGENITAL HEART DISEASE:

The goals for management of congenital heart disease in adults are improving upon the natural history of the condition and providing symptom relief.

Improving the natural history of adults with CHD: As mentioned above the populations of adults with CHD are largely constituted by conditions with a relatively favourable natural history that allow survival until adulthood. There is, however, considerable attrition during adult life and many of these conditions can benefit from intervention (surgery or trans-catheter intervention) even during adulthood. The decision regarding the need for intervention and timing of intervention needs to be individualized because of the enormous variety of conditions encountered in adulthood. The indications for surgery or transcatheter interventions for the individual conditions have been summarized in table 4.

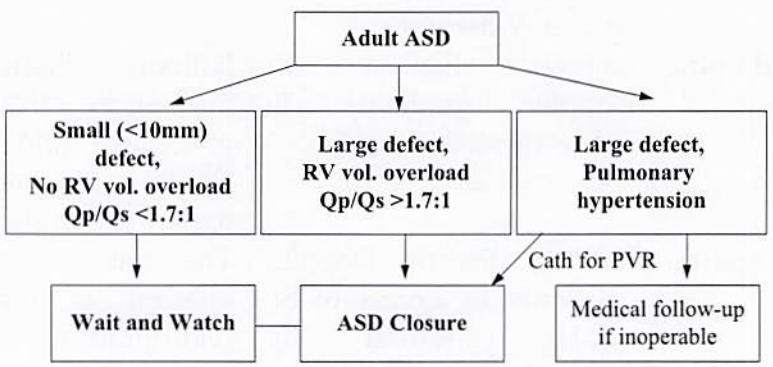
Table 4: Indications for intervention in adults with congenital heart disease

Diagnostic Category	Indications	Comment
Atrial Septal Defect (ASD)	Any ASD that results in RV volume overload on echo. (typically shunts > 1.7:1). All patients with elevated pulmonary arterial pressures should undergo cardiac catheterization for assessment of PVR*.	Closure of ASDs with a significant shunt (>1.7-2:1) improves upon the natural history irrespective of age. Device closure has emerged as an alternative to operation for defects with adequate margins. The management algorithm has been outline in fig: 5
Small ventricular septal defect	Recurrent infective endocarditis. Aortic valve prolapse through the defect.	Small VSDs generally do not require closure. The risk of infective endocarditis can be reduced
Small patent ductus arteriosus	Elective closure of all clinically audible PDAs is generally recommended	There is no proven benefit for this strategy. The only theoretical advantage is in prevention of infective endocarditis.
Ruptured Sinus of valsalva aneurysm (RSOV)	Operation as soon as diagnosis is made	The condition carries a high mortality without surgical intervention
Coronary A-V fistula	Operation/coil closure for symptomatic patients with large A-V fistulae	Small fistulae may not require interventions
Valvar pulmonic stenosis	Balloon dilation for Doppler gradients in excess of 70-80 mmHg	Balloon dilation of the pulmonary valve is a low risk procedure and the benefits clearly out weigh risks for patients with significant PS
Valvar aortic stenosis	Balloon dilation Doppler gradients in excess of 80 mmHg (normal LV	The risk of aortic balloon dilation is that of aortic regurgitation. Eventually

	function). In presence of LV dysfunction balloon dilation is recommended irrespective of the gradient	aortic valve replacement is necessary in most patients. For calcific AS aortic valve replacement is indicated for severe AS (>100 mmHg gradient or in presence of symptoms)
Ventricular septal defect with pulmonic stenosis or rarely isolated infundibular PS (double chamber RV)	Operation if RV outflow obstruction is significant (predicted RV systolic pressures = systemic BP)	The late effects of RV hypertrophy include a high risk of arrhythmias and ventricular dysfunction. Delaying surgery increases the likelihood of these complications
Coarctation of Aorta	Operation (or balloon dilation) for gradients in excess of 30 mmHg in the presence of systemic hypertension)	Possible benefits of surgery include reduced antihypertensive requirement and reduction in risk of dissection of aorta.

Diagnostic Category	Indications	Comment
Tetralogy of Fallot's	Operation	Symptom and survival benefit can be expected in most adults. The risk-benefit ratio declines with advancing age, but continues to favor surgery.
Complex heart disease requiring the Fontan operation (single ventricle repair)	Careful individualized decision. Surgery is not generally indicated for mildly cyanosed patients (saturations >85%)	The results of the Fontan operation are relatively poor in older patients. The survival benefits have not been proven and symptom benefits are marginal in many patients.

Fig:5 **Management Algorithm for Adults with ASD**



CONCLUSIONS

The population of adults with CHD in India is largely constituted by conditions that permit a favourable natural history. Clinical examination including ECG and chest x- ray help answer the important question "does the patient have CHD?" and identify the physiologic category. Once CHD is suspected it is important to establish an accurate and complete diagnosis early after presentation. This is usually achieved through detailed and systematic transthoracic and if required, transesophageal echocardiography. Other investigative modalities such as cardiac catheterization and cineangiography and rarely, cardiac MRI may be used in specific situations.

Management strategies need to be tailored according to the specific conditions and the age of the patient. The decision regarding definitive treatment should be taken after making an educated guess about the possible natural history for the condition. If survival benefit is likely, operative (or interventional) treatment should be offered. For patients in whom definitive treatment is not possible, symptom relief from the effects of erythrocytosis requires careful adjustment of hematocrit through judicious phlebotomy.

Suggested Reference: Perloff JK, Congenital Heart Disease in Adults in Heart Disease, Braunwald E (ed), fourth edition, 1992, pages 966-991 (vol. 2).

DEVICE CLOSURE OF ATRIAL SEPTAL DEFECT

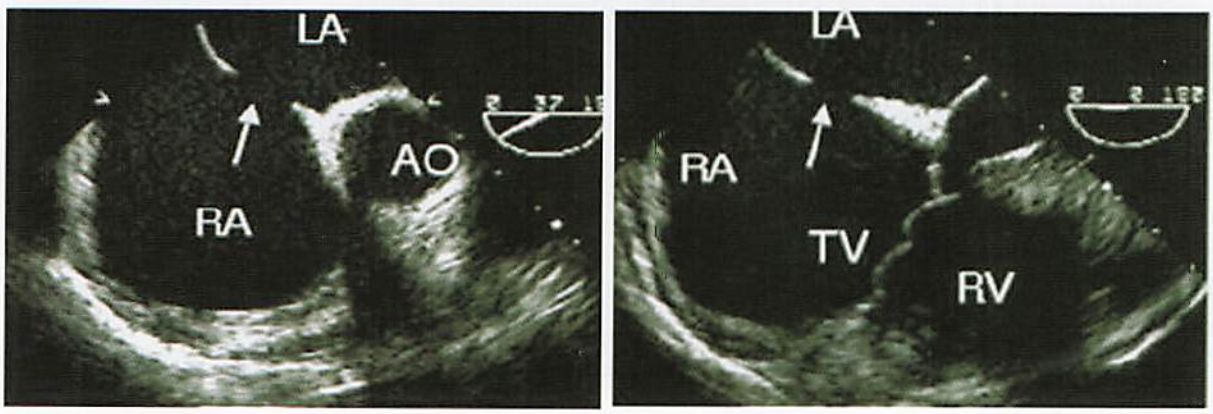
Department of Cardiology

Our experience

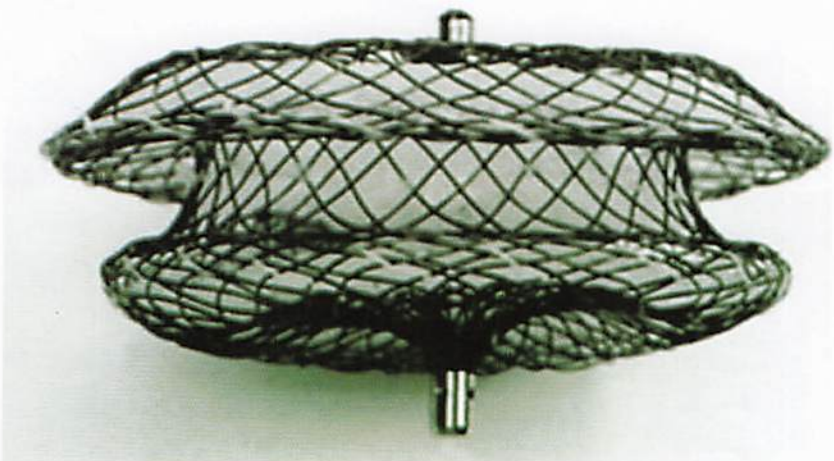
Atrial septal defect is a common form of congenital acyanotic heart disease and constitutes 10% of all congenital acyanotic heart disease. Ostium secundum ASD is the commonest of all types of ASD and accounts for around 60-70 % of ASD.

Management of ASD traditionally involves a surgical closure of atrial septal defect which require cardiopulmonary bypass which had its own adverse effects like cognitive dysfunction. Recently percutaneous closure of ASD has been done with good success rates and minimal complications. However only ostium secundum type of defects with adequate rims can be closed percutaneously.

The size of ASD is determined by Transoesophageal chocardiography.



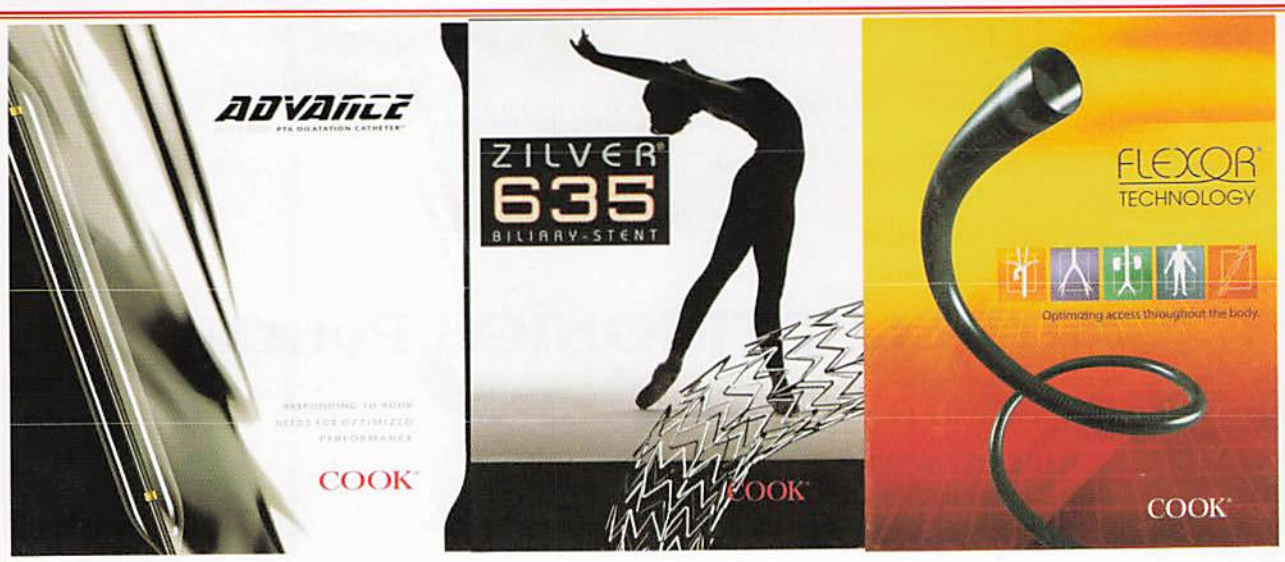
At railway hospital perambur we started doing percutaneous closure of ASD with in 2001. Since than we have done 31 cases from age of 4 yrs to 43 yrs and device size ranging from 12 mm to 38 mm.



AGE GROUP	NO . OF PATIENTS
< 5 yrs	2
5 - 10	9
11 -15	6
16 - 20	4
21 - 30	4
31 - 40	5
> 41 yrs	3

DEVICE SIZE	NO. OF PATIENTS
12 mm	2
13 mm	1
14 mm	3
16 mm	2
18 mm	3
19 mm	1
20 mm	1
22 mm	4
24 mm	3
28 mm	2
30 mm	2
32 mm	2
34 mm	1

The various complications which have been reported in literature with the procedure includes device embolization or dislodgement,air embolism, cardiac arrhythmias, cardiac perforation and death. In our series we had one complication in form of device embolisation to PA. Our experience shows that device closure of secundum ASD



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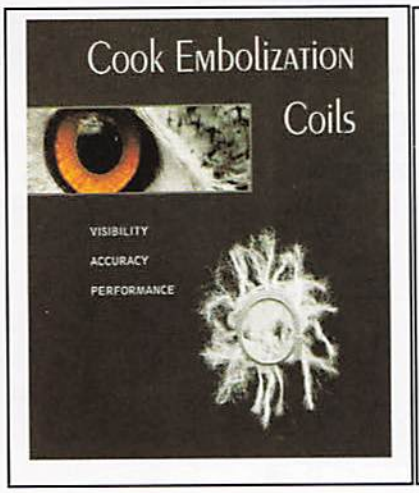

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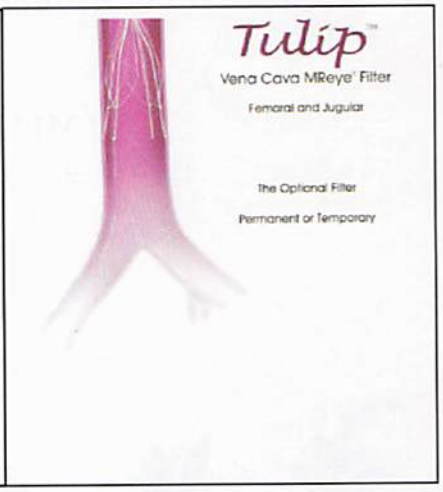

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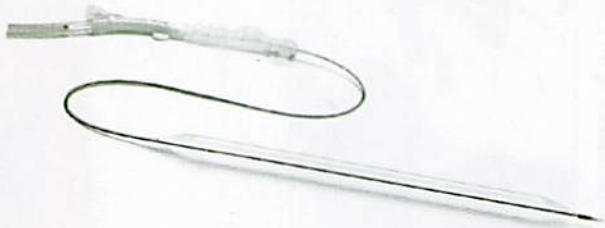

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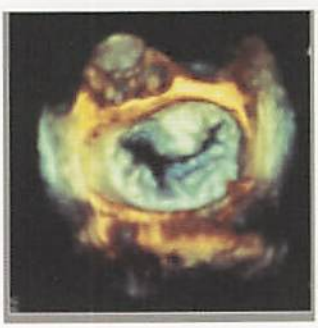

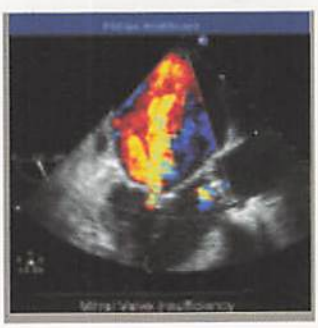

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