

CARDIOLOGY

The CVTS department is well equipped catheterization lab and cardiac OT along with all latest machineries to provide tertiary health care to all cardiac patients coming from different railways & it is functioning excellently since 2012 and touched many milestones in Indian railways over last few years.

Our Cath lab has DSA machine, which is one of the best and latest model machine available in India and it was the second such machine in Mumbai when it was installed. It has facilities for coronary and peripheral angiograms & angioplasties facilities with 3D facility and having additional CT scan facility which we utilize in emergency particularly in CVA patients to rule out cerebral bleed in emergency. The DSA machine has reached its end of life and we are going to have a State of Art machine, which is at its final stage of procurement. Our lab has facilities of IVUS, rota ablator, injector, FFR, and latest real time stent boost for proper deployment of stent and it is equipped with latest electro physiological study & radiofrequency ablation machineries. As all the accessories have reached their end of life, we are procuring all those accessories along with DSA Cath lab in recent future.

Our cardiac OT is one of the well-equipped OT in the city and all the latest surgical accessories are there to deal any complex cardiac surgery with facilities of ECMO, TEG, CELL SAVER, Minimal invasive instruments etc.

Non Invasive Cath lab –we have two high end Echo machines with facilities of 2 D and 3 D echo for both adult and pediatric patients. Other than trans thoracic echo, we have a facility of TEE, dobutamine stress echo, holter monitoring, carotid Doppler, ambulatory BP monitoring etc for both adults and children.

STAFF:

IRHS-

Dr Shishir Kumar Roul. ACHD, Cardiologist

Dr Avinash Arke, Sr DMO, Cardiologist

Dr T Rajesh, DMO, Cardiologist

Dr Ajay Panda, Sr DMO (CVTS Surgeon)

Dr Suvendu Panda, ADMO, Cardiac anaesthesiologist.

Visiting Consultant:

Dr Harish Mehta (Cardiologist)

Dr Ajit Menon (Cardiologist)

Dr Nimit Shah (Cardiologist)

Dr Ameya Udaywar (Electrophysiologist)

Dr Darshan Jhala (Electrophysiologist)

Dr HemantDeshmukh (VascularInterventionist)
Dr Rahul Seth (VascularInterventionist)
Dr MlinidPhadake (Paediatric Cardiologist)
Dr Bhusan (Paediatric Cardiologist).

DNB(NBE) trainee ,Cardiology -3

Sr.Residents:

Medicine- 3
Anaesthesia -3
Surgery- 3

Work load/Annum(average)

OPD-18000.
IPD-5000
Cardiac intervention– 2400
Cardiac Surgeries –300
PAMI (primary angioplasty in MI)- 75
EVLT/Sclerotherapy – 150 cases
ECHO and others -8000

CATH LAB

Services offered

Cardiology:

Coronaryangiography/angioplasty,ROTA,LITHOTRIPSY,IVUS/FFR,EPS/RFA,Pacemaker,ICD,CRTD, CRTP Peripheral angiography and angioplasty, (renal, mesenteric upper and lower limb vessels), IVC filter insertion, Cerebral DSA,ASD/VSD/PDA/ CoA device closure,EVLT, cerebral Aneurysm Coiling, Aortic Graft Stenting, IVC Filter, local Thrombolysis, Perma Catheter insertion,Embolization,TIPS, Sclerotherapy, Pericardiocentesis.Alcohol ablation for HOCM,

CVTS:

Coronary artery bypass grafting, valve repair and replacement, AV fistula creation and repair, aortic aneurysm repair and grafting, pericardictomy,myectomy, peripheral vascular bypass grafting,surgical removal of intra cardiac tumor,surgical correction of ASD/VSD/PDA, epicardial pace maker insertion. myectomy for HOCM.

Work load

STATISTICS OF CASES-CATHLAB

S N	Name of the Procedure	2019	2020	2021	2022	2023	Total Since Installation
1	ANGIOGRAPHY	925	179	567	925	1053	8117
2	PTCA ELECTIVE/PAMI	345	62	252	573	500	3432
3	CEREBRAL DSA	32	6	25	45	57	396
4	CEREBRAL ANGIOPLASTY	0	0	0	1	3	6
5	CAROTID ANGIOPLASTY	6	3	7	11	15	71
6	Vertibral Angioplasty	2		1	1	2	14
7	PERIPHERAL DSA	82	10	53	35	48	561
8	PERIPHERAL STENTING	19	4	18	22	16	214
9	ABDOMINAL AORTA GRAFT STENTING	0	0	0	1	4	10
10	PERIPHERAL POBA	26	5	4	2	6	143
11	DRUG ELUTING BALLOON PLASTY	8	5	1	2	11	45
12	SUB-CLEVION STENTING					5	31
13	PERIPHERAL THROMBOLYSIS/ASPIRETION	6	2	0		9	100
14	IVC FILTER I/R	0	0	0	5	2	34
15	RENAL DSA	4	2	0	8	7	37
16	RENAL STENTING	6	1	4	6	2	35

17	EMBOLISATION	8	2	4		2	45
18	SCLEROTHERAPY				40	55	110
19	EVLT	32	6	10	14	27	292
20	ENDOVASCULAR GRAFT STENT	0	1	1		1	6
21	TAVI	1	0	0	3	10	14
22	TPI				14	21	45
23	PPI I/E	17	5	24	36	36	239
24	CRTD/CRTP/ICD	9	1	4	7	12	56
25	ASD	3	0	0	4	7	21
26	BMV	4	0	2	2	1	16
27	CATH STUDY	3			10	12	28
28	PERM CATH I/R	10		8	52	47	136
29	TIPPS				5	0	10
30	EPS/ABLATION	20	5	18	30	37	220
31	PERICARDIAL SINTESIS				6	8	33
32	OTHERS	196	47	21		38	649
	TOTAL CASES	1764	346	1026	1860	2054	15167

ACHIVEMENTS

*We have so far done about **15000 cardiac intervention** in cath lab and about **2000 surgical procedure** with a better outcome in comparison to universal data so far as mortality and morbidity are concerned.

*We are providing primary angioplasty in myocardial infarction (PAMI) facility round the clock to the patients who suffer from massive heart attack and we have done it successfully in around 350 patients over last 6 years. Our door to balloon time is on around 45 minutes against the internationally target time 60 minutes. Over last 6 years not a single patient was subjected to thrombolysis neither in our hospital nor in Zonal Hospital, CR.

*We are doing all types of coronary interventions like complex coronary intervention which includes left main disease and bifurcation and trifurcation coronary lesions, Rota ablation for calcified lesions and we have not referred a single patient outside for coronary intervention.

JRH is the FIRST cardiac center in Indian railway to perform Trans Catheter Aortic Valve Replacement in a very high risk aortic stenosis patient. So far we have performed TAVR in 12 cases with near 100% success rate. **We are also FIRST** in doing a ROTATRIPSY procedure in Indian railway on 3.3.22 which was done in a patient who was suffering from calcified coronary artery disease.

***For the first time** in Indian railway the organs retrieval for organ transplant was done in our hospital which was initiated and organized by cardiologists JRH.

From June 2019, super specialty course (DNB cardiology) is accredited in CTVS department and **our first student awarded with DrNB cardiology** degree in the year 2022 in his first attempt. At present three more cardiology residents are pursuing their courses.

FOR THE FIRST TIME WE HAVE CONDUCTED DNB CARDIOLOGY FINAL EXAM ON 27.8.2020 SUCCESSFULLY.

*We have many telecast of cardiac interventions nationally and internationally and for the first time in the history of Indian railway we had live telecast of complex angioplasty in INDIA LIVE and NIC in the month of March and April respectively.

*Many national and international cardiologists have visited our Cath lab and performed complex cardiac intervention in our lab.

*We have been successfully doing CTO (chronic total occlusion) workshop in our lab with cardiologists from **JAPAN and NEWYORK** and from various parts of INDIA.

Many LIVE interventions we are performing here which are being telecast inside and outside the country. we have performed cases during INDIA LIVE, NIC, Asia Exchange and recently there were 4 LIVE cases of CTO performed from our Centre on 3rd and 4th June 2023 during IJCTO.

After having our in house cardiac surgeon and cardiac anesthesiologist we are regularly doing pediatric cases and minimal invasive surgeries are being done successfully .

*Recently we have trained more than 100 RPF staffs of central and western railway to provide first aid to sudden cardiac arrest people which was highly appreciated many medias.

* Along with coronary interventions we also are doing all other vascular interventions and We have done more than 600 EVLT and RFA for chronic venous disorder.

*we are doing all the non invasive procedure around 1200 per month without keeping any case pending for next day.

Dr Shishir Kumar Roul performed many complex coronary interventions including left main, bifurcation angioplasty, CTO, ROTATRIPSY, device implantations and peripheral interventions. He has attended many national conference targeting CTO interventions, ROTA ablation and bail out technique in coronary interventions.

Dr Shishir has performed **FIRST ROTATRIPSY** procedure at JRH (which is also FIRST in Indian railway) in a severely calcified coronary artery which is the most advanced and skillful technique in the field of cardiology. He is doing complex procedure like TAVR independently.

His special interest is to implement PAMI programme in JRH and has been successfully over last 6 years and achieved door to balloon time less than 40 minutes. He has set a rare example by opening an totally occluded artery of a patient who has major heart attack with door to balloon **time just 4 minute 16 second**.

Dr Shishir has shared some conferences as national faculty and has delivered many lectures in national conferences on line and international conferences off line. He was invited as a national faculty to share chairs and presented many cases in various renowned meetings like INDIA LIVE, NIC, IJ CTO, Bifurcation club, IPC and CTO conferences etc. He is guide and co guide of residents of DNB medicines and cardiology.

Dr Shishir has awarded with **Railway Board award** and **GM/WR award** for providing quality best, cost effective and guidelines based treatment to all railway beneficiaries and for efforts in working with RAJBHASHA.

Dr Shishir has associate fellowship from European Society of Cardiology. Dr Shishir is also an associate member of American college of Cardiology.

Dr Shishir has bagged the **FIRST PRIZE AWARD** among all cardiologists in Mumbai in a complex case presentation competition.

SPECIALIZED TRAINING done in

1. Cardiovascular angiography and interventions
2. AMI course and complex bifurcation stenting work shop
3. Bailout tips and techniques during PCI.
- 4- Latest update in physiological study of coronary plaques
- 5- HOSPITAL MANAGEMENT, NAIR. 20-07-20 to 24-07-20

Research article-

Study of prevalence, etiology, clinical features and treatment of patient admitted at Northern Railway central Hospital- 2009-12

Prognostic significance of atrial fibrillation in patient with heart failure-2014-17

Publication in National and international journal

1) Muni Venkatesa Reddy,**Shishir Kumar Roul**,Saurabh Ajit Deshpande.Perioperative myocardial infarction in a case of mitral valve replacement – rare complication of a common procedure – Journal of Indian College of Cardiology.December 3,2019,ip:10.232.74.26.

2) **Shishir K. Roul**,Shubhanshu Kumar,Muni Venkatesa Reddy,Saurabh Ajit Deshpande.Aggressive emergency interventional management in a case of intra operative massive pulmonary embolism- Journal Indian college of cardiology- April 20,2020,IP :10.232.74.22.

3) Muni Venkatesa Reddy,**Shishir Kumar Roul**,Saurabh Ajit Deshpande.Successful use of venovenous snare to fix wire in collateral vein for proper placement of the left ventricular lead during cardiac resynchronization therapy, a case report- European Heart Journal **10 october 2019.**

4)**Dr Shishir Kumar Roul** et al.efficacy and safety of remdesivir in indian patients with moderate to severe covid-19: results from the open label period of a phase ii, randomized controlled trial-January 2022.International Journal of Scientific Research- volume II, issue -01.DOI:10.36106/ijsr/8408067

5)**Shishir Kumar Roul**, Muni Venkatesa Reddy, Saurabh Ajit Deshpande. A Cath lab nightmare – piggybacking of stents. Indian Heart Journal cardiovascular, Volume 6, Issue 3, July–September 2022, Pages 126-129. doi.org/10.1016/j.ihjccr.2022.08.001

6) **Shishir K Roul**,DNB;Avinash Arke,DNB;Saurabh Ajit Deshpande,DM. ERRONEOUS Rapid Exchange balloon inflation during coronary angioplasty in a male patient in his 70s with chronic stable angina. JAMA Cardio,August 30,2023. Doi:10.1001/jamacardio.2023.2658.

Scientific lectures on

- 1- Chest pain to AMI-National nursing conference, railway chapter, NAIR on Feb 2019.
- 2- Basic ECG- Anaesthesiologist conference, Mumbai –April 2019.
- 3) ACS, arrhythmia after MI-All India Physician conference, Railway chapter,JRH Dec 2019.

Dr Avinash Arke joined JRH August 2021 and working as Sr DMO. He is a skilful operator for performing both paediatric and adult cardiac interventions. He has a special interest in structural interventions for congenital heart disease.

Training:

1. He is trained in Paediatric Cardiology and cardiac intervention, he has done FNB Paediatric cardiology from Madras Medical Mission.

Research

1. Sreeja Pavithran, Kanagarajan Natarajan, Bijesh Vishwambaran, Avinash DayalalArke, Kothandam Sivakumar; Preliminary evaluation of a micro transesophageal probe inneonates and young infants undergoing surgery for congenital heart disease; annals of Pediatriccardiology, 2014: vol 7 issue 3.
2. Arke, Avinash & V, Bijesh & P, Pria & AP, Bharath & P, Sreeja & Sivakumar, Kothandam& Singhi, Anil. (2014). Retraining of regressed left ventricle by transcatheter stenting of a closed ligementum arteriosum in simple transposition of great arteries. Annals of Pediatric Cardiology. 7. 21-118.
3. Avinash Arke; COVID-19 and Cardiovascular Disease: A Review; Vidarbha J Intern Med, 2021:30, 50-57.
4. Arke AD, Babu PM, Borkar AM. Estimation of elevated systolic Pulmonary artery pressure using right ventricular isovolumic relaxation time. Vidarbha J Intern Med 2022;32:15-20.

PAPER PRESENTATIONS

Anesthetic and intensive care management of left main coronary artery to main pulmonary artery fistula diagnosed in postoperative case of tetralogy of fallot-- IACTA GOA on 7/2/2020.

Comparative study of intranasal dexmedetomidine v/s midazolam foR sedation of pediatric patients during transthoracic echocardiography AT JANAK MEHTA AWARDS - IACTA GOA on 8/2/2020.

Evaluation of efficacy of ultrasound in detecting correct placement of central venous catheter and determining the elimination of the need for chest radiography- Dr. V. A. Punnoose Young Scientist Award THE SOCIETY OF ANAESTHESIOLOGY DELHI AND NCR BRANCH- on 19/12/2020.

FUTURE PLAN FOR DEPARTMENT.

- Installation of New DSA cath lab and its accessories like ROTA,IVUS,EP system, OCT,IVUS etc.
- Plan for Robotic cardiac intervention and surgery/ventricular assist surgery(LVAD/RVAD)
- To start LASER procedure for severely calcified lesions.
- Making availability of IMPELLA for complex coronary interventions.
- Availability of a full time perfusionist in the department
- To high light and focus JRH at national and international level more and more .

