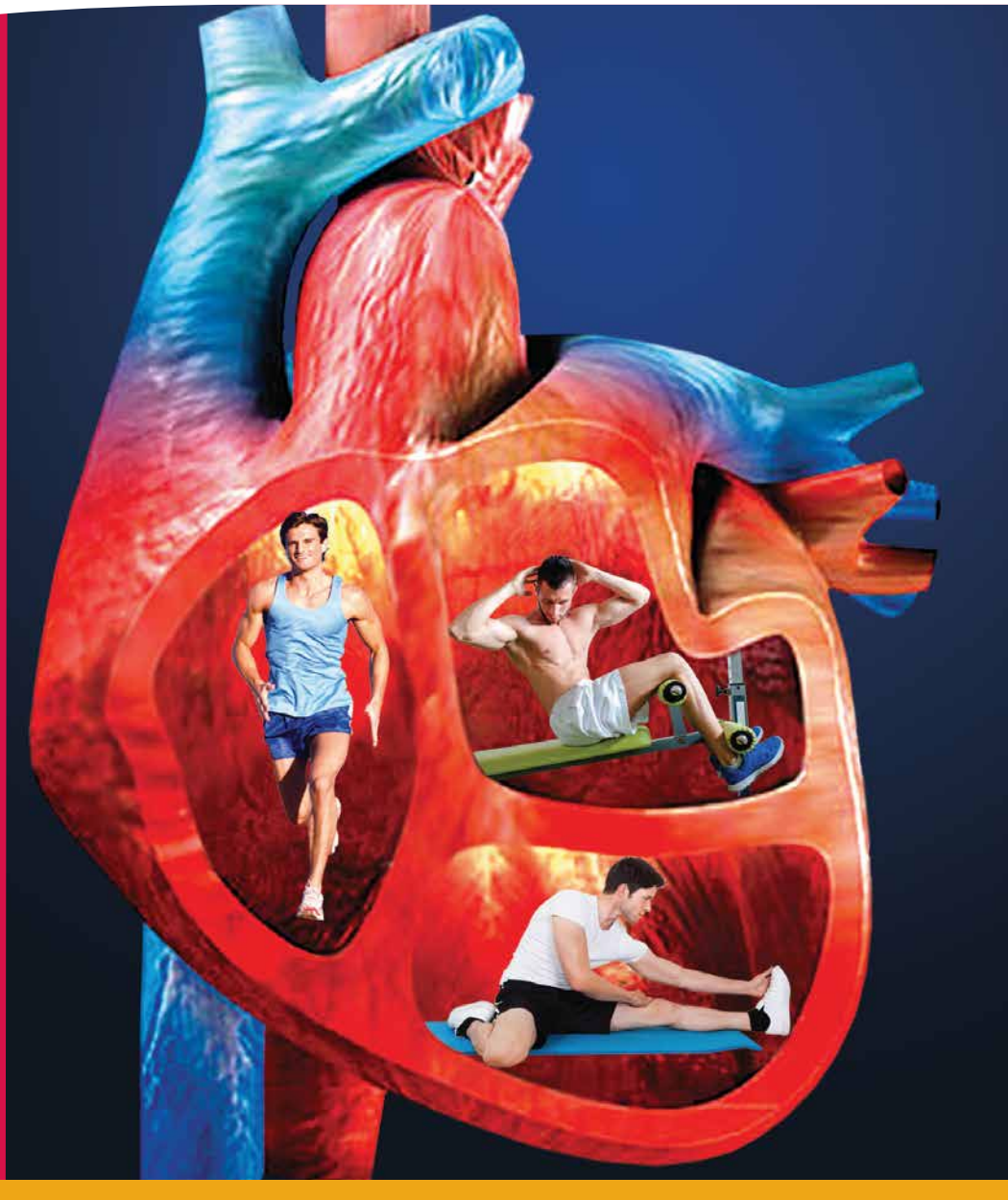
MIOT International

MARUTHUVA VIVEKAM



PLUS

Rewiring the Heart

Do you really need that Stent?

Live Heart Healthy

July 2015 Vol:18

STAY HEART SAFE

With Advanced Interventional Cardiology at MIOT International

From the Chairman's Desk

Dear Friends,

Greetings! Most of us are familiar with Stress, regardless of our age, jobs or social status. No one is immune to it. And as a result, Cardiovascular Disease is the fastest growing lifestyle disease in India. For most of us, Heart Attack is the face of Heart Disease. However, Heart Disease can affect every part of the heart including our valves, electrical circuits, blood vessels and heart muscle. Often these are left untreated, because we don't recognise the symptoms. It can cause permanent damage that impacts our quality of life. ***But it does not have to be this way****.*

The MIOT Centre for Interventional Cardiology is one of the few dedicated centres in the country for this challenging speciality. We have experienced super specialists for every branch of Heart Disease, who use the latest techniques, drugs & devices to intervene - prevent, detect and treat it at any stage - ***without open surgery****. They work as a seamless team to give our patients complete solutions with excellent outcomes.*

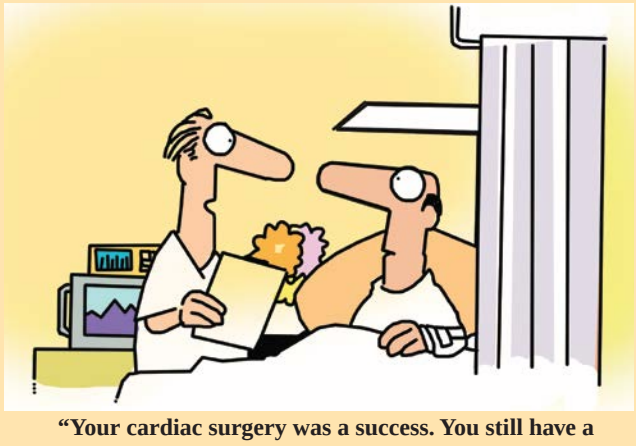
This issue of Marthuva Vivekam focuses on the capabilities of our dynamic team at the centre. I hope that you will find it interesting, informative and useful when it comes to dealing with matters your heart.

Warm regards,

Mrs. Mallika Mohandas
Chairman, MIOT International

Laughter is the Best Medicine

"If we quit smoking, our risk of heart attack will go down 30%. But if we quit 5 times, our risk will go down 150%."



"Your cardiac surgery was a success. You still have a song in your heart. But we had to remove two verses and one refrain from the chorus. "

Matters of the heart...

For the past few years, you have probably seen various campaigns in the media exhorting you to take care of your heart's health. They are not being alarmist. They are doing so because Cardiac Disease is the fastest growing lifestyle disease in India today.

As you have probably heard or been told, timeliness is a critical factor in heart care. This is true. But it is equally important to treat **accurately and completely**. Doing so calls for the right modalities and the right people, in the same place. This is what makes all the difference to a patient, not just in the short term but *in the long run* as well.

Interventional Cardiology is now the preferred mode of treatment for most heart conditions, the world over, as it allows us to treat without open surgery. In addition to obvious cost benefits, it offers patients the benefits of less pain and trauma, less risk of infection, and shorter recovery time.

When we set up the MIOT Centre for Interventional Cardiology, our goal was to give our patients the benefits of **Advanced Interventional procedures** which are patient friendly, treat effectively and completely, even as they protect patient's long term quality of life.

These advanced procedures require specialists with training and years of hands-on experience. Our team of Interventional Cardiologists with expertise in every area of the heart have therefore been **handpicked** for their experience at leading Cardiac centres around the world. They are supported by our state-of-the-art facilities to detect, track and treat heart disease.

MIOT is the **only centre** in India that performs Percutaneous Valve Replacements & Repairs. We are one of the few centres in India that offer **Paediatric Electrophysiology** to correct Arrhythmia in children.

The centre has already had a great start with innovative solutions in particularly challenging cases. I am confident that the team at the MIOT Centre of Interventional Cardiology will continue to break new ground and return our patients to healthy, happy lives.

I wish them, and you, all the very best.

Dr. Prithvi Mohandas
Managing Director, MIOT International

MIOT Centre for Interventional Cardiology

Expert. Comprehensive. *Together.*

Lead Article

Healthcare providers have always emphasized the importance of Timeliness in treating heart disease. But it is equally important to treat **completely and accurately** because your heart is a precise collaboration of muscle, valves, electrical circuits and blood vessels. The system is so intricate that what affects one part will have a domino effect on how the others function.

It is an undertaking that requires expertise, experience and the latest modalities - **in one centre**.

Only at MIOT International

This is exactly what the **MIOT Centre for Interventional Cardiology** offers patients. It offers **specialist** care for every type of heart condition: Coronary artery disease, Valve problems, Arrhythmia (irregular heartbeats) & Heart Failure. It is led by a team of super specialists for each branch of the speciality. They work together, pooling experience and expertise garnered from leading international centres. Armed with cutting edge tools & techniques, the latest devices & drugs, they **intervene – to prevent, diagnose, or correct** all types of cardiac conditions, at any stage - **without open surgery**.

Our specialists focus on offering solutions that are patient friendly, treat completely and protect the patient's **long term quality of life**.

Dept of Coronary Interventions

It handles all conditions that affect blood flow to the heart such as **blocks** from clots or plaque build-up, or calcification of the arteries . Blocks are removed through Angioplasty in state-of-the-art Digital Cath labs or with carefully drawn up medical plans. Our specialists use advanced interventional procedures that are offered at very few centres in India to widen heavily calcified arteries, remove stubborn blocks, and place stents in difficult locations.

Interventional specialists normally perform a Coronary Angiogram to access and diagnose blocks through the patient's wrist or groin. At MIOT, our skilled specialists mostly use the **radial artery** (in the wrist) which is more effective and comfortable for the patient. They use advanced procedures such as Fractional Flow Reserve **(FFR)** to confirm diagnosis before treatment and Optical Coherence Tomography **(OCT)** to ensure 100% accuracy during treatment. We offer the widest range of stents, including drug coated stents and bio-absorbable stents. Hence, our patients receive solutions that are safe and longterm.

Lead Article

Dept of Electrophysiology & Devices

Arrythmia, which is **rarely recognized** among the public and medical community, is an irregular or out-of-sync heartbeat that occurs when the electrical systems of the heart don't work properly. The dept, with expert Electrophysiologists, is equipped to diagnose and treat all types of arrhythmias in both adults and children. In fact MIOT is the only centre in India to offer **Paediatric Electrophysiology**.

Our specialists first determine the source and cause of the arrhythmia through a detailed study of the patient's heart's circuitry in MIOT's state-of-the-art Electrophysiology lab. The studies are then used to chart an accurate treatment course, which could include the latest techniques or devices. Patients have a dramatic recovery, for life, with no symptoms of their earlier disease.

Dept of Structural Interventions & Percutaneous Valves

Valves are traditionally treated through open heart surgery with a long recovery period for patients.

Interventional Specialists at MIOT use the latest techniques and devices to treat all mitral, pulmonic, and prosthetic valve diseases through **keyhole procedures,** even in patients who are considered high-risk for open surgery. They repair or replace faulty valves and treat obstructions ,leaks and congenital valve defects with outcomes that match international standards. Procedures are often done under local anaesthesia and require short hospital stays.

MIOT International is the **first centre** in India to have a dedicated department for such valve procedures.

Dept of Heart Failure & Cardiac Transplantation

Heart failure occurs when the heart cannot pump blood the way that it is supposed to. Interventional Specialists at MIOT adopt a collaborative

approach with patients while drawing up treatment plans to alleviate symptoms & restore them to a better quality of life - **without open surgery**. Depending on the cause and stage of heart failure, specialists prescribe medications, perform coronary interventions, valve repairs & replacements, and implant devices to regulate heart rhythm and assist the pumping of blood.

In some cases, these interventions allow the patient to lead a **normal** life with close monitoring. In others, they are a bridge to help the patient while waiting for a **Cardiac Transplant**.

Treatments & Procedures Offered

Coronary Disease

- Primary Angioplasty
- Elective Angioplasty
- Complex Angioplasties
  - Rotablation Angioplasty
  - By- pass Graft Angioplasty
  - Left Main Angioplasty
  - Multi-vessel Angioplasty
- Chronic Total Occlusion (CTO) Angioplasty (Antegrade or Retrograde)
- Special Imaging Guided Angioplasty with:
- Optical Coherence Tomography (OCT)
- Fractional Flow Reserve-Assessment (FFR)

Structural Heart Disease

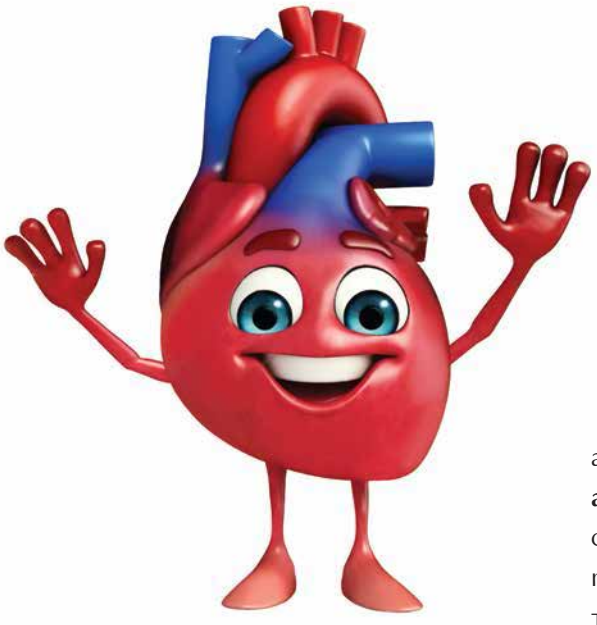
- TAVI - Transcatheter Aortic Valve Implantation
- Percutaneous Valve In Valve Implantation
- Left Atrial Appendage Closure
- Mitra-Clip
- Percutaneous Trans-Mitral Commissurotomy (PTMC | BMV)
- Balloon Aortic Valvuloplasty (BAV)
- Balloon Pulmonary Valvuloplasty (BPV)
- Alcohol Septal Ablation
- Atrial Septal & PFO Device Closure

Arrythmia

- Cardiac Resynchronization Therapy (CRT)
- Implantable Cardioverter Defibrillator (ICD)
- Permanent Pacemaker Implantation (PPI)
- Electro Physiologic Studies & Radio Frequency Ablation (EPS + RFA)

Heart Failure & Cardiac Transplantation

- Cardiac Resynchronisation Therapy (CRT)
- Left Ventricular Assist Device (LVAD)
- Endomyocardiac Biopsy
- Right heart catheter studies



Know Your Heart

*The heart is the **body's engine room**, responsible for pumping around 7200 litres of life-sustaining blood via a 60,000-mile-long (97,000-kilometer-long) network of blood vessels. It works ceaselessly day in and day out, beating 100,000 times a day, 40 million times a year-in total, clocking up **three billion heartbeats** over an average lifetime!*

Your heart is a muscular organ about the size of your fist. It weighs between 280 - 340 gms in men and 230 - 280 gms in women. It is located just behind and slightly left of your breastbone.

What makes the Heart tick?

Your heart is made up of **four chambers** - the left atrium, right atrium, left ventricle and right ventricle. The left half is responsible for sending oxygen-rich blood to almost all the 75 trillion cells in the body, while the right half receives deoxygenated blood and sends it to the lungs. Your **arteries and veins,** which are responsible for carrying blood from and to your heart, make up the **coronary system**.

The 'pumping' of blood is stimulated by electric impulses generated by special cells - **myocytes** - in your heart. In fact, the first heart cell starts beating at around four weeks.

Each heart beat is a cardiac cycle. When your heart contracts it makes the chambers smaller and pushes blood into the blood vessels. After your heart relaxes again the chambers get bigger and are filled with blood coming back into the heart. The **4 heart valves** (the aortic, mitral, tricuspid and pulmonary valves), which ensure that the blood flows in only one direction, are **gates at the chamber openings**. The heart beat we hear is actually the **clap of the valves** as they close.

More than one face to Heart Disease

Most of us have heard of heart attacks - they are only one face of heart disease. However heart disease can affect any part of the heart system: its coronary pathways, valves, electrical circuitry or the muscle itself. And because the system is so intricately connected, what affects one part will have a domino effect on how the others function. Often taking a toll on your day to day life. Some heart diseases may be inherited, while others are lifestyle related.

Did You Know

Are YOU at risk for Heart disease?

- **All sugar isn't sweet.**
  Watch out if you are diabetic!
- **Are you under pressure?**
  High Blood Pressure, which damages your arteries, is the **main cause** for heart disease in India today.

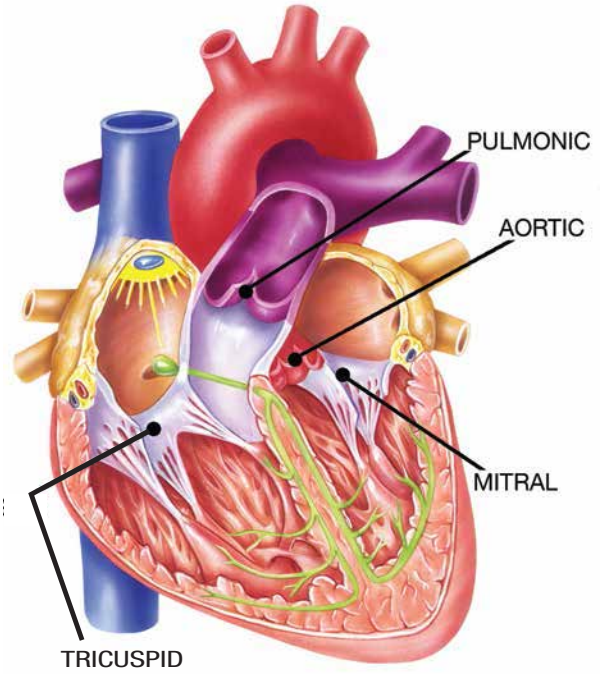
- **Smokers are 6 times more likely to suffer a heart attack.**
  If you smoke, **NOW** is the time to quit.
- **Your weight matters.**
  If you have a BMI that is **> 30**, and accumulated weight around your waist, speak to your doctor about weight loss options.

- **Couch potatoes and desk hoggers beware!**
  Even with no other risk factors, low physical activity puts you on the **target list**.
- **Know your history.**
  Know you are in the **'high risk'** category if your family history reveals Heart Disease or sudden deaths for unexplained reasons.

Article

Faulty Valves?

A brief look at Mitral Valve Stenosis, a rare valve condition, and its treatments.



Ambika, 29 yrs, was a first time mother-to-be. In her 8th month, the pregnancy had been textbook except for constant breathlessness, exhaustion & swollen feet, which everyone told her was normal. Scans & tests assured her that her baby was well. But her shortness of breath & fatigue worsened, affecting the simplest daily activities. Finally, her husband insisted she see a Cardiologist - and brought her to MIOT International.*

Double Jeopardy

There was nothing untoward in Ambika's medical reports, except for her symptoms. But when her medical history revealed Rheumatic Fever as a child, we suspected a damaged valve, an unfortunate effect of rheumatic fever. Tests revealed **Mitral Stenosis**, a rare condition. Her narrowed mitral valve was compromising blood flow into her heart's main pumping chamber. Left untreated, it was a dangerours for Ambika and her unborn baby.

Valvular Heart Disease - in simple terms

As you know, your heart has four valves at the entrances to its four chambers. They keep your blood flowing in one direction only - forward. In people with Valvular heart disease, there is a defect in one of the valves.

There are two major categories of valve disease, **Valvular Stenosis** and **Valve Insufficiency or Regurgitation**.

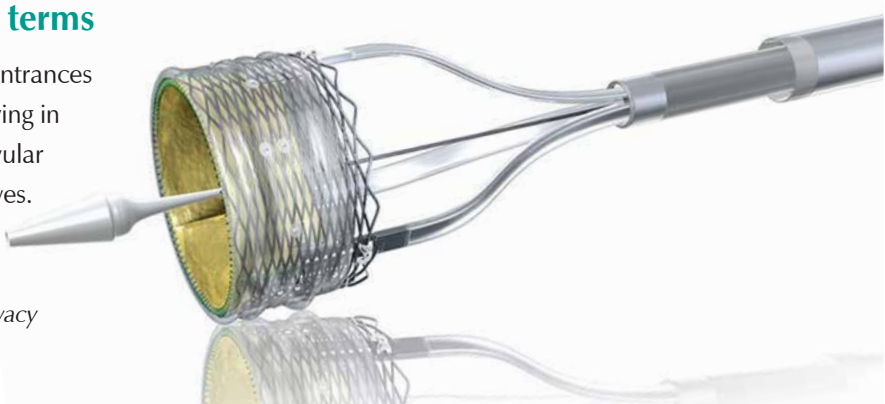
A stenotic valve doesn't open properly, forcing the blood to back into the adjacent chamber. In Valve Insufficiency, it doesn't close properly, allowing the blood to leak back into the chamber that it exited. In both cases, **the heart is forced to work harder** to pump blood, which leads to damage of the heart muscle. Of the four valves in the heart, the mitral and aortic valves are most frequently affected by valvular heart disease. Being relatively uncommon, there are few centres with the specialists & modalities to treat valvular heart disease.

Repairing the Heart's Gateways

In cases such as Ambika's, the damaged valve can be replaced with a metal one, but it requires the patient to be on lifelong blood thinners. Most specialists, around the world, delay a replacement, for as long as possible with a **Percutaneous Trans-Mitral Commissurotomy (PTMC)**. PTMC, which can last upto 10 years, is a **pinhole** procedure to open the valve and relieve the narrowing. However, it demands a great deal of accuracy & experience as any mistakes can be fatal.

Protecting mama and baby

There was no question of open surgery given Ambika's pregnancy. Our specialists all agreed that the PTMC procedure would be safer and more effective. They accessed Ambika's heart chamber through her femoral vein (thigh) and passed a thin wire through, into the left atrial chamber. They then used a balloon to split the valve open. The procedure was done in 15 mins, with her abdomen protected by a thick lead sheet the entire time. She went home the next day. Exactly 4 weeks later, Ambika gave birth to a healthy baby boy.



**patient's name has been changed to protect her privacy*

Do you really need that stent?

Angioplasty with stenting has been touted as the fail-safe treatment option for a cardiac block by many cardiac centres for the last few years. However, there are also those who disagree - and with good reason. Not all heart blocks require a stent. But as a patient, when faced with a difficult choice, how can you decide? ***By having all the facts in hand****. One of MIOT's leading Interventional Cardiologists talks about Coronary Artery disease, stenting & its limitations, and how it's now possible to foolproof treatments for heart blocks.*

Cutting Edge

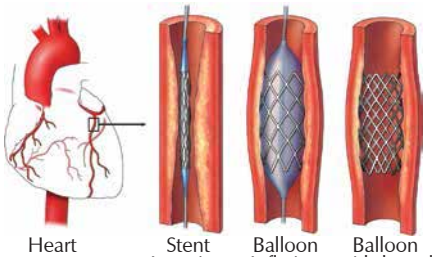
Q: What is Coronary Artery Disease?

A: Coronary artery disease is the most common type of heart disease, primarily because it is closely related to our lifestyle choices. It develops when your coronary arteries, which are the blood vessels that supply your heart with blood, become damaged, and restrict or cut off blood flow. This happens because of deposits of plaque (bad cholesterol), calcification or hardening of the arteries, and inflammation. Left untreated or treated incorrectly, it damages the heart muscle permanently. When the blood flow is cut off completely in the particular artery, it triggers a heart attack.

Q: How is it treated?

A: The solution, of course, is to remove the block and restore blood flow. The 3 most common ways to do this is with 1. Open surgery; 2. Angioplasty, where we remove the block through the radial artery (wrist) or femoral artery (groin) and sometimes put in a stent (a metal cage) to keep the artery open; or 3. Clot-busting medication to dissolve the blocks. The decision is made by the treating specialist and it depends on the type, severity and location of the block.

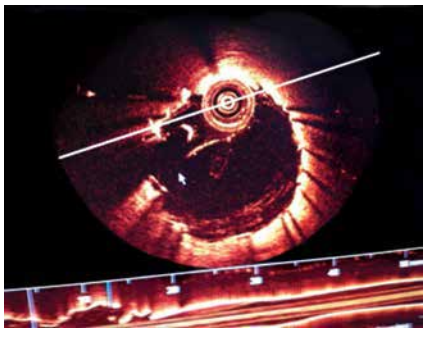
Q: Isn't stenting always done with angioplasty?



A: Not necessarily. It depends on the type and extent of the block. What you must understand is that the angiogram shows the block in 2D images, but it does not give us any additional information from inside the affected artery. So at MIOT, we also use Optical Coherence Tomography (OCT) and Fractional Flow Reserve (FFR), which are advanced tools, to give us the 'inside' story for the most effective treatment.

Q: What is OCT?

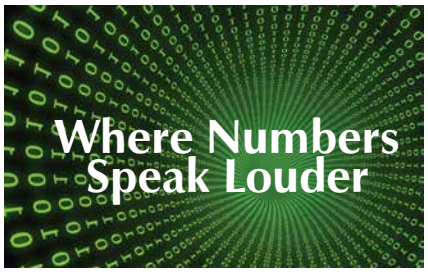
A: OCT is a technique that uses a special catheter and uses infra-red light to give us 3D images from inside the artery. It can tell us what type of



block it is and the artery's dimensions if a stent is needed. If we do put in a stent, we also use OCT to check its fit and placement.

For example, we recently had a **67 year old man** brought in with chest pain. The angiogram revealed that he had narrowed artery. But it was the OCT-guided Angioplasty that revealed the presence of calcium. Using a balloon to open up the artery, (which would have been done at most centres) would not have worked for him. Instead we did a **Rotablation procedure**, an advanced technique using a diamond tipped drill that spins 100,000 times/min to unblock the artery.

We have to be very precise during this procedure or we could damage its delicate walls, so we used the OCT to ensure that only the block was removed. Then, we put in a stent and used the OCT to ensure that both its fit and placement were 100% accurate.



Q: What does FFR reveal?

A: If OCT lets us see inside the patient's artery, FFR tells us what the conditions are within. FFR is done after the angiogram. We thread a pressure sensitive wire into the affected artery and it gives us readings of the blood pressure and blood flow within. A comparison can then be made between the blood flow before & after the block, which tells us the exact percentage of the block, a key consideration in choosing the right mode of treatment. The globally used cut off value (ratio) is 0.8. So if the value is below 0.8, then the blood flow is reduced, and the patient needs a stent or bypass surgery. And if it is above 0.8, it means that there is no significant blood flow reduction, and therefore there is no need for a stent or surgery.

FFR helps us avoid unnecessary stenting or surgery where medication will work effectively.

Q: Can you give an example of such a case?

A: Sure! We recently had a 52 year old man come in with chest discomfort & heaviness and shortness of breath. The angiogram confirmed that there was a block in the artery. So, did he need a stent or would medication do the trick? It was a borderline case where the information from the angiogram was insufficient. We used FFR and the reading was 0.89. This meant that he could be treated with medication, which was very good news for him.

Q: What are the risks of getting a stent?

A: One of the key considerations in a stent is its size and fit. If either of these is off by even the smallest degree, it could lead to re-blocking and require another procedure. Patients with stents are usually given blood thinning medication for a prolonged period to counter the risk of clots. Infection and heart attack are other risks.

Having said that, in cases that warrant them, they are very effective. At MIOT we also use drug-coated stents and the

latest bio-absorbable stents which eliminate the need for blood thinning drugs, and are safer.

Q: Any last advice to patients and caregivers with regards to heart care?

A: Interventional Cardiology treats most heart conditions at any stage, without open surgery. However, in this speciality, experience is as vital as expertise, so look for a centre that offers both. Do your homework thoroughly so that you can be assured that you or your loved one is getting correct and safe care.

Help your Heart!

Tips for heart healthy living !

Watch your numbers

Keep an eye on your - cholesterol, blood pressure & weight.

Get your blood pumping

Getting even as little as 30 minutes of moderate exercise on most days reduces your risk.

Cut saturated fat

Choose semi or low fat dairy options and lean meats. Also boil or steam foods rather than frying them.

Cut the salt

Lowering your salt intake by as little as 1 tsp a day can make a difference.

Choose whole grains over refined

Whole grain wheat flour, brown rice and oatmeal have fewer calories and high fiber content, which are good for your heart.

Get your 5 A DAY

Try to eat 5 portions of fruit and vegetables a day. Adding dried fruit to breakfast cereal and veggies to curries are healthy options you can try.

Rewiring his Heart's Circuits

Others had declared him 'End-stage'. Then, MIOT's specialists rose to the challenge & restored his failing heart, with 'Cardiac Resynchronisation Therapy', a cutting edge interventional procedure.

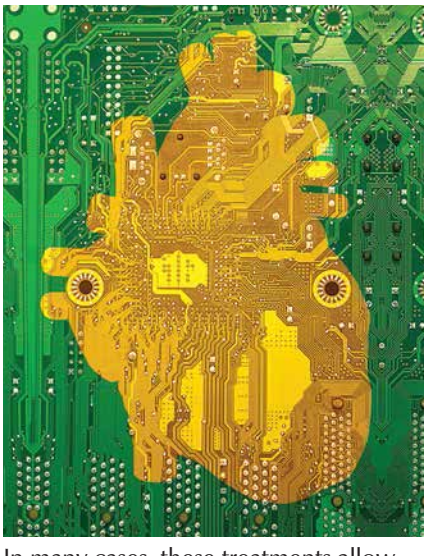
His heart was functioning at less than **20%**. He'd had a heart attack, luckily at a hospital, and was shocked out of it. Confined to bed, his lungs were filled with fluid. Even the basic act of breathing took effort.

This was 65-year old Mr Nair's reality when he was referred to the MIOT Centre for Interventional Cardiology. A combined assessment by our specialists from the Dept of Heart Failure & Cardiac Transplant and the Dept of Electrophysiology & Devices revealed that he had **Dilated Cardiomyopathy**, a disease of the heart muscle. The defective muscle was hampering his heart's ability to pump and also causing **dysynchrony** in his heart's electrical system. Together, they had resulted in heart failure. Was improving his quality of life a realistic scenario?

An update on Heart Failure

Most cases of heart failure are caused by **coronary heart disease**, although it can also be brought on by valve disease, viral infection, toxins and congenital defects. When the blood flow to the heart is compromised in any way, it causes the muscle to 'die' resulting in **scar tissue**. The electric circuits in these areas are affected leading to impaired pumping. **In this case**, the heart muscle itself had thinned and stretched, hampering its ability to pump blood.

Depending on the cause for the heart failure, it can be treated with *medications, interventions to clear blocks, devices to assist pumping and stimulate the heart's electrical system.*



In many cases, these treatments allow patients to live fairly normal lives under the watchful eye of their specialists. In others, they are a **bridge to a cardiac transplant**.

Tough but not impossible

The solution, in Mr. Nair's case, lay in **'rewiring'** his heart completely with Cardiac Resynchronisation Therapy **(CRT)**, an advanced interventional procedure. It would improve his heart's ability to pump using electrical pulses to coordinate the working of both his ventricles. Monitoring his heart's rhythms to reduce the chances of life-threatening **arrhythmias** was critical.

The Cardiac Electricians get to work

The first step in the treatment plan was to **completely map** Mr. Nair's current heart circuitry.

Our expert Electrophysiologists did this in MIOT's state-of-the-art Electrophysiology lab. They used the circuitry layout to mark out points to implant the leads which would stimulate his heart's chambers.
A challenging and incredibly precise undertaking by any definition. The severity of his condition meant that they needed to stimulate his heart muscle from as many as **17 points**. This was done with a 17 vector biventricular pacemaker, which was pre-programmed to monitor his heart activity and ensure synchronised pumping.

An exacting process

Each lead was painstakingly and accurately placed during a keyhole procedure, according to the detailed plan that was worked out. Then, they were connected to the pacemaker device. The intricate procedure took **2 ½ hours**. Our specialists also implanted a Cardiac Defibrillator **(ICD)** to protect Mr. Nair against deadly heart rhythms, a potential complication in such cases. All under minimal anaesthesia!

Had it worked? They found out shortly, when tests confirmed that his heart function had increased to over **60%**! Even better, four weeks later, Mr. Nair was back to his favoured pastimes of driving and painting.

Article

In my Own Words

Picking up the pace in my heart

How MIOT's specialists restored my heart beat.

I have lived with heart disease for a significant portion of my life. I had undergone surgery to replace two of my valves some years earlier. The surgery was a success, but as a result I occasionally set off airport scanners. I also had to take blood thinning medication for the rest of my life to counter the risk of clotting. However, that was not the end of my heart problems.

The domino effect

My valve disease had taken a toll on other parts of my heart as well. It had affected my heart's in-built pacemaker, which controls and maintains heart rate. Over time, it became so bad that my heart was barely beating. I found myself back in the hospital.

The ECG showed my heart beat to be a mere **20 beats/min**, so low that my life was in jeopardy. My heart's chambers had also become enlarged, an effect of my earlier valve disease. The only solution for my failing natural pacemaker was to implant a **new artificial one**. However, given my condition and heart disease history, this was going to be quite a challenge for my doctors.

Undeterred by complexity

My doctors at MIOT were unfazed by the challenges that my case presented. They told me that they would have to stop my blood thinning medication to put in the pacemaker. This would reduce the threat of excess bleeding but stopping the medication meant there was a risk of clot formation. **Timing** was going to be key to restoring my heart, but they assured me it could be done. Their confidence rubbed off and I agreed to the procedure.

Without complications

The procedure went off without a hitch. The specialists first implanted the two lead wires at locations that they had previously identified through a vein under my collar bone. They were then attached to the **battery pulse generator**, which was placed under my collar bone through an incision. All with just local anaesthesia. Before I knew it, we were done and I was being wheeled out.

I was monitored closely for the next couple of days. There were no complications. My heart rate improved immediately. I went home **5 days** after the procedure feeling better than I had in months. You could say I had a new spring in my step once again!

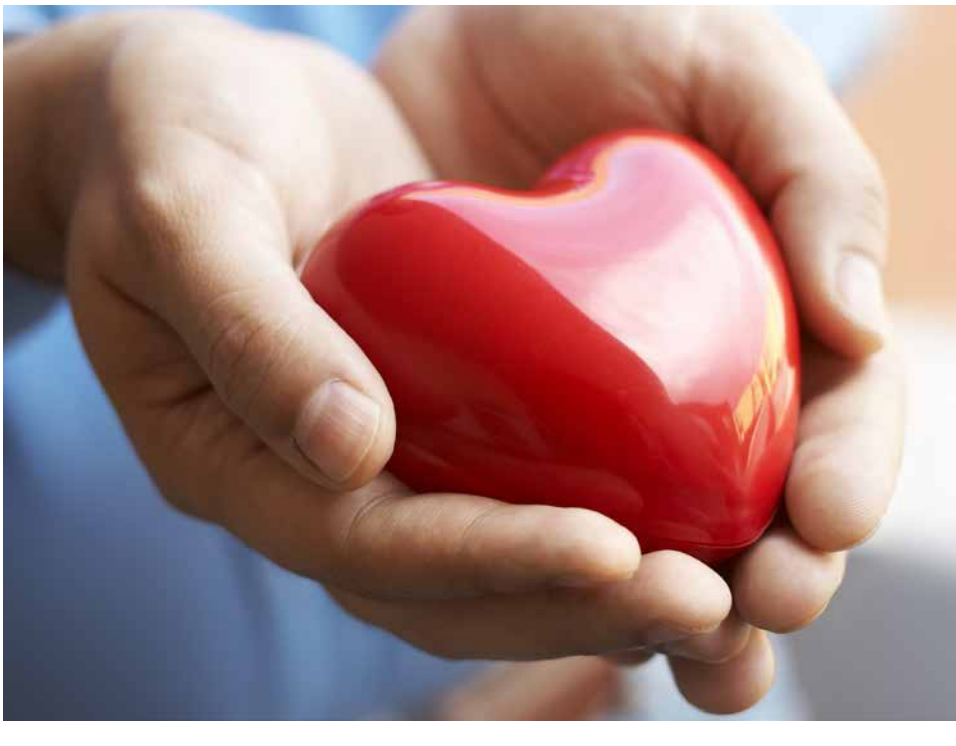
- Mrs Ramya Venkatakrishnan*, 58

*name changed to protect patient's privacy

A note on Pacemakers

A pacemaker is a small device that is placed under the skin near your heart to help control your heartbeat. It helps to regulate an abnormal heart beat and keep your heart functioning normally. An implanted pacemaker usually has two parts - a pulse generator and leads. The pulse generator is metal container that houses a battery and the electrical circuitry that regulates the rate of electrical pulses sent to your heart. The leads are 1 - 3 flexible, insulated wires, which are each placed in a chamber(s) of the heart and deliver the electrical pulses to adjust the heart rate.

Older pacemakers were made of metal and therefore non-MRI compatible. Newer pacemakers, like the one used in some of our patients are MRI-compatible, which allow safe MRI evaluation.



Heart Disease has many faces. A Heart Attack is only one of them.

For most of us, Heart Disease 'starts and ends' with Heart Attacks that begin with chest pain, strike suddenly and need emergency care! We remain unaware that heart disease can affect every part of the heart - **muscles, valves, electrical circuits and blood vessels.** Most of the time, they throw up signals that we don't recognize, and hence, remain untreated. The one thing that binds them? They all damage our heart.

The good news

Fortunately all heart disease **builds over time** - be it Coronary disease, Valve problems, Arrhythmia (irregular heartbeats) or Heart Failure. Today the most minute changes that it makes in any corner of your heart can be detected and corrected with Interventional Cardiology, the preferred mode for diagnosis and treatment, across the world. **Provided the changes are picked up and interpreted accurately.**

No room for doubt

This can only happen in a specialist centre such as the **MIOT Centre for Interventional Cardiology,** which offers all branches of the speciality. Where our team of experts in different areas of the heart use world-class imaging modalities, the sophisticated laboratory and our state-of-the-art Electrophysiology lab to pick up hidden or growing problems. Without causing you discomfort or taking up too much time.

It all comes down to you

If you are given a clean chit, all you need is a lifestyle session to stay 'Heart Healthy'. If there are any red flags, our specialists will sort it out in consultation with you, using the latest techniques, devices and drugs that maybe needed. But all the specialists, technology and drugs in the world are no good - **unless you take that first step to get the complete picture.**

MIOT Centre for
Interventional Cardiology
Complete, Advanced Cardiac Care

MIOT International

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