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MARUTHUVA VIVEKAM

Doctors Advice - For a Healthier Life

From Hole in the Heart to Whole Heart

Novel option to open surgery for blue babies

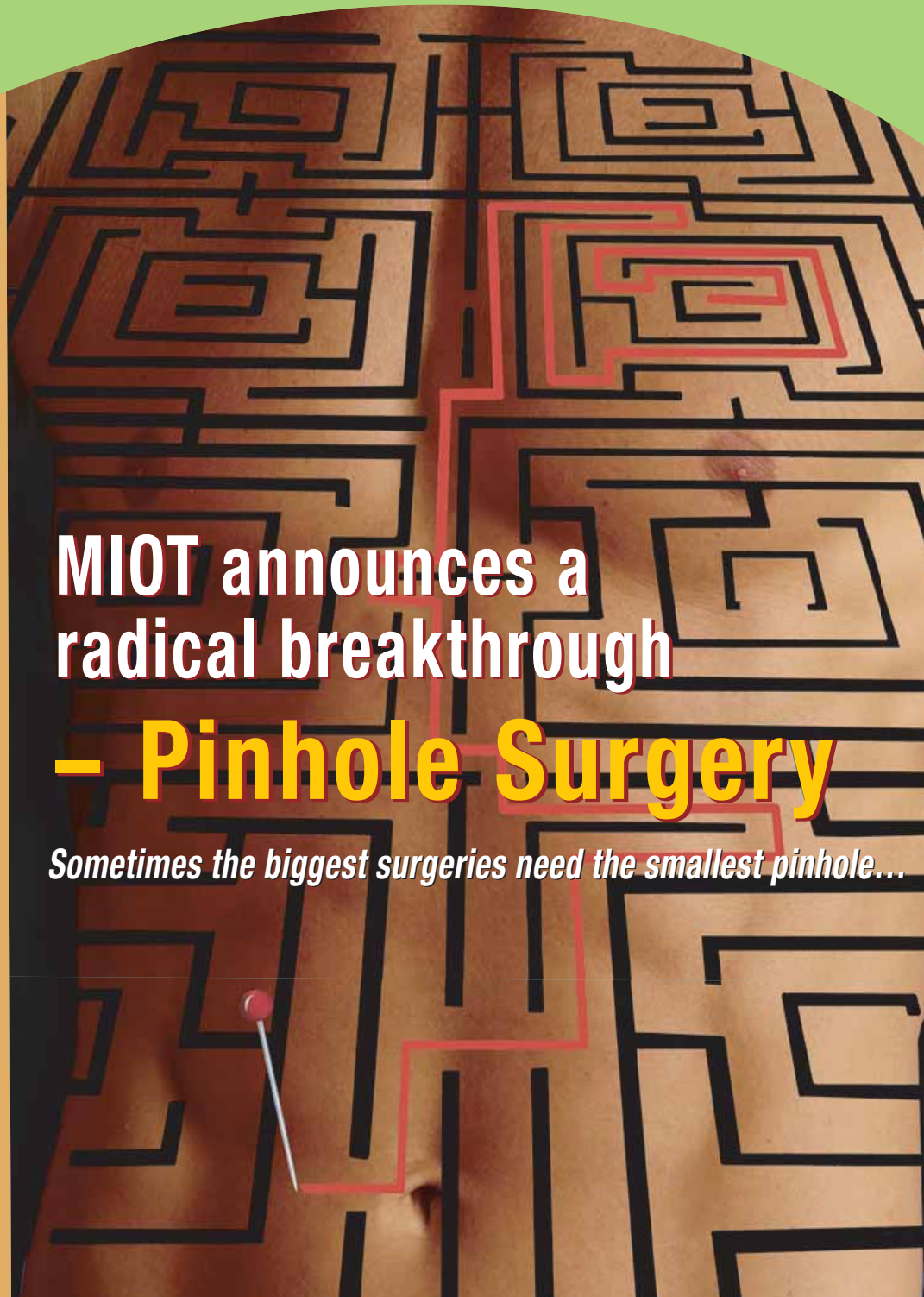
A STENT IN TIME:

A pinhole can prevent strokes, kidney failure and heart disease

Tumours: Direct Attack!

New approach that delivers direct chemotherapy to tumours

May 2007 Vol:8



MIOT announces a radical breakthrough – Pinhole Surgery

Sometimes the biggest surgeries need the smallest pinhole...

From the Chairman's Desk

Dear Friends,

Last year at MIOT, we launched our campaign for keyhole surgery and several hundred patients experienced these new, convenient surgeries. This year we bring you another landmark in modern healthcare - "pinhole surgery". This novel method offers simpler and safer options to open surgery. All these innovations are driven by your demands for the latest, safe, pain-free and scar-free procedures. It has taken a lot of planning, equipment and specialized training for us to offer these pioneering procedures. We are happy to take the lead in redefining healthcare in India and as always, putting your demands first!

It is important that any of you scheduled for medical treatment is aware that you have the option of pinhole surgery with all its benefits. I hope this issue will spread that awareness.

Please feel free to mail me with queries or feedback.

Good Luck and Good Health,

Mrs. Mallika Mohandas
Chairman, MIOT Hospitals

Laughter is the Best Medicine

"What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?"

"Cholesterol in my veins is a good thing — it leaves less room for germs and viruses!"

Chairman's Desk

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Pinhole Surgery - A Revolution in Medicine

The word "Surgery" is scary for anyone. No one likes their body to be cut. Surgeons the world over are thinking in terms of minimal invasive surgery - keyhole surgery.

Keyhole surgery was conceived by MIOT Hospitals and wherever possible we adopt keyhole surgery.

The advantages of Keyhole Surgery are:

1. It causes least damage to the blood vessels, nerves, muscles, tendons etc.
2. There is less bleeding and we can do away with the blood transfusion and the complications of blood transfusion.
3. It does not expose the vital organs to external environment and thereby reduces the rate of infection.
4. Only a few days of hospitalisation is required. The patient can return home in the shortest possible time.
5. The scar no longer bothers young ladies!

From fanstasy to reality

Ever since keyhole surgery was pioneered, surgeons began dreaming of reducing the size of the keyhole. Dreaming is important in science, because fantasy always precedes reality.

Every millimetre of our body is supplied with blood vessels. Even microscopic cells in our body get their nourishment from the blood, especially oxygen. Every living organ is nourished by oxygen, otherwise it dies. We see in every human body arteries carry oxygenated blood from the heart, and veins carry deoxygenated blood back to the heart.

Every part of the human body including the minute microscopic cells can be reached or accessed through these blood vessels. All it takes is a puncture the size of a pinhole.

Having said this, I would like you to see how we have reached every part of the human body through this route and made use of it for treating many serious illnesses which was not possible earlier. **This simple thought is going to cause a revolution in medicine.**

Prof. Dr. P.V.A. Mohandas

Cover Story

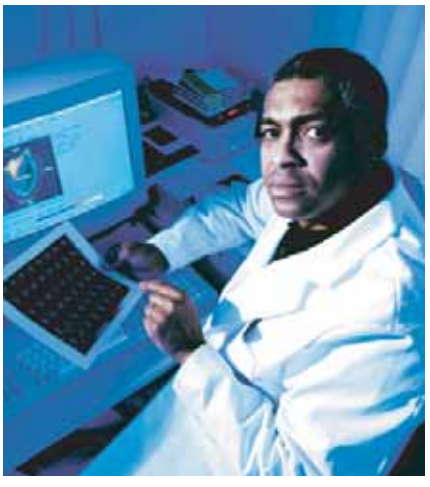
The best kept secret in medicine is out!

Pinhole Surgery can make Open Surgeries "in vein"

No cutting. No pain. No bleeding. And generally, no anesthesia. MIOT Hospitals announces a breakthrough in options to open surgery.

Interventional radiology is a new speciality, which treats patients using minimally invasive techniques, usually as an alternative to traditional surgery.

This important subspecialty of radiology, contributed to some of the most significant medical developments. Most patients will have heard of "keyhole surgery" but interventional radiologists go one step further and perform "pinhole surgery".



Who is an Interventional Radiologist?

Interventional radiologists are doctors trained in radiology and experts in reading X-rays, ultrasounds, CAT scans and other medical images.

This expertise with imaging techniques enables them to guide small catheters and guide-wires through blood vessels to treat many diseases. These small catheters (tubes) are usually only a few millimetres in diameter.

In fact, interventional radiology is termed "pinhole surgery" because of the small holes that are made in the skin to perform these procedures.

Pinhole procedures can be performed for many surgeries:

These include blood vessel blocks. Blocks can occur in blood vessels anywhere in the body: in the neck, leading to a stroke; in the leg leading to gangrene; in the kidney leading to renal failure and so on. Previously reestablishing blood flow in these cases involved surgery. Now thanks to pinhole surgery they can be carried out with local anesthesia.

Opening Procedures

We insert a catheter through the groin vessel (chosen because it's the widest vessel) and using imaging guidance navigate beyond the obstruction and insert a stent to restore the blood flow.

Closing Procedures

Pinhole surgery is also used to control abnormal bleeding anywhere in the body. This is called embolisation - performed for acute life threatening diseases like coughing up blood, uncontrolled bleeding in the intestines, during childbirth etc.

The conventional treatment for these was blood transfusions. Now, with pinhole surgery, we identify the site of the blood, use the catheter to access the blood vessel and block it with chemical agents.

Using the same technique we can block the blood supply to tumours thereby 'starving' them . Similarly, liver tumours can be "cooked" using radio frequency waves or chemo - therapy can be administered directly to them.

Advantages of Interventional Radiology

Only a short hospital stay is required for most procedures.

General anaesthesia is usually not required.

Risk, pain and recovery time are reduced compared to conventional surgery.

Know your options

Pinhole surgery is available for many diseases, but few patients know to ask about them, or to seek a second opinion from an interventional radiologist.

Usually patients do not have direct contact with interventional radiologists. General practitioners still refer their patients to surgeons and rely on the surgeon to provide advice on available treatment options.

Surgeons may or may not know the minimally invasive treatments that another specialty offers. Eventually this situation will change and patients will be sent to the least invasive practitioner for consult first, but in the meantime, it is important for you to know that you may have a "pinhole option".

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From Hole in the Heart to Whole Heart

New therapies for non surgical correction of heart defects have brought great relief for heart patients, particularly children, says Pediatric Cardiologist, Dr. K Sivakumar.

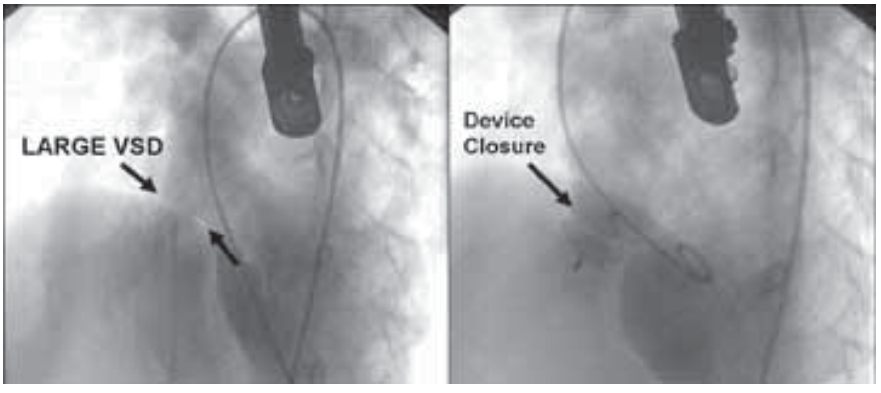
Anitha's parents were extremely happy. Their daughter a pretty 6 year old had secured admission in one of the city's premier schools. Unfortunately their happiness was shortlived. The school had a unique health screening program where every student was screened by a paediatrician once a term. While examining Anitha the doctor detected a heart murmur and referred the case to a cardiologist. Her parents rushed to us in shock. "Please help us doctor ', they kept saying, 'she is our only child!"

"Our little girl has a hole in the heart!"

First , we did a detailed echocardiogram on Anitha. We found Anita had a ventricular septal defect - an abnormal opening in the wall between the two ventricles. In Anitha's case it was a 10 mm hole between the two lower chambers (ventricles) of her heart. Because of this, oxygenated pink blood from the left ventricle leaked into the right ventricle, mixed with the deoxygenated blue blood on the right side and caused increased flow of blood to lungs. When the parents were questioned, they admitted that Anitha had always suffered from repeated chest infections, but the parents had attributed it to dust or changing weather conditions.

"Does this mean open heart surgery?"

Anitha's parents were deeply disturbed at the thought of open heart surgery for their 6 year old. They thought sadly of the long disfiguring scar that would mark her as a cardiac patient for life. So they were absolutely delighted when we suggested a non-surgical procedure for closure of these defects, without any cuts in the chest.



Under gentle sedation we would make a small puncture in the groin and through the blood vessels, pass a catheter (tube) carrying a collapsible sealing device (like a folded umbrella). We would advance it to the hole in the heart. There, the sealing device would be activated to close the defect. These devices are made of biocompatible material - non toxic agents that are friendly to native cells and tissues. In 6 months a smooth tissue will grow over them by the inner lining of the heart (called endothelium) sealing them permanently as a part of the heart.

"But, is this experimental?"

We explained to Anitha's parents that this technology was not experimental, but had evolved over one decade of clinical experience. The long term safety of these devices have been sufficiently proven. The relieved couple immediately consented to the procedure. The entire procedure was completed in 35 minutes under mild sedation and the device was deployed in accurate precision. When examined again with our stethoscope, we were pleased to hear normal heart sounds. The Echocardiogram showed a satisfactory position of the device and complete sealing of the hole. She was followed up regularly for the next year, during which time parents were surprised to note that she never got a flu attack with cough and cold and she gained a good 5 kgs in weight.

Thanks to pinhole surgery, soon Anitha will be a fashionable teen never having to worry about chest scars while choosing her clothes!

Dr. K. Sivakumar, MD.DM.DNB
Chief Paediatric Cardiologist & Senior Consultant, MIOT Centre for Children's Cardiac Care

A Stent inTime

Timely detection and swift intervention can prevent strokes, kidney failure and heart disease.

When Mr. Dayal began experiencing back pain and breathlessness at the age of 50, he thought it was a consequence of aging. As none of the conventional balms and muscle relaxants helped, he finally approached our hospital for investigation. And, just as well. Out tests revealed that Mr. Dayal actually had an aneurysm of his aorta involving the entire chest. He also had chronic pulmonary disease in his lungs, which caused the breathlessness.

What are aneurysms?

Aortic aneurysms are abnormal dilatations (bulges) of the aortic blood vessel, which carry blood to the body. The bulge can occur either in the chest or in the abdomen. As the aneurysm expands in size they cause discomfort to the patient in the form of vague chest /abdominal/back pain. Aneurysms can be critical if they burst. This results in heavy bleeding into the chest and abdomen. In fact patients with a ruptured aneurysm have a poor chance of survival. Many of them die before they reach the hospital!

Aneurysms can be fatal

Traditionally such aneurysms are treated by open surgery where the cardiothoracic surgeon opens the chest or abdomen and replaces the diseased aorta with a new graft. Open surgeries have their own problems and require a long hospital stay and may not be possible in very old patients or high-risk patients. In Mr. Dayal's case major surgery was ruled out because of his bad lung disease.

Now, an option to open surgery

Instead, Mr. Dayal benefited from a new procedure. Instead of an open surgery of the chest, a pinhole-sized incision was made in the groin and through it, an endovascular graft was placed within the aneurysm. This graft prevents any blood flow into the aneurysm and it becomes thrombosed. Mr. Dayal recovered immediately and was discharged without any problems in 4 days.

Stents - the new lifesavers

Stent grafts like the one used on Mr. Dayal are now commercially available for treatment of aneurysm in the chest and abdomen. Stenting through a pinhole procedure involves teamwork between the Interventional Radiologist, Cardiovascular Surgeon, Anaesthetist and Cardiologists. The procedure is done under anaesthesia in the Cath Lab. Once the graft is successfully deployed, check angiograms are done. The incisions are closed and patient is monitored in intensive care unit for 24 hours.

Because it is a very minimally invasive procedure, patients recover fast and are fit for discharge and are back to routine activities within one week.

Aneurysm in chest treated by stent graft without opening

Article

Article

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Renal artery stenting in hypertension

Nothing seemed to work. At 45, Mrs. Ramani had high blood pressure that did not come under control even with multiple drugs. In time she began suffering breathlessness and moderate renal failure.

Mrs. Ramani's problem was actually the narrowing of vessels supplying blood to the kidney. She had 70% narrowing of her left renal artery. If untreated this condition would lead to hypertension and renal failure over a period of time.

Young patients with high BP and patients in whom blood pressure is not controlled in spite of multiple drugs, need to be evaluated for Reno vascular hypertension.

Though Color Doppler studies and Nuclear medicine studies can identify these patients, the block in blood vessels to kidney can be diagnosed with CT/MR Angiography or Conventional Angiography.

Relieving the block

If the block is significant it needs to be relieved. New pinhole techniques allow us to access the blood vessel to the kidney through a small puncture in the groin. A thin guide wire is used to cross the lesion and blocks are dilated with a balloon, followed by stent placement. Opening up of blood supply to the kidney leads to better BP control and improvement in renal function.

Dramatic improvement

We treated Mrs. Ramani's condition through pinhole surgery and placed a stent across the narrowed blood vessel.

There was dramatic improvement in her condition. In fact she now requires only a single drug for her blood pressure control. The deterioration of her renal function was also arrested.

Timely identification of the abnormality and early treatment are the key to salvaging renal function and preventing progressive renal damage.

Dr. K. Murali, MD.P.D.C.C.
Interventional Radiologist

Block in left renal artery opened by angioplasty & stenting

Did You Know

Giving Heart Surgery A Hand

Did you know that the big breakthrough in angiograms is the smaller access through the hand?* Dr. Rajesh *takes us through Radial Access – a novel procedure for safer angiograms.

A big breakthrough in heart care was the development of minimally invasive procedures such as coronary angiograms and angioplasty. Patients with debilitating and life threatening heart disease can now resume full activity through angioplasty and stenting.

The Traditional Approach

So far, for an angiogram, the approach has always been through the femoral artery in the groin (this is a large artery). A catheter is guided through the artery to the narrowed blood vessel in the heart and the stent is inserted. This approach through the femoral artery has been traditionally used due to technical ease. It has certain disadvantages, however:

- Prolonged bed rest for many hours after the procedure
- Association with back pain, urinary retention and neuropathy
- Frequent complications such as bleeding, haematomas, pseudoaneurysms etc. that may require longer hospital stay and at times, surgery

A Novel Development

These factors led us to develop a novel approach that we now use as routine at MIOT. Instead of the femoral artery, we now enter using the tiny artery in the wrist called the radial artery. The radial artery approach has several advantages:

- Increased patient safety and comfort
- Patients walk in and walk out of the procedure room
- Complications are rare

The safety aspect of radial access angiography has opened a new world of possibilities. Patients who undergo stenting to blocked heart arteries through this approach are able to go home within a few hours. The patients typically walk out of the room with a small plaster over the wrist, have a cup of tea in the waiting room and leave the hospital in two hours!

Unleashing the radial force

As the radial artery is so easily accessible and also compressible, aggressive blood thinning medications can be used safely. This enables stenting of multiple blockages and complex blockages that would otherwise require surgery. Complete 100% blockages, long segments of blockages, can all be treated using the radial approach. The patients also recover much faster, following the radial approach.

We at MIOT Hospitals routinely use the radial approach for our coronary angiograms and stenting. This optimizes patient safety, comfort and recovery. MIOT has indeed unleashed the radial force!

Dr. R. Rajesh Kanna, M.B.B.S., FIC (Canada), MRCP (UK),
Interventional Cardiologist

Article

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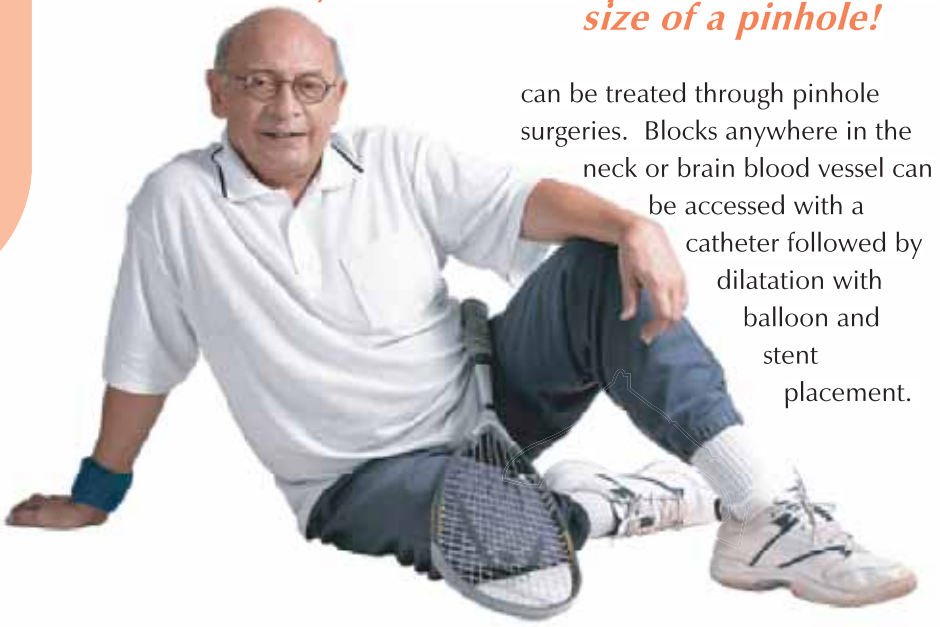
Stop a Stroke from Striking you Paralytic

Deadly strokes can be prevented all through a puncture the size of a pinhole!



Atherosclerosis (narrowing of blood vessels) is a disease that affects any vessel in the body. A heart starved of blood supply cries of pain (heart attack). On the other hand, reduced blood supply to the brain just manifests as a stroke. There are certain warning signs of stroke. These include temporary loss of power in hand or leg, loss of vision for a few moments, temporary speech loss, giddiness, etc.

Every second counts

Once a patient is brought to the hospital, he is scanned to locate the narrowed blood vessels. These are picked up by either Doppler studies or with CT or MR angiographies. The narrowed blood vessels once detected will lead to a catastrophic stroke, and hence need to be treated.

Traditionally narrowed blood vessels in the neck are treated by open surgery. Now the same block can be treated through pinhole surgeries. Blocks anywhere in the neck or brain blood vessel can be accessed with a catheter followed by dilatation with balloon and stent placement.

Using the arterial highway

Navigating the balloons and stents through the arteries, from the groin requires a sophisticated digital cathlab with facilities for 3D angiography, subtraction angiography and road mapping. The availability of better quality stents, good guide wires and sophisticated equipments with a well-trained team have made these procedures more popular with fewer complications.

Prevention is better than cure any day and identification of critical blocks in the blood vessels to brain and treating them with angioplasty and stenting would help in stroke prevention. After stenting patients need to be on antiplatelet medication.

What if a stroke occurs?

It is very important that the patient is rushed to hospital within 3 hours. If there is a block it can be treated by administration of thrombolytic agents either intravenously or intra arterially to dissolve the clots. In fact initiation of therapy within the first 3- 6 hours is critical for restoration of neurological function.

Other interventional procedures performed in brain blood vessels, include:

(1) Aneurysm in Brain:

Aneurysm is a bulge in brain blood vessels that may rupture and cause bleeding with devastating effects. These aneurysms need to be treated before they rupture once again. For these conditions a catheter can be taken from the groin and coils deposited into the aneurysm preventing bleeding. There is no need for opening up of the skull to do these procedures.

(2) AVM of brain:

Can treated by injecting a liquid agent into an AV malformation and blocking it.

(3) Treatment of carotid cavernous fistula:

This condition leads to painful bulging of eyes. These can also be treated by embolisation (blocking) with balloons or coils.

(4) Thrombolysis of venous thrombosis:

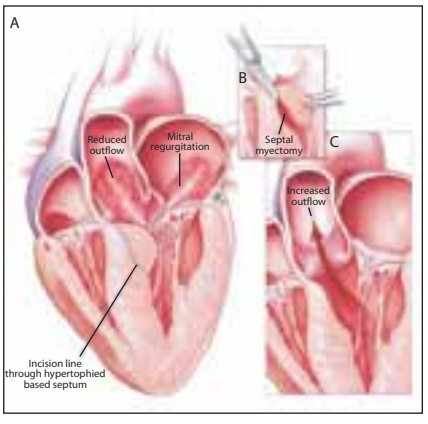
Blocks in the veins of brain can be tackled by taking a catheter directly into thrombi and using thrombolytic agents.

Open Heart or Pinhole?

Novel therapies in the treatment of heart disease offer excellent options to open heart surgery.* Dr. S. Manoj, *Cardiologist, explains.

The only solution to heart disease need not always be the dreaded open heart surgery, with its accompanying pain, long scars, possibilities of infection, prolonged recuperation and so on. Radical progress in medicine now allows us to perform some of these procedures through a puncture the size of a pinhole.

Take **Hypertrophic Cardiomyopathy** (HCM) - HCM is a peculiar heart disease, where the muscles that form the heart chambers start thickening for no reason. This is a condition that appears in athletes or is seen to run in families. In a certain type of HCM, the muscle thickens so much that it obstructs the pumping of blood by the ventricle, by encroaching on the outlet space within the heart chamber.



Safer solution

Conventionally, patients with this type of HCM who have symptoms of repeated loss of consciousness, breathlessness etc., were subjected to Open Heart Surgery, where the Heart Surgeon slices off the extra thickness of the muscle (as seen in the picture) allowing the outlet space to be restored. This is a major heart surgery with considerable risk.

Now it is possible to achieve the same results without Open Heart Surgery. Through a 'pinhole' approach from the hand or leg, we use a 2mm balloon and inject < 1ml of absolute alcohol in a controlled manner. This chemical ablation dissolves the muscle thickness and restores the outflow space, relieving the symptoms. This is done under local anesthesia in a conscious patient with no stitches.

Pacing Therapy and Implantable Defibrillators in Heart Failure

The pinhole approach can also prevent the need for open heart surgery when it comes to heart implants like pacemakers and defibrillators. Miniaturization of these devices allow treatment to be delivered through a tiny incision. Now patients are happy to undergo these most advanced therapies with just local anaesthesia.

Keeping Pace

During heart failure, there is poor pumping efficiency of the ventricles – both in most cases, and also incoordinated contraction of the right and left ventricle, described as dyssynchrony. A Pacemaker – Biventricular (pacing both the ventricles) – or Heart failure device – is put in to remove this dyssynchrony and improve the pumping efficiency of the heart. This relieves symptoms of heart failure, improves physical activity and reduces requirement of medications.

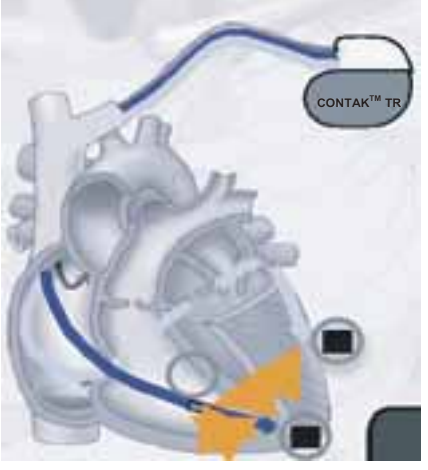
Preventing Sudden Death

Another important cause of death in patients with heart failure is abnormal rhythm disorder of heart – ventricular tachycardia/ fibrillation. This could lead to sudden cardiac death. To prevent it we implant a device - Automatic Implantable Cardioverter / Defibrillator – AICD – that tracks each heartbeat and corrects abnormal rhythm by delivering shock therapy inside the heart. AICD has saved millions of lives and together with pacing therapy has helped buy time for patients awaiting heart transplants.

Now, through the pinhole approach, both the Pacemaker and AICD are implanted under the skin below the left collarbone, and the electrical leads are introduced through the veins to be positioned inside the heart chambers.

Dr. S. Manoj, MD.DIP. NB., (GU MED) D.M., DIP. NB., (Cardio) MNAMS

Senior Consultant Cardiologist



Article

Article

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Tumours: Direct Attack

Dr. Murali examines a radical approach that accesses and delivers direct chemotherapy to inoperable tumours bringing new hope to cancer patients.

Malignancies of various organs are treated by a combination of techniques, which include direct surgical resection, administration of chemotherapy through peripheral veins and radiotherapy.

The response for these treatments varies depending on the tumors and its histological grading.

Tough on tumours, kind on patients

Routine IV chemotherapy has not been found to be very helpful for patients with liver tumours. Some patients are not fit for surgical resection either. Luckily alternative forms of non-surgical treatment are available.

Here, we direct a catheter (tube) to the blood vessel that's supplying the tumour with blood and administer a chemotherapy drug directly into the tumor, in combination with an oily agent called lipiodol. Then, we block the blood vessel.

Starving the tumour

The advantages of this treatment is that by blocking the blood supply, the tumor is starved. Further, the chemotherapeutic agent within the tumor also starts attacking the tumor cells. Because of a very high local dose, the toxic effect of the chemotherapeutic drug is reduced. As it's applied directly, it does not attack the surrounding tissue. If required, this "chemoembolisation" is repeated multiple times.

Cooking the tumour

Radio frequency tumor ablation: In this technique special needles are placed in the liver tumor and the tumour is burnt using RF waves.

This technique of cooking the tumor and burning them is done under CT or ultrasound guidance. The advantage of this technique is that it is minimally invasive and does not require open surgery.

RF ablation is used to treat Liver tumors (2) Inoperable lung tumors (3) Osteoid osteoma of bones etc.

RF ablation is used along with systemic chemotherapy or chemoembolisation in liver.

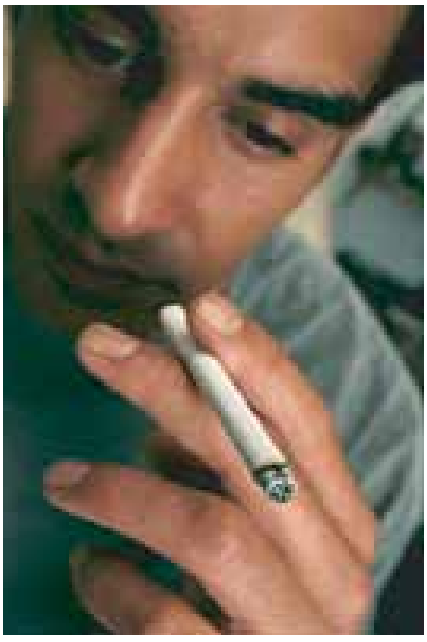
Direct alcohol injections:

Absolute alcohol is another potent agent which can be directly given to the liver tumors, along with chemo embolisation or radio frequency ablation.

Dr. K. Murali, MD.P.D.C.C.
Interventional Radiologist

Pinhole Surgery Puts Your Legs Back In Circulation

***The solution to severe and chronic leg pain could be an appropriate stent placed through pinhole surgery, says Interventional Radiologist,* Dr. Murali.**



If you are a smoker, a diabetic or suffer from high cholesterol then you are in danger of contracting Peripheral Vascular Disease (PVD). This is a narrowing of your arteries in one region where the consequences are felt in multiple areas. If you are suffering from PVD you will experience pain on walking, and the distance you can cover keeps reducing over time. Subsequently you will experience severe pain even at rest. If not treated properly this condition can lead to ulcers, infections, gangrene and loss of limb.

Looking beyond a Bypass

PVD is identified by clinical evaluation followed by Doppler screening, and confirmed by MR Angiography or CT Angiography. Depending on the extent and severity of blocks, you may require bypass surgery. Now you have an option. Non-surgical treatment of PVD is possible.

Through a small pinhole in the groin the blocked vessel is accessed and dilated with a balloon. A stent may be deployed if required. Once the block is opened up blood flow to the legs improve and you will start walking better. You will need to be on anti-platelet therapy following the procedure and advised to walk regularly.

Pinhole can prevent amputation

In fact such procedures prevent amputation to a great extent if identified and treated early.

Diabetics of long standing should see that their sugar is under proper control and should get their vascular evaluation done regularly. Onset of pain in legs during walking should not be ignored and you should attend to it immediately.

For performing peripheral angioplasty and stenting, a good digital angiography lab with adequate trained personnel is a must. Early intervention saves limb amputation and puts you back on your toes!

Dr. K. Murali, MD.P.D.C.C.
Interventional Radiologist

Article

Case Study

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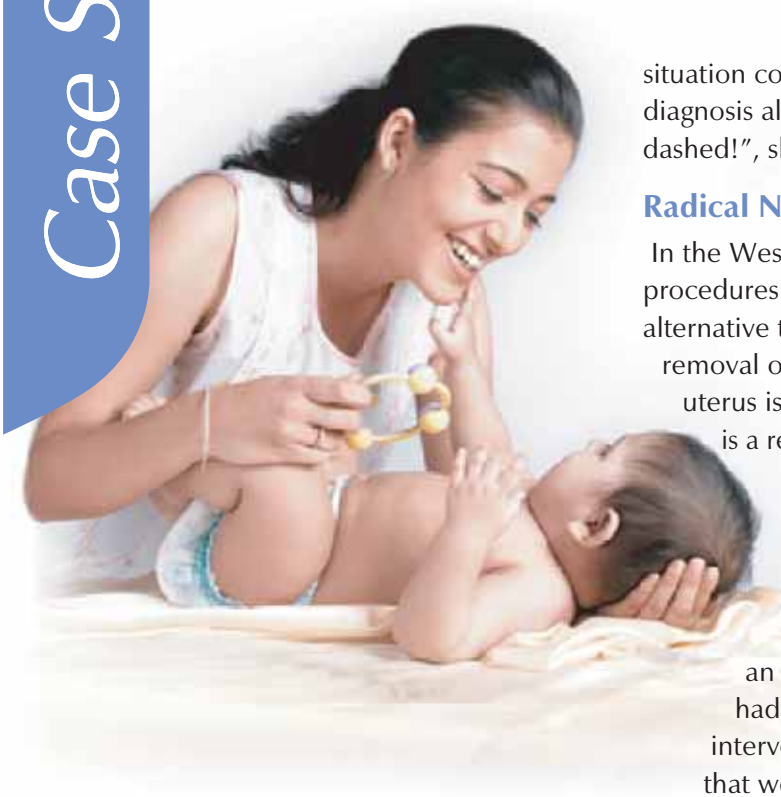
" From No Hope to Hope"

Does fibroid removal always mean an hysterectomy? Not any more.



Mrs. Kamala Menon (38) had been married for 11 yrs. To her great disappointment her marriage had not been blessed with children. What's more - every month she would suffer - her periods would continue for a long time and involve massive bleeding. Investigation revealed that Mrs. Menon had an abnormally large fibroid (11 cms) in size in her uterus. She was also severely anaemic with an HB count of 4.

Under regular circumstances the fibroid would have to be removed surgically and in all likelihood the uterus would be removed too. This information was devastating to the patient.

"Even though I was childless I always had the hope that the situation could change. With this diagnosis all my hopes were dashed!", she said.

Radical New Therapy

In the West, interventional procedures are being taken up as alternative therapy for the removal of fibroids whereby the uterus is preserved. In India it is a relatively new procedure, adopted by select hospitals only.

Mrs. Menon was referred to MIOT Hospitals by an infertility expert who had heard of the interventional procedures that were being undertaken by us in this area.

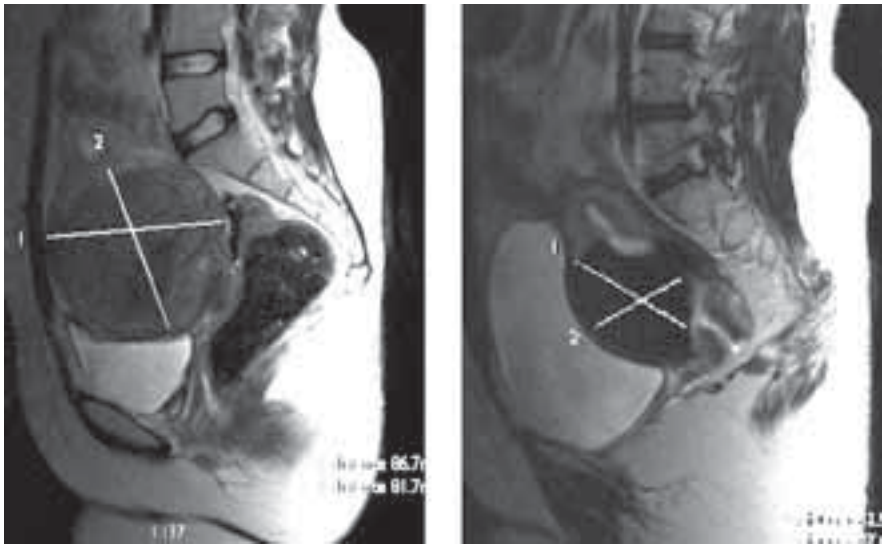
Mrs. Menon was keen to avoid an hysterectomy with its physiological and psychological consequences, so she readily agreed to undergo the new procedure.

How it was done

First we introduced a catheter was introduced into the uterine artery. The flow of blood to the fibroid was blocked with embolising agents. The bleeding was arrested immediately. Starved of blood supply the fibroid would shrink in size gradually over a period of 3-6 months.

After two months we repeated the Ultrasound. In it the fibroid showed a 30% reduction in size. Mrs. Menon now has normal periods and her HB counts have improved.

"I thought an hysterectomy was certain!" said a beaming Mrs. Menon. " I am really grateful to MIOT for this effective procedure. All the symptoms and discomforts of the fibroid have almost disappeared, and the best news is that I have a chance to conceive a child!"



Fibroid - 50% reduction in size - 3 month follow up

Case Study

He survived the accident but could we stop the bleeding ?

Mr. Murugan was already a multiple trauma accident victim. Would he have to undergo major skull surgery as well?

March 18, 2007. An eventful day for 40-yr old Mr. Murugan. It was the day he survived a terrible road traffic accident. He was rushed to the nearest hospital for emergency treatment and shifted to MIOT Hospitals the next day.

Bleeding in the brain

On examination we found Murugan unconscious with lacerations in various parts of his body and fractures in his facial bones. A CT scan of the brain showed air in the coverings of the brain. He also had a weakness in the left upper limbs. This was due to reduced blood supply to the right half of brain. A CT scan angio done to study the brain blood vessels showed a laceration (tear) of the right internal carotid artery in the brain with pseudo aneurysm formation (bulging blood vessel).

What needed to be done at once was to plug the blood leaking from the damaged artery. By the time the patient was taken for the procedure the aneurysm had trebled in size. To prevent it from rupture we decided to block the blood supply to the aneurysm by sealing the blood vessels on either side of it.

A radical new technique

The conventional surgical technique would be to open the skull and ligate the artery beyond the aneurysm and open the neck and ligate the other end. By doing this the blood flow into aneurysm can be stopped.

Now we can perform the same procedure through one small pinhole-sized puncture in the groin. From the right femoral artery, a catheter was navigated into the offending brain blood vessel in the digital cath lab. Here we ran into a problem. The small branches of the blood vessel were so convoluted that we could not get the stent graft through. We were on the verge of turning this into an open surgery, when our cardiologist had a brainwave. He suggested that we try the baby catheter, which is as thin as a hair, to get past the blood vessel, so that we could plug the vessel before the aneurysm and the one beyond it. This worked brilliantly and the plugs successfully blocked the bloodflow into the aneurysm.

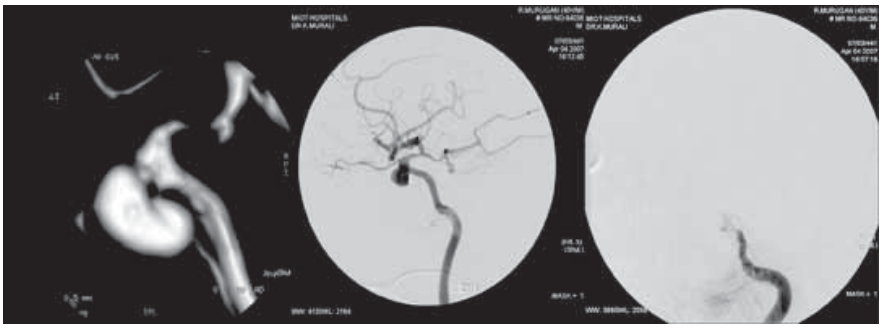
Mr. Murugan recovered very well from the procedure and resumed normal activity within 48 hours.

A pinhole escape!

Post-traumatic aneurysms are abnormal bulges that can result in heavy bleeding and lead to death. This is a dangerous condition and needs to be treated effectively. The aneurysm had trebled in size within 2 days. Timely intervention without any open surgery led to a faster recovery.

Other areas in brain where such interventions are performed.

- Berry aneurysm of brain- coil embolisation of aneurysm is done.
- Arterio venous malformation of brain – embolisation – done with liquid agents.
- Treatment of carotid cavernous fistula, which result in pulsatile bulging of the eyes.
- Treatment of dural fistulas.
- Intracranial balloon angioplasty and stenting - to prevent strokes.
- Blockade of hypervascular tumors - prior to open surgery.
- Large aneurysm following trauma blocked by vascular plugs.



Article

MIOT HOSPITALS
PUTTING PATIENTS FIRST

A Solution to Sudden Death

Dr. Murali *explains how IVC filters placed through pinhole surgery prevent danger from blood clots.*

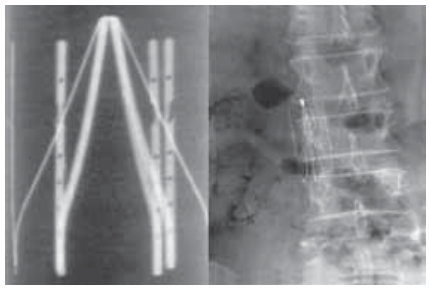
Many times we hear of a recovering patient, or a patient just discharged suddenly passing away due to blood clots (Pulmonary embolism). This is a dreaded condition in which large clots from leg veins or pelvic vein move into the pulmonary arteries and cause sudden death. This is common in old age, prolonged immobility (especially bed-ridden patients), following major fractures etc. Many times there may not any warning at all.

That's why in a hospital practice, patients undergoing major surgeries or bed-ridden patients are started on a heparin injections to prevent blood clots from forming. However it may not suit certain patients to be on these drugs. Some patients may even develop repeated blood clots in spite of adequate preventive measures.

Filtering the blood

Now there is a method by which life threatening pulmonary emboli can be prevented. This is done by deploying an umbrella-like material called IVC filters, in the inferior vena cava. These filters can be either temporary or permanent. They prevent major clots from going to the lungs, but, at the same time allow normal blood flow.

The filters do not require any major surgery for deployment. A small puncture is made in the groin and through it the filter is inserted in the



right area. A simple procedure done under local anesthesia.

Playing it safe

In MIOT strict precautions are taken to prevent this condition. We have deployed filters in 20 patients, in the last 8 months to prevent pulmonary embolism.

Dr. K. Murali, MD.P.D.C.C.
Interventional Radiologist

Looking Trouble in the Eye

Pinhole surgery can swiftly rectify even minor ailments like the Bulging Eye Syndrome.

Life was smooth for Mrs. Sunitha. Until, one day, when this 36 year old woman suddenly developed redness in her eye. Day by day the redness continued and her eye began swelling up. A week later, her eye was bulging out and she had severe pain.

Investigation at MIOT

A CT scan and MRI confirmed the presence of carotid cavernous fistula in the left eye. This is a condition in which there are abnormal communications of blood vessels behind the eyeball. Her vision started diminishing. She was referred to our Interventional Radiology department for further treatment.

A diagnostic angiogram performed, showed that she had a single abnormal blood vessel responsible for the fistula. She was taken for a pinhole procedure. Through a small puncture in the groin, a catheter was taken into the offending blood vessel and it was successfully blocked with a platinum coil.

Bulge in Left Eye Ball Reduced More than 80% after 24 Hours of Treatment

Dramatic Recovery

Mrs. Sunitha began seeing the improvements almost at once. Her eye swelling reduced dramatically by more than 90% in 2 days. The pain disappeared and her vision began improving. 48 hours later, she was discharged.

Pinhole Surgery at MIOT

To perform these procedures, the hospital requires a sophisticated cathlab with facilities for digital subtraction angiography, road mapping and 3D angiography. MIOT hospitals is well equipped with the latest flat panel digital cathlab with 3D angiography where all these procedures are performed in a sterile environment.

MIOT HOSPITALS
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We turn little heart patients into hearty little brats!

Most children suffering from heart disease in India are born with it. The longer it goes undetected the more the child suffers. Then, one day, it's too late!
Luckily early detection and treatment can turn the little heart patient into a hearty little brat.

MIOT CENTRE FOR CHILDREN'S CARDIAC CARE

To provide timely intervention for suffering children, MIOT introduces the Children's Cardiac Care Centre. This new patient-friendly department is run by a highly skilled team led by renowned surgeon, **Dr. Robert Coelho**. The team has performed more than 3000 surgeries on babies and children of all nationalities, with excellent results.
The Children's Cardiac Care Centre has the latest diagnostic equipment, specialized operating theatres and separate ICU. Here everyone from nurse to surgeon offer little patients, the best in patient care.
MIOT RETREAT - our extended care facility is an ideal place to recuperate post-surgery.

Procedures:

- Catheter Interventions for heart defects
- Neonatal cardiac surgery
- Minimally invasive cardiac surgery in children
- Valve repairs in children
- Corrective surgery for 'blue babies' and all defects including complex heart defects
- Treatment of cardiac rhythm disturbances in children including maze procedure and pacemaker implantation

Facilities:

- 3-D Echocardiography
- Foetal echocardiography
- State-of-the-art cardiac catheterisation laboratory
- MRI & MR angiography
- Nitric Oxide Therapy Unit
- 64 Slice CT Scan
- Nuclear Scan

MIOT Centre for
Children's Cardiac Care

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