



THE FUTURE IS HERE...



HYBRID CATH LAB OPERATING ROOM

The Safest Facility
for Complex Procedures



The Hybrid Cath Lab Operating Room

Complex heart and blood vessel procedures such as Transcatheter Aortic Valve Replacement (TAVR), Complex Valve Treatment and treatment for Aortic Aneurysm come with a high risk of bleeding, infections, arrhythmia, heart attack, stroke, etc. Ensuring better outcomes for such procedures require skilled specialists, superior safety norms and the use of sophisticated equipment. According to the American and European Heart Association, the safest place to undertake such procedures is a Hybrid Cath Lab Operating Room.

In the entire state of Tamil Nadu, Kauvery Hospital is the only Institution that encompasses a Hybrid Operating Room and is safe enough to deliver high-end treatments under one roof. This ensures minimum hospitalization time, faster procedures, reduced risk of complications, optimized cost and better outcomes overall.



Advantages of the Hybrid Cath Lab Operating Room

The American Heart Association and European Heart Association recommended the Hybrid Cath Lab Operating Room as the safest place to deliver complex Cardiological, Neurological, Vascular and Oncological Procedures, this is exclusively available only at Kauvery Hospital.



Most advanced imaging capabilities

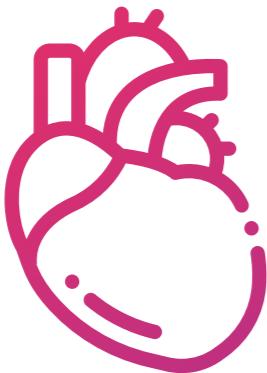


Enhanced flexibility and ease of access driving better clinical outcome

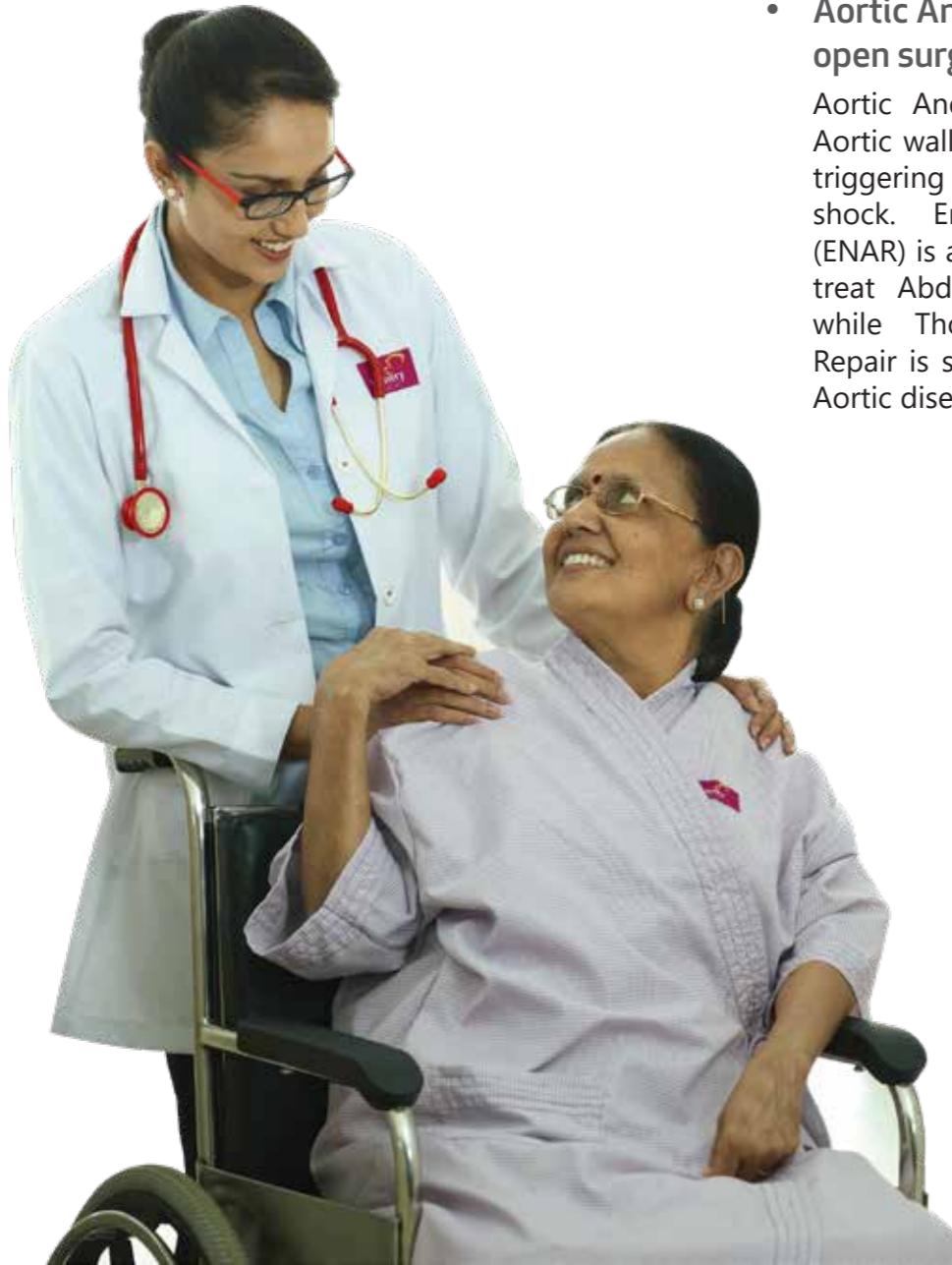


Stringent Contamination Control Standards to ensure infection management

Complex procedures that can be performed at the Hybrid Cath Lab Operating Room



Heart Procedures



- Heart Electrical Treatments**
Arrhythmia, a condition in which the normal rhythm of heart becomes erratic, leading to fainting, stroke, heart attack and sudden death. Treated through electrical procedures such as Defibrillation or Cardioversion depending on severity.
- Aortic Aneurysm Treatment without open surgery (ENAR/TEVAR)**
Aortic Aneurysm, a condition where the Aortic wall develops a balloon-like swelling triggering heart-attack like symptoms or shock. Endovascular Aneurysm Repair (ENAR) is a minimally-invasive procedure to treat Abdominal Aortic Aneurysm (AAA) while Thoracic Endovascular Aneurysm Repair is specifically used to treat Thoracic Aortic disease.

- Complex Angioplasty**
Specialist surgeons at Kauvery Hospital have experience in all the latest trends around Angioplasty such as Percutaneous Coronary Intervention (PCI) or TransRadial Angioplasty to ensure minimally invasive intervention and lower mortality rates.
- ECMO/LVAD & Heart Transplant**
In the case that cardiovascular health has deteriorated and is beyond medication help, Heart Transplant is the only option. Left Ventricular Assist Device (LVAD) is used as a bridge, before the transplant procedure, and is also being used as a permanent solution. Extracorporeal Membrane Oxygenation [ECMO] is an interim procedure that is used to stabilize the heart before it receives a full-scale transplant or an LVAD implant.
- Hybrid Aortic Surgery**
In case of large or complex Aortic Aneurysms, a combination of open-heart and endovascular (stent placement) surgery is adopted. This minimizes the risk of full-scale open-heart surgery while maximizing outcome.
- Heart-valve Treatment without Open-heart Surgery (TAVI/ TAVR)**
Transcatheter Aortic Valve Implantation/ Replacement is a minimally-invasive procedure to replace diseased heart valves with artificial ones to ensure optimal heart function and prevent further complications.
- Correction of Heart Birth Defects without open-heart surgery**
Congenital heart defects are those that are present right from birth. This includes a wide range of conditions and these defects are treated using a variety of minimally invasive techniques eliminating the need for open heart surgery.

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Neurosurgery

- **3D Rotational Angiography**

3D Rotational Angiography, a procedure that helps surgeons obtain real-time, 3D image of the operating area. This is prevalent in hybrid surgeries and catheter procedures. This enables precision in the surgery, minimized bleeding and collateral tissue damage leading to better outcomes. Here, a fixed arm rotates around the surgery area, taking a series of X-rays. A software then constructs a 3D image from these X-rays. The procedure is also called flat-panel volume CT or cone-beam CT.

- **Flow Diverter for Wide Neck Intracranial Aneurysm**

An aneurysm in the brain is when an artery in the brain develops a bulge that can burst and cause bleeding inside the brain. One of the ways of treating this condition is to reconstruct the diseased segment of the blood vessel containing the aneurysm. Instead of restricting the blood flow in this vessel altogether, flow diverters bypass the neck of the aneurysm and reduce shear stress on the aneurysm wall.

- **Complex Aneurysm Coiling**

An aneurysm in the brain is when an artery in the brain develops a bulge that can burst and cause bleeding inside the brain. One of the ways of treating this condition is to restrict blood flow to this blood vessel. This is done using soft coils made of platinum. These are slipped into a catheter into the leg and pushed up to the brain. The coils are then slipped over the concerned blood vessel which restricts flow in it and prevents any rupture.

- **Stroke Thrombectomy**

Ischemic stroke is a condition that is the fifth most common cause of death. A blood clot plugs or blocks a blood vessel in the brain. Thrombectomy is an interventional procedure used to isolate the clot and pull it out of the body in an endoscopic manner.

- **Paediatric Vein of Galen Embolisation with 3D**

The Vein of Galen is a short pipe-like region formed by the coming together of two internal cerebral veins and basal veins in the human brain. This region is prone to either aneurysmal malformations or dilations in some infants. Here, a tangled mass of blood vessels supplies blood from an enlarged artery. Treating this condition requires the concerned arteries to be blocked which reduces blood supply to the veins.

Instead of open surgery, endovascular embolization enabled by 3D, real-time imaging is the preferred method.

- **Carotid-Cavernous Fistula Embolization**

The carotid arteries, one on the left and one on the right are major blood vessels found in the neck. Sometimes, either of these arteries develops an abnormal connection with the veins behind the eyes, and this condition is called Carotid-Cavernous Fistula.

This can cause loss of vision. The condition is treated using Coil embolization.

Tiny platinum coils are delivered to the location in an endoscopic manner to separate the blood flowing in the arteries from the blood flowing in the veins.

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Oncological Procedures

- **Trans Arterial Chemo Embolization (TACE) for Cancer in the Liver**

When an organ or part of the organ develops cancer or tumour, one way of treating is - delivering chemotherapeutic and embolic agent directly into the Tumour. This technique is called Chemoembolization. This material can also be used to deliver chemotherapy drugs to the desired portion of the tumour. When this technique is used to treat liver cancer, it's called Trans Arterial Chemo Embolization owing to the hepatic artery supplying minimal blood to the liver and predominantly to the liver mass lesion.

- **Microwave Ablation for Cancer in Liver or Kidney**

Ablation is a procedure in which cancerous or tumorous cells are destroyed by applying energy to the neoplastic lesion. Previously, Radio Frequency Energy (RF waves) was used for the destruction of cancer cells by application of heat. However, in recent years, microwaves are being used and this technique is more efficient.

- **Portal Vein Embolization (PVE) for Cancer in the Liver**

For patients suffering from primary and secondary liver cancer, a part of the liver, containing the cancerous tissue is removed. This is called surgical 'resection' of the liver. As a result of resection, the size of the liver is reduced now and is not enough to carry on the functions of the liver. One method of resolving this is to increase the size of future liver remnant so that the liver gets enlarged as a whole through Portal Vein Embolization. It is performed before the resection surgery. This way, that part of the liver which is still remaining after the surgery, gets enlarged.

- **Carotid Body Tumor Embolization for Tumor in the Neck**

The carotid body - A bunch of chemoreceptor cells found in the neck, in the region where the common carotid artery branches into 2 and runs along either side of the neck. It's sensitive to changes in pH and temperature of the blood. A tumour in this region is very rare but must be treated safely.

One method of doing so is Embolization or cutting off blood supply to the tumour tissue.

This is achieved using a catheter, and 3D imaging to guide the surgeon during the procedure. This decreases the blood supply and the amount of intraoperative blood loss.

- **Glomus Jugulare Tumor Embolization for Tumor in the Ear**

Glomus Jugulare is a type of tumour that is rare, slow-growing and benign. They can be found in different parts of the body, but the most common occurrence is in the inner ear. One way of treating the condition is to cut off the blood supply to this tumour, or 'embolization'. The embolization is achieved using a catheter and permanent embolic material into the lesion.

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Vascular Procedures

- **Complex Aortic Disease**

There are various conditions that cause the walls of the aorta to either dilate (Aortic Aneurysm) or develop a tear (Aortic Dissection). These are treated using either open-heart surgery or minimally-invasive techniques. These include Endovascular stent-grafts and Open-heart repair of Aneurysms. Other complex procedures include - Valve-Sparing Aortic Root Replacement, Complex Arch Hybrid Aortic Arch Reconstruction and Complex Aortic Root Reconstruction of all types.

- **Advanced Thrombolytic and Endovascular treatment for DVT**

Deep Vein Thrombosis (DVT) - Condition in which a blood clot (or thrombus) develops in one of the deep veins of the body, usually in the legs. DVT can have serious consequences as the clot can travel through the bloodstream. Endovascular or minimally invasive techniques are being used to treat DVT. These include catheter-directed thrombolysis, ultrasound accelerated thrombolysis and percutaneous mechanical thrombectomy.

- **Peripheral Limb Bypass Surgery combined with open Endovascular Methods**

Peripheral Artery Disease (PAD) - a condition where plaque builds-up in the arteries of the legs causing pain. If the blockages are not removed in time, amputation could become essential. Angioplasty and stenting are two major treatment methods. In case of severe blockage,a limb bypass surgery is required. Incisions are made in the affected leg and an alternate route is created (bypass) for blood flow. The procedure is conducted under anaesthesia.





KAUVERY HOSPITAL

No. 81, TT Krishnamachari Road, CIT Colony,
Alwarpet, Chennai - 600018

E: info@kauveryhospital.com W: kauveryhospital.com