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MAY 2026



THE NEXT IN CLINICAL CARE

BASILICA TAVI

Solving The Coronary Risk.

5-VALVE CARE

A milestone in leadless pacing.

PORTAL THROMBECTOMY

The robotic edge in HCC.

OCTOGENARIAN VIV

Redefining redo-valve safety.





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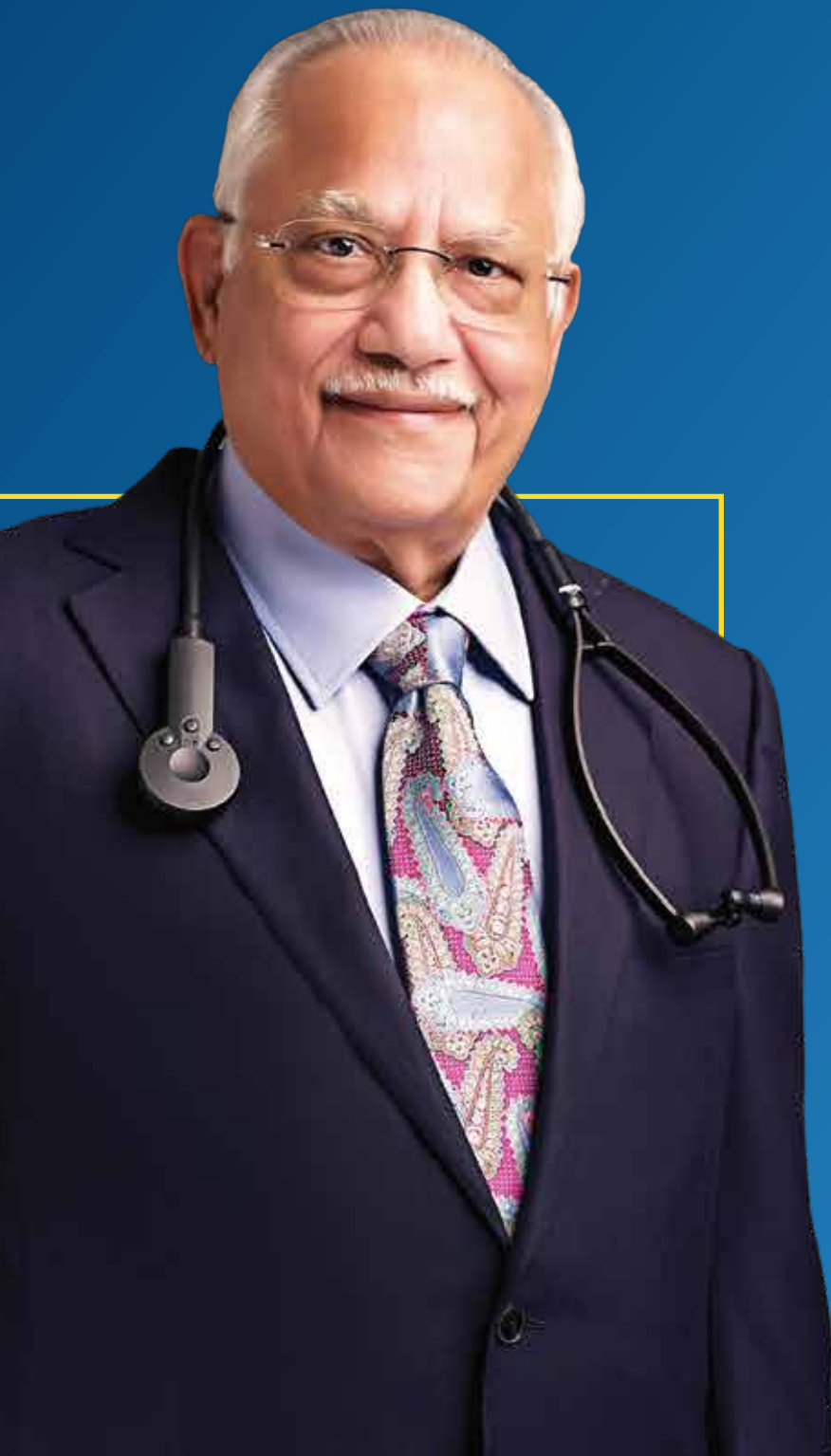
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FROM THE CHAIRMAN'S DESK: VISION AND MISSION



Our mission is to bring healthcare of International standards within the reach of every individual.

We are committed to the achievement and maintenance of excellence in education, research and healthcare for the benefit of humanity.

Our vision is to make India as a Global Healthcare Destination.

Dr Prathap C Reddy

Founder & Chairman
Apollo Hospitals



01

BASILICA-Assisted TAVI: Preventing Coronary Obstruction In High-Risk Redo Valve Surgery



DR. SENGOTTUVELU G

Senior Interventional Cardiologist &
Clinical Lead - Structural Heart Interventions

Apollo Hospitals, Greams Road, Chennai

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INTRODUCTION

Transcatheter Aortic Valve Implantation (TAVI) is a life-saving alternative for patients with failing heart valves who are not candidates for repeat open-heart surgery. However, in "Valve-in-Valve" cases—where a new valve is placed inside an old surgical one—there is a significant risk of the old valve leaflets being pushed outward, potentially blocking the coronary arteries. Such an obstruction carries a mortality risk of up to 50%, requiring specialised preventive techniques.

CASE OVERVIEW

A 67-Years-Old - patient with a history of diabetes, Hypothyroidism and coronary artery disease had previously undergone surgical aortic valve replacement in 2017, Years later, the artificial valve had deteriorated, causing severe aortic stenosis and regurgitation. Recent Hospitalisation for pulmonary edema & later developed acute coronary syndrome coronary angiogram revealed triple vessel disease, primary angioplasty (PLV) done.

TECHNICAL INNOVATION: THE BASILICA TECHNIQUE

Bioprosthetic aortic scallop intentional laceration:

To mitigate the risk, the team employed the rare BASILICA technique. Using an electrified catheter wire, the interventional Cardiology team under leadership of DR.SENGOTTUVELU intentionally "sliced" the leaflet of the old surgical valve.

Ensuring Blood Flow:

This laceration created a specific opening in the leaflet material. When the new TAVI valve was deployed and expanded, the sliced leaflet parted away rather than blocking the coronary opening, ensuring uninterrupted blood flow to the heart muscle.

Precision Structural Intervention:

This advanced procedure allowed for a successful "Valve-in-Valve" TAVI in a patient previously deemed too high-risk for conventional treatment, avoiding the need for a high-risk repeat open-chest surgery.

RECOVERY AND CLINICAL OUTCOMES

Immediate Success:

Following the BASILICA laceration, the TAVI valve was successfully implanted. Immediate post-procedural imaging confirmed that the coronary arteries remained wide open with excellent blood flow.

Stable Discharge:

The patient experienced a smooth recovery with no complications or rhythm disturbances. They were discharged in stable condition shortly after the procedure.

Long-term Outlook:

By utilising a minimally invasive approach, the patient avoided the trauma of a second open-heart

surgery, significantly shortening the recovery time and improving their overall quality of life.



RECOVERY AND CLINICAL OUTCOMES

The patient experienced a smooth recovery with no complications or rhythm disturbances. They were discharged in stable condition shortly after the procedure.

02

Pioneering Multi-Prosthetic Cardiac Care: Leadless Pacemaker Implantation in a Complex “Four-Prosthetic-Valve” Patient



DR. REFAI SHOWKATHALI

Senior Consultant

– Interventional Cardiology,

Apollo Hospitals, Greams Road, Chennai

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INTRODUCTION

Advancements in interventional cardiology are redefining the limits of treatable cardiac conditions. Patients with multi-valvular disease who have already undergone several surgeries often reach a point where conventional surgical options are exhausted. Managing these complex cases requires integrating multiple cutting-edge technologies—from transcatheter valve replacements to leadless pacing systems, this case highlights the advancement of cutting-edge cardiac technologies aimed at maintaining cardiac function, improving quality of life, and enhancing patient survival.

CASE OVERVIEW

A 73-year-old male with a long history of cardiac interventions presented with a recent collapse and was diagnosed with Tachy-Brady Syndrome (irregular heartbeat with long pauses). His medical journey at Apollo began in 2022 when he underwent TAVI for aortic stenosis, having already had a mechanical mitral valve replacement in 2000. In 2023, he returned with severe tricuspid regurgitation, which was treated with a TricValve (Bicaval valve) system. By 2026, he required a permanent pacemaker, but his complex anatomy necessitated a non-traditional approach.

TECHNICAL INNOVATION: THE MICRA LEADLESS SYSTEM

Avoiding Lead Complications:

Given the patient's existing prosthetic load and anatomical complexity, a traditional pacemaker with leads (wires) posed a high risk of interference and infection. The team opted for the Micra Leadless Pacemaker, the world's smallest pacemaker.

Femoral Access Implantation:

Unlike conventional pacemakers that require a chest incision and a "pocket" under the skin, the Micra device was implanted directly into the right ventricle via the femoral artery in the leg.

The Five-Prostheses Milestone:

With this successful procedure, the patient became a rare case of a "five-prostheses" cardiovascular system, containing:

1. A surgical mechanical Mitral valve
2. A TAVI (Aortic) valve
3. An SVC (Superior Vena Cava) valve
4. An IVC (Inferior Vena Cava) valve
5. A Micra Leadless Pacemaker

RECOVERY AND CLINICAL OUTCOMES

Minimally Invasive Recovery:

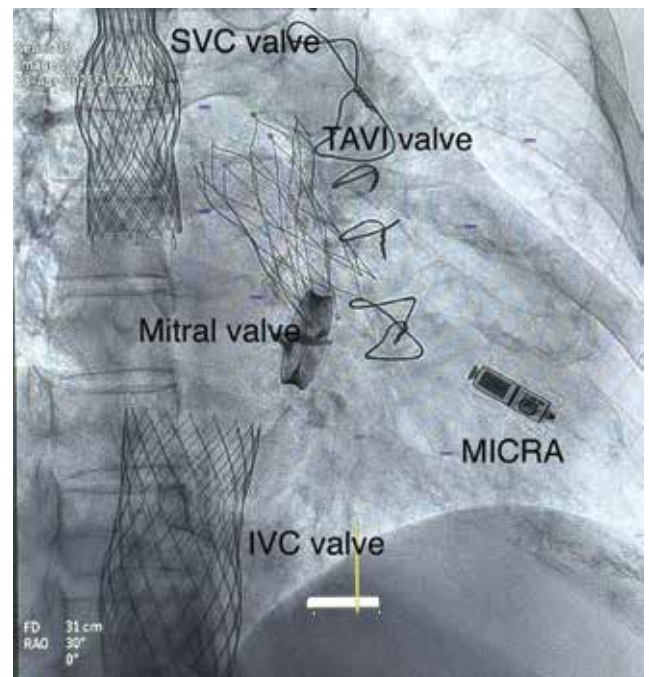
The leadless approach allowed for a significantly faster recovery compared to traditional pacing systems. The patient experienced no procedural complications and was discharged the very next day.

Restored Cardiac Rhythm:

Post-procedural monitoring confirmed the successful management of the Tachy-Brady syndrome, with the Micra device effectively regulating the heart rate and preventing further syncopal episodes (collapses).

Patient Trust & Continuity:

Despite living many miles away in another state, the patient's choice to return to Apollo for this fourth major procedure underscores the success of long-term complex structural heart management.



CLINICAL SIGNIFICANCE

This case illustrates how evolving technologies act as a boon for patients previously considered "high-risk" or "inoperable." By successfully managing a patient with five distinct cardiovascular prostheses—four of which were implanted percutaneously—Apollo Hospitals demonstrates its leadership in reshaping the boundaries of interventional cardiology. These innovations not only reduce procedural trauma but also offer a high quality of life to patients with advanced, multi-organ cardiac disease.

03

Robotic Segmentectomy With Portal Vein Thrombectomy For Complex Hepatocellular Carcinoma



DR. KS SANTHOSH ANAND

Consultant – Liver & Pancreatic Surgery,
GI Oncology & Robotic Surgery

Apollo Hospitals, Greams Road, Chennai

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INTRODUCTION

Hepatocellular carcinoma (HCC) in patients with chronic liver disease, particularly when associated with portal vein tumour thrombosis (PVTT), presents a formidable therapeutic challenge. Traditionally, these cases are considered high-risk due to the underlying cirrhosis and the technical difficulty of removing a thrombus from the portal vein. However, the advent of robotic surgical systems has opened new curative avenues for these complex presentations.

CASE OVERVIEW

A 61-year-old female with Hepatitis C virus (HCV)-related cirrhosis was incidentally diagnosed with a hepatic lesion during routine follow-up. Imaging revealed a 4 x 3 cm tumour in segment V of the liver, with a critical complication: a tumour thrombus extending into the segmental portal vein. Despite being asymptomatic, the patient required a precise intervention that could address both the tumour and the thrombus while preserving her already shrunken, cirrhotic liver function.

TECHNICAL INNOVATION: ROBOTIC PRECISION IN LIVER SURGERY

Robotic-Assisted Segmentectomy:

The surgical team performed a robotic-assisted segment V segmentectomy. The robotic platform provided the high-definition 3D visualisation and dexterity needed to navigate the shrunken, macronodular cirrhotic liver with extreme precision.

Guided Resection Margins:

Intraoperative ultrasound was utilised to confirm the exact location of the lesion and guide the resection margins, ensuring complete tumour removal while sparing as much healthy liver tissue as possible.

Complex Thrombectomy:

In a rare manoeuvre for a minimally invasive setup, the portal vein tumour thrombus was successfully extracted using a Fogarty balloon catheter. This restored adequate blood flow to the liver, a critical step in preventing post-operative liver failure.

RECOVERY AND CLINICAL OUTCOMES

Smooth Post-Operative Course:

The procedure was completed entirely robotically without any intraoperative complications. The patient was mobilised early and was able to begin oral intake by the first day after surgery.

Rapid Discharge:

Showing stable liver function, the patient was discharged on the third post-operative day. Her surgical drain was removed during a follow-up visit just six days after the procedure.

Minimal Morbidity:

Compared to traditional open liver surgery, the robotic approach resulted in significantly reduced blood loss and a much faster recovery, which is especially beneficial for patients with underlying cirrhosis.



CLINICAL SIGNIFICANCE

This case highlights the feasibility and safety of combining robotic liver resection with portal vein thrombectomy. By utilising a minimally invasive approach, Apollo Hospitals is expanding surgical candidacy for patients with complex HCC who might otherwise be limited to palliative care. Meticulous multidisciplinary planning and advanced robotic techniques now allow for curative outcomes in high-risk scenarios with faster returns to daily life.

04

Transcatheter Mitral Valve-in-Valve Replacement And Permanent Pacemaker Implantation In An Octogenarian



DR. DHAMODARAN K

Senior Consultant – Cardiologist,

Apollo Hospitals, Greams Road, Chennai

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INTRODUCTION

Redo Cardiac Surgeries in elderly patients carry significant morbidity and mortality risks, especially when multiple valves have been previously treated. As surgical bioprosthetic valves naturally degenerate over time, transcatheter "Valve-in-Valve" (ViV) technology offers a minimally invasive lifeline. This approach allows for the replacement of a failing surgical valve without reopening the chest, even in patients with complex electrical disturbances of the heart.

CASE OVERVIEW

An 81-year-old gentleman presented with decompensated heart failure and recurrent syncope. His cardiac history was significant: twelve years prior, he had undergone surgical mitral valve replacement and tricuspid valve repair. Clinical evaluation revealed severe degeneration of the surgical mitral bioprosthesis, pulmonary hypertension, atrial fibrillation, and a complete heart block. Given his advanced age and high surgical risk, repeat open-heart surgery was deemed unsuitable.

TECHNICAL INNOVATION: MITRAL VALVE-IN-VALVE (VIV)

Stabilisation and Pacing:

The patient was initially stabilised using temporary pacemaker implantation and medical anti-failure measures to manage the complete heart block and fluid overload before the definitive procedure.

Precision Valve Deployment:

The team performed a Transcatheter Mitral Valve-in-Valve Replacement using a 29 mm Edwards SAPIEN valve. This specialised valve was navigated to the heart and deployed precisely within the frame of the old, degenerated surgical valve.

Comprehensive Electrical Repair:

Following the successful valve implantation, a single-chamber permanent pacemaker was implanted. This addressed the complete heart block, ensuring a stable and synchronised heart rhythm to complement the restored valvular function.

RECOVERY AND CLINICAL OUTCOMES

Immediate Hemodynamic Improvement:

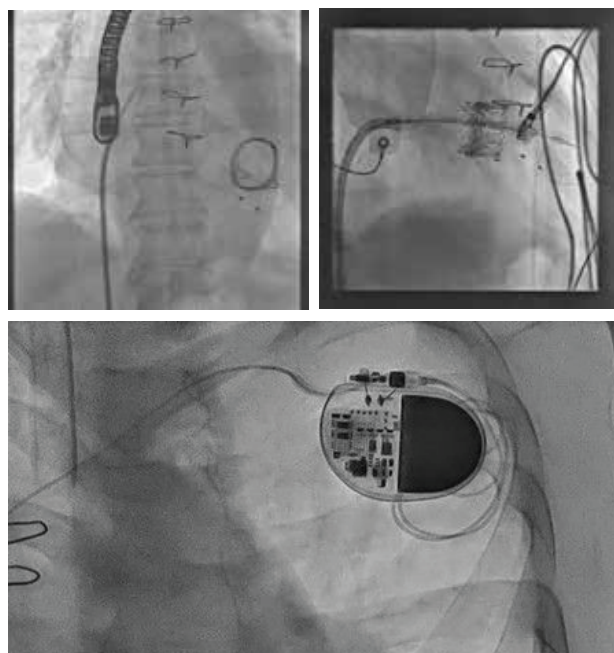
Post-procedural echocardiography confirmed a well-seated ViV prosthesis. The patient showed a significantly improved mitral valve area with low-pressure gradients and preserved biventricular systolic function.

Symptomatic Relief:

The combination of the new valve and the permanent pacemaker successfully resolved the patient's heart failure symptoms and syncopal episodes.

Minimally Invasive Advantage:

By avoiding a high-risk redo sternotomy, the octogenarian patient experienced a much smoother recovery profile than traditional surgery would have allowed, enabling a faster return to his baseline quality of life.



CLINICAL SIGNIFICANCE

This case highlights the transformative power of advanced structural heart interventions for the elderly. The ability to perform complex mitral valve-in-valve replacements alongside permanent pacing underscores the multidisciplinary expertise at Apollo Hospitals. It demonstrates that even "high-risk" octogenarians with degenerated previous surgeries can achieve excellent clinical outcomes through precisely executed, minimally invasive techniques.

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YEARS
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APOLLO HOSPITALS

21, Greams Lane, Off Greams Road,
Thousand Lights, Chennai 600 006.

For Specialist Consultations & Collaborations:
044-4040 1066

Email: infochennai@apollohospitals.com