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APOLLO CHENNAI INSIGHTS

Unique Cases from Chennai

SEPTEMBER 2026

REDEFINING POSSIBILITIES. RESTORING LIVES.



Combined Pulsed Field Ablation and Left Atrial Appendage Occlusion

Pulsed field ablation and left atrial appendage occlusion in a single procedure.



Robotic-Assisted Knee Replacement:

Restoring mobility in a patient weighing 160 kg.



CHIP Angioplasty Procedures

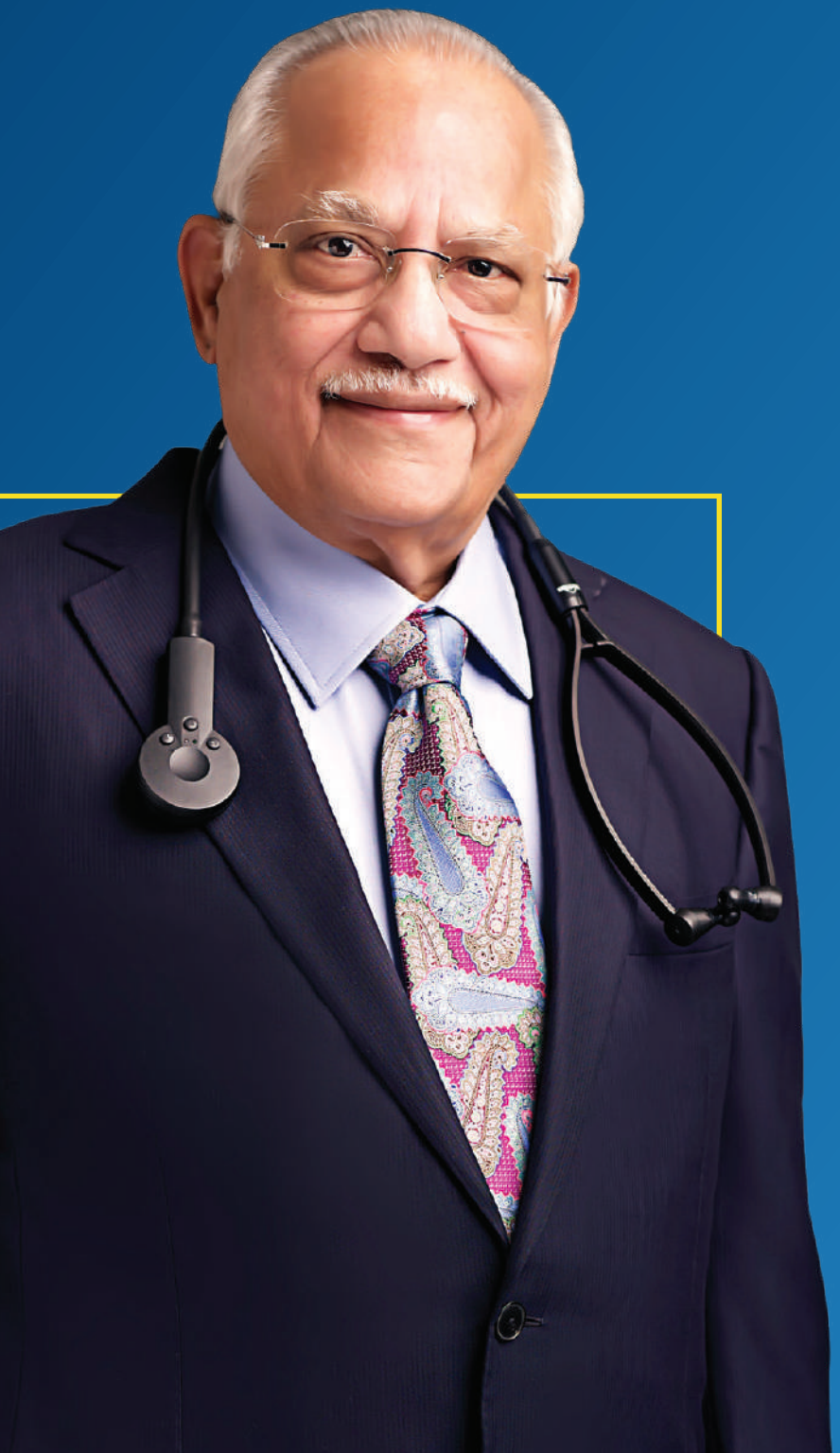
Advanced techniques for treating high-risk coronary blockages.



Staged Bilateral Reverse Shoulder Replacement

Restoring independence through patient-specific 3D planning.

FROM THE CHAIRMAN'S DESK



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

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

Our vision is to make India a global healthcare destination.

Dr Prathap C Reddy
Founder & Chairman
Apollo Hospitals



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01

ROBOTIC-ASSISTED TOTAL KNEE REPLACEMENT IN A PATIENT WITH VERY HIGH BODY WEIGHT:
Precision mobility restoration in a 160 kg patient.



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Anaesthesia Team
Physiotherapy and Rehabilitation Team

INTRODUCTION

Severe obesity can make knee replacement particularly challenging. Increased body weight can add complexity to perioperative planning, implant positioning, mobilisation and rehabilitation.

For patients with end-stage knee arthritis, severe pain and functional limitation can make mobility extremely difficult. In such cases, careful assessment, surgical planning and early rehabilitation are important considerations.

CLINICAL PRESENTATION

A patient in their late 50s, weighing 160 kg, presented with:

- Severe end-stage knee arthritis
- Debilitating knee pain
- Significant functional limitation

The patient's very high body weight complicated overall management of the procedure.

CLINICAL ASSESSMENT AND DECISION-MAKING

The patient was assessed as having end-stage knee arthritis requiring total knee replacement.

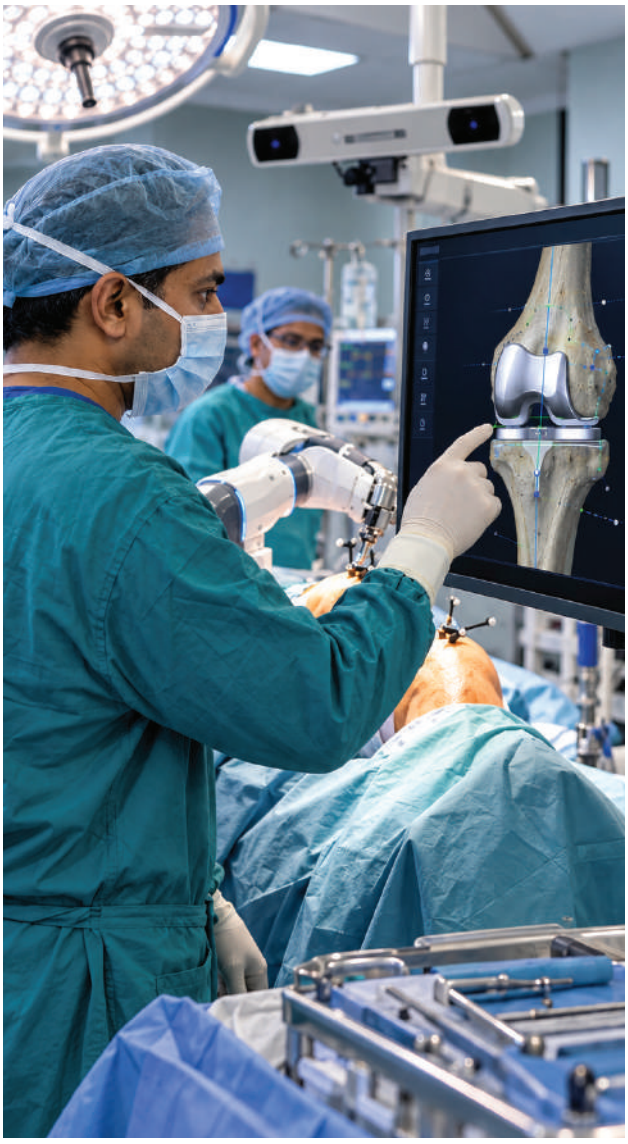
A CT-based three-dimensional plan was prepared for robotic-assisted surgery.

TREATMENT

The patient underwent robotic-assisted total knee replacement using the Mako Robotic-Arm Assisted System.

The CT-based plan was used to guide:

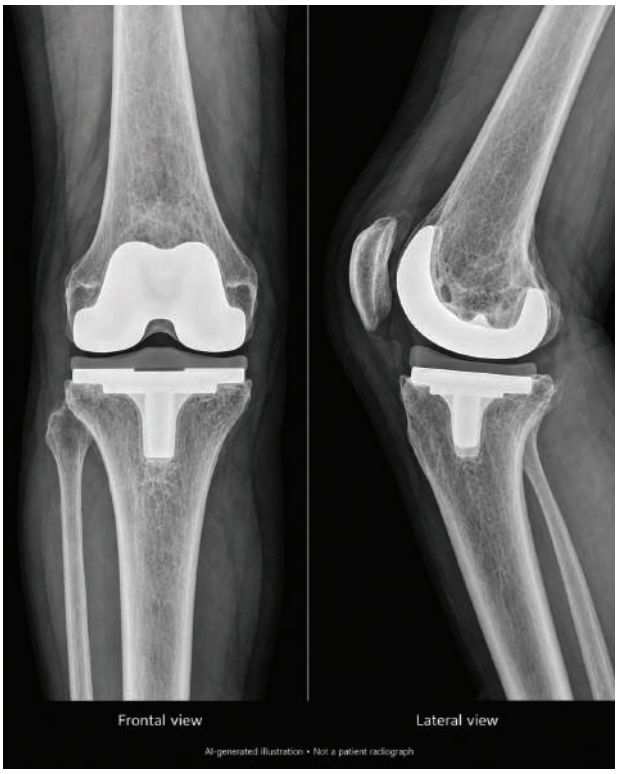
- Bone preparation
- Implant alignment
- Soft-tissue balancing



POSTOPERATIVE OUTCOME

Early mobilisation was encouraged.

The patient stood and began walking soon after surgery and was reported to walk comfortably in the early postoperative period.



CLINICAL SIGNIFICANCE

This case demonstrates that joint replacement can be undertaken in a patient with very high body weight when perioperative risk is carefully assessed and rehabilitation is planned early.

Robotic technology can assist surgical planning and component positioning. However, the favourable early recovery in this individual case should not be interpreted as proof that robotic assistance independently reduces complications.

CONCLUSION

The case highlights the role of careful perioperative assessment, patient-specific planning and early rehabilitation when managing complex knee replacement in a patient with very high body weight.

02

STAGED BILATERAL REVERSE SHOULDER REPLACEMENT IN A 73-YEAR-OLD WOMAN: **Patient-specific 3D planning to restore shoulder function and independence.**



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INTRODUCTION

A 73-year-old woman with a history of cardiac bypass surgery presented with long-standing bilateral shoulder pain and significant functional limitation.

Following clinical and radiological assessment, staged bilateral reverse shoulder replacement was planned.

CLINICAL PRESENTATION

The patient's condition affected both shoulders and significantly limited everyday activities. In particular, she had difficulty:

- Elevating both arms
- Performing routine activities independently
- Lifting objects
- Playing with her grandchildren



CLINICAL ASSESSMENT AND DECISION-MAKING

Given the patient's age, medical background and individual shoulder anatomy, careful preoperative assessment and planning were considered essential.

CT-based 3D planning was utilised for detailed assessment of the glenoid and humeral anatomy and to facilitate individualised planning of implant positioning, alignment and component orientation.

The staged approach allowed each shoulder to be addressed sequentially while enabling functional recovery between procedures.



TREATMENT

The patient underwent staged bilateral reverse shoulder replacement.

The left shoulder was operated on 27 February 2025, followed by the right shoulder on 2 September 2026.

POSTOPERATIVE OUTCOME

Postoperatively, the patient demonstrated excellent clinical and functional recovery.

At follow-up, she reported significant improvement in pain and shoulder function and was able to resume her routine activities independently.

Most significantly, she was once again able to interact with and play with her grandchildren, representing a meaningful improvement in her quality of life.



CLINICAL SIGNIFICANCE

This case highlights the importance of:

- Individualised assessment in elderly patients with bilateral shoulder pathology
- Careful medical optimisation in patients with significant comorbidities
- Considering the patient's functional goals alongside clinical and radiological findings
- Assessing treatment success through meaningful functional outcomes

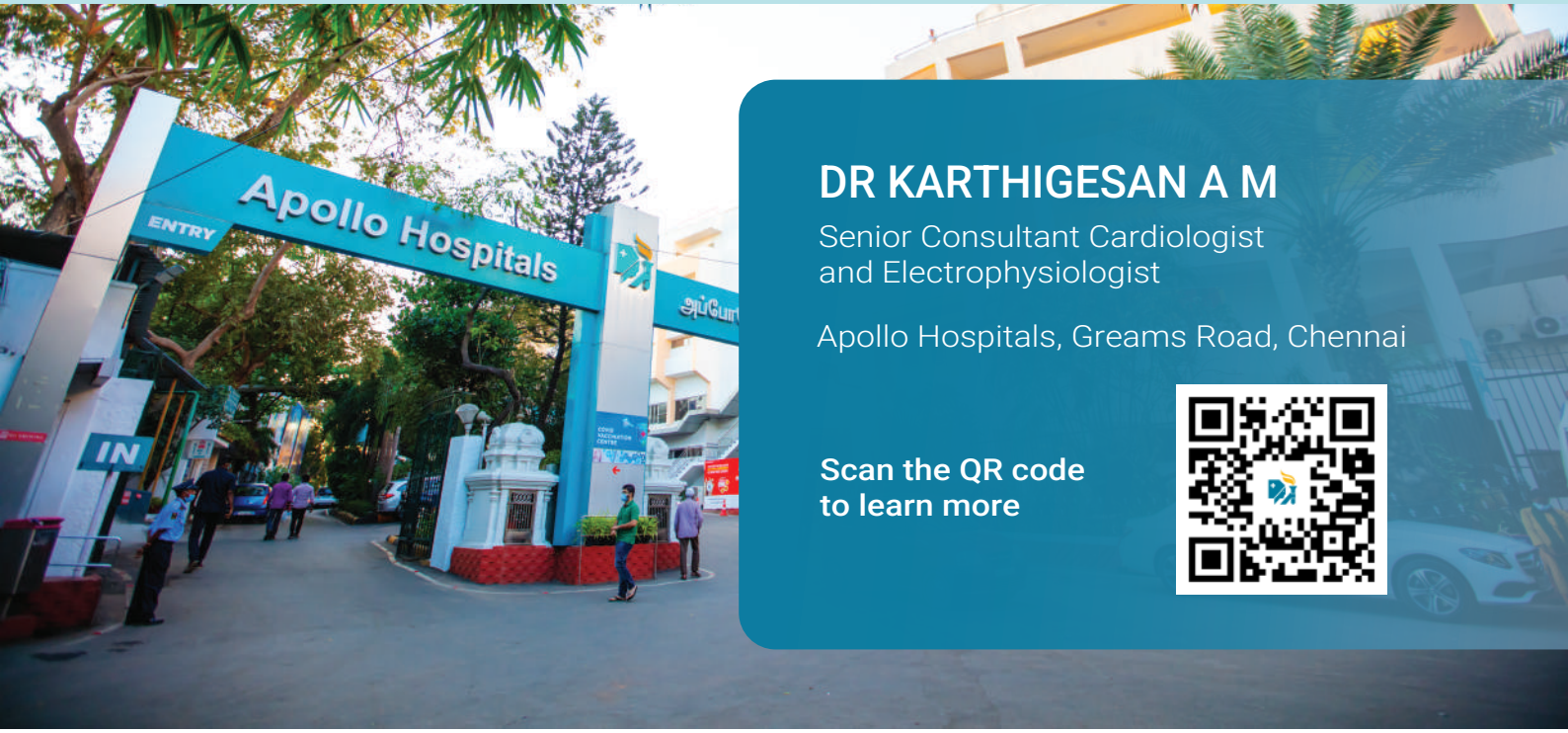
CONCLUSION

The case demonstrates that a carefully planned, staged approach can help address bilateral shoulder pathology while supporting recovery and restoration of independence.

The reported functional improvement enabled the patient to return to activities that were personally meaningful to her.

03

COMBINED PULSED FIELD ABLATION AND LEFT ATRIAL APPENDAGE OCCLUSION: **Addressing atrial fibrillation and stroke risk in a single sitting.**



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INTRODUCTION

Apollo Hospitals has successfully performed a combined catheter-based procedure involving pulsed field ablation (PFA) using the FARAPULSE™ Pulsed Field Ablation System and left atrial appendage occlusion (LAAO) in a 75-year-old man with diabetes and paroxysmal atrial fibrillation (AF). The patient had previously suffered an embolic stroke and subsequently developed intracranial bleeding while on oral anticoagulation, creating a complex challenge in balancing rhythm control and stroke prevention with bleeding risk.

CLINICAL PRESENTATION

The patient initially experienced an embolic stroke attributed to paroxysmal atrial fibrillation.

He was treated with antiarrhythmic medication for rhythm control and oral anticoagulants to reduce the risk of recurrent stroke. He subsequently developed intracranial bleeding requiring surgical intervention.

Following stabilisation, oral anticoagulation was restarted after an individualised assessment of thromboembolic and bleeding risks. Recurrent AF was documented on extended Holter monitoring despite antiarrhythmic therapy.

Given his previous intracranial haemorrhage, the patient was concerned about the risk of further bleeding and was reluctant to continue long-term anticoagulation.

CLINICAL ASSESSMENT AND DECISION-MAKING

This presented a complex clinical challenge. Discontinuing anticoagulation could increase the risk of thromboembolic stroke, while continuing it could expose the patient to a risk of recurrent bleeding.

The treatment strategy therefore sought to address both the recurrent arrhythmia and the risk of thromboembolic stroke while reducing reliance on long-term oral anticoagulation.

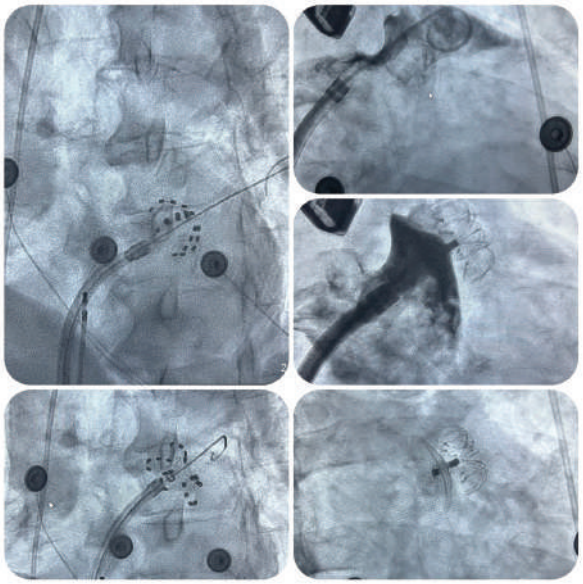
A combined approach using pulsed field ablation and left atrial appendage occlusion was planned in a single sitting.

TREATMENT

The patient underwent pulsed field ablation using the FARAPULSE system, a non-thermal catheter-based treatment for atrial fibrillation.

Pulsed field ablation uses precisely delivered electrical pulses to selectively ablate cardiac tissue responsible for initiating and maintaining atrial fibrillation, most commonly around the pulmonary veins. The procedure is designed to restore and maintain normal heart rhythm while reducing the burden of recurrent AF.

Unlike conventional thermal ablation techniques, PFA uses non-thermal electrical energy, offering a different approach to cardiac tissue ablation and potentially reducing injury to surrounding structures.

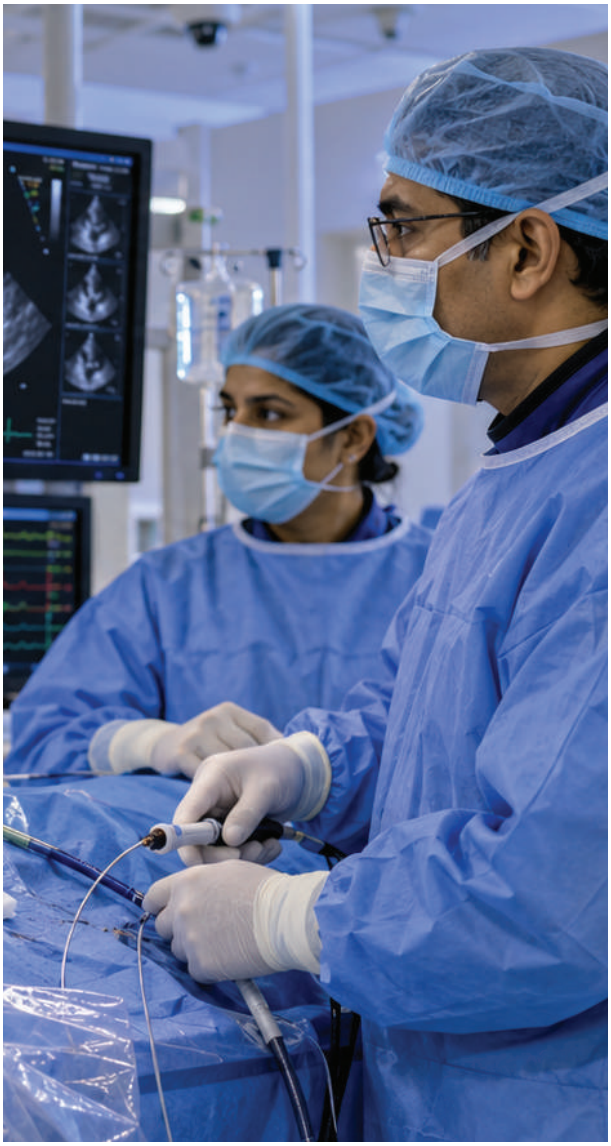


In the same sitting, the patient also underwent left atrial appendage occlusion (LAAO).

During this minimally invasive procedure, a specially designed occlusion device is delivered through a catheter inserted via the femoral vein in the groin and positioned within the left atrial appendage, a small pouch in the heart where blood clots commonly form in patients with atrial fibrillation.

By sealing off the left atrial appendage, LAAO aims to reduce the risk of clot formation and subsequent embolic stroke originating from the appendage.

It is an established treatment option for selected patients with non-valvular atrial fibrillation who have an appropriate indication for stroke prevention and are unsuitable for long-term oral anticoagulation because of bleeding risk or other contraindications.



POST-PROCEDURAL OUTCOME

The patient tolerated the combined procedure well, with both interventions completed during the same sitting.

The combined approach addressed the two principal clinical concerns: recurrent atrial fibrillation and thromboembolic stroke risk.

The patient received appropriate post-procedural care and follow-up, with the treatment strategy tailored to his significant stroke and bleeding risks.

Left atrial appendage occlusion aims to reduce embolic stroke risk arising from the appendage; it does not eliminate all stroke risk.

Post-procedural antithrombotic treatment and follow-up imaging are individualised according to the device, clinical findings and the patient's bleeding risk.





CLINICAL SIGNIFICANCE

This case demonstrates how advanced electrophysiology and structural heart interventions can be combined to address different aspects of atrial fibrillation within a single treatment strategy.

For carefully selected patients in whom recurrent atrial fibrillation coexists with significant challenges to long-term anticoagulation, combining rhythm management with left atrial appendage occlusion may provide an alternative approach to addressing both clinical priorities.

KEY HIGHLIGHTS

- Combined pulsed field ablation and left atrial appendage occlusion performed in a single sitting
- FARAPULSE system used for non-thermal ablation of atrial fibrillation
- Left atrial appendage occlusion performed to reduce embolic stroke risk arising from the appendage
- Minimally invasive catheter-based approach
- Individualised treatment strategy for a patient with significant stroke and bleeding risks

CONCLUSION

The combined procedure demonstrates the potential of a coordinated, minimally invasive approach to managing complex atrial fibrillation, addressing rhythm control and stroke prevention within a treatment strategy tailored to the patient's individual clinical risks and therapeutic needs.

04

CHIP ANGIOPLASTY PROCEDURES: Advanced techniques for treating high-risk coronary blockages.



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THE CHALLENGE

Patients with complex coronary artery disease and significant comorbidities such as kidney disease, heart failure or uncontrolled diabetes can be particularly high risk for conventional angioplasty. The risk can be even greater in patients who have previously undergone open-heart surgery.

Complex high-risk indicated percutaneous coronary intervention (CHIP-PCI) is an advanced catheter-based approach for treating these challenging cases. The complexity may arise from the anatomy of the coronary arteries, such as heavily calcified blockages, multiple blockages, blockages at vessel divisions or disease involving a main artery. It may also arise from the patient's medical condition, such as severely reduced heart function, kidney disease or significant lung-related problems.

THE APPROACH

In selected patients, complex PCI may improve symptoms and quality of life. Outcomes depend on the patient's condition, coronary anatomy and treatment strategy. These procedures require specialised techniques, advanced equipment and experienced operators, particularly when the patient's condition makes conventional angioplasty higher risk.

For heavily calcified coronary arteries, techniques such as rotational atherectomy, orbital atherectomy, laser angioplasty, intravascular lithotripsy (IVL) and specialised cutting and scoring balloons can be used to modify the calcium. These techniques prepare the lesion for balloon dilatation and stent implantation.

PROTECTING THE KIDNEYS

In patients with significant kidney disease, minimising contrast exposure is an important procedural consideration. Contrast-associated acute kidney injury can worsen renal function and, in severe cases, require dialysis.

Ultra-low contrast angioplasty minimises the use of contrast dye. Intravascular Ultrasound (IVUS) provides detailed images from inside the blood vessel, helping guide stent sizing and placement while reducing reliance on contrast injection.

These approaches may be considered in high-risk PCI cases where protecting kidney function is an important treatment consideration. Their use depends on the patient's clinical condition and procedural requirements.

PROTECTING THE HEART

Complex procedures can carry additional risk in patients with severely reduced heart pumping function. In such cases, Mechanical Circulatory Support (MCS) devices such as the Intra-aortic Balloon Pump (IABP), Extracorporeal Membrane Oxygenation (ECMO) and Impella can be used during the procedure.

These devices provide temporary haemodynamic support during complex angioplasty in selected patients.

THE CASE

A 58-year-old man presented with chest pain. He was known to have kidney disease and was found to have severely reduced left ventricular systolic function. Investigations revealed heavily calcified blockages in the coronary arteries.

Given the combination of severe coronary calcification, kidney disease and poor heart function, conventional angioplasty carried significant risk.

THE PROCEDURE

The patient underwent a complex high-risk PCI using Rotablation (a specialised drilling technique) to modify the heavily calcified blockages, with Impella used to provide temporary haemodynamic support during the procedure.

The procedure was completed, with three stents implanted to restore blood flow through the coronary arteries.

THE OUTCOME

The patient was discharged within 48 hours of the procedure.



THE SIGNIFICANCE

This case demonstrates how advanced CHIP techniques, specialised calcium-modification tools and mechanical circulatory support can make complex angioplasty possible even in patients with significant comorbidities and severely reduced heart function.

Such procedures require specialised expertise, advanced technology and high-volume centres equipped to manage complex coronary interventions safely.

CONCLUSION

This case highlights how specialised CHIP techniques, advanced imaging and mechanical circulatory support can support complex angioplasty in high-risk patients, with outcomes dependent on individual clinical factors and procedural requirements.

INTRODUCING VELYS™

Our Second Robotic System Dedicated to Knee Replacement at Apollo Hospitals, Greams Road.



VELYS: ADVANCING ROBOTIC KNEE CARE

Apollo Hospitals, Greams Road, has added the VELYS Robotic-Assisted Solution to its knee replacement capabilities, strengthening its robotic surgery offering with a second system dedicated to knee replacement. It supports surgeons in performing procedures based on each patient's individual anatomy and clinical needs.

THE VELYS SYSTEM SUPPORTS:

- Total knee replacement
- Partial knee replacement

With real-time mapping of knee anatomy, guided bone preparation, implant positioning and soft-tissue balancing, VELYS provides surgeons with information to support surgical precision throughout the procedure. Working under the surgeon's direction, it supports informed clinical decisions while further strengthening the capabilities of Apollo Hospitals, Greams Road, in advanced robotic-assisted orthopaedic care.

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