Kauvery Hospital Treats Complex Aortic Valve Regurgitation Using Specialised HANCHOR Valve Technology

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Kauvery Hospital, Alwarpet, Chennai, has successfully treated severe aortic valve leakage, known as Pure Native Aortic Regurgitation (PNAR), in a 63-year-old man with a transcatheter aortic valve replacement (TAVR) procedure using the specialised HANCHOR valve. The condition was caused by a perforation in the patient's native aortic valve leaflet. The patient also had a history of mitral valve replacement, adding to the complexity of the treatment. This is the first of its

kind procedure where the HANCHOR valve has been used for TAVR in a patient presenting with this combination of clinical factors.



Dr. Iyappan Ponnuswamy, Medical Director, Dr. Clive Fernandes – DMS, Dr. Mahesh Kumar – MS, Dr. R. Anantharaman, Sr. Cardiologist & Cardiology Team

The aortic valve regulates blood flow from the heart into the aorta, the main artery that supplies blood to the body. When the valve does not close properly, blood flows backwards into the heart, a condition known as aortic regurgitation. In this patient, the leakage was severe and associated with a perforation in one of the valve's leaflets, making treatment more complex.

Treating pure native aortic regurgitation through a catheter-based approach presents a specific challenge. Unlike aortic stenosis, in which calcium deposits can help secure a replacement valve, patients with pure native aortic regurgitation often have little or no calcification to support the implanted valve. This makes stable positioning and secure anchoring more difficult. The patient’s previous mitral valve replacement added another important consideration to the treatment planning.

The HANCHOR valve is designed to address the challenge of valve anchoring in pure native aortic regurgitation. It combines a balloon-expandable frame with a dedicated anchoring element made of nitinol, a flexible metal alloy. The anchoring mechanism is designed to engage the native valve leaflets and help stabilise the replacement valve, including in situations where the surrounding anatomy offers limited support.

During the TAVR procedure, the replacement valve was delivered through a catheter and positioned within the patient’s existing aortic valve. This minimally invasive approach allows doctors to replace the faulty valve without conventional open-heart valve replacement surgery, where clinically appropriate.

Following the procedure, the post-procedure assessment reported no residual aortic regurgitation, no valve stenosis (abnormal narrowing) and no paravalvular leak, which is leakage around the implanted valve. No significant abnormality in the heart’s electrical conduction was reported. The patient was discharged after three days.

Dr. Rajaram Anantharaman, Senior Consultant Interventional Cardiologist Kauvery Hospital, Alwarpet, Chennai, said, "*Pure native aortic regurgitation can be challenging to treat using a catheter-based approach because the limited calcium deposits in the native valve can make it difficult to secure a replacement valve. Also, the perforation of the aortic valve leaflet, combined with the patient's history of mitral valve replacement, added further complexity to treatment planning. The HANCHOR valve's dedicated anchoring mechanism helped us address the challenges of valve positioning. The immediate post-procedure findings were encouraging, with no residual aortic regurgitation or leakage around the implanted valve reported. This procedure demonstrates the importance of individualised treatment planning and specialised valve technology in managing complex structural heart conditions.*"

Commenting on the treatment, **Dr. Aravindan Selvaraj, Co-founder and Executive Director, Kauvery Group of Hospitals**, said, *"At Kauvery, we are committed to advancing patient care through clinical expertise, innovation and the adoption of appropriate medical technologies. Success stories such as this highlight the importance of combining specialised treatment approaches with careful clinical assessment to address complex cardiac conditions. We continue to focus on bringing advanced treatment options to patients while maintaining the highest standards of patient safety and care."*