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Heart Valve Repair

The heart is a powerhouse that pumps around 7,200 liters of blood throughout your body every day. It is by far the hardest working muscle and organ in your body. As you can tell, your heart valves are working very hard to ensure the blood flows in a forward direction in the best efficient manner.

Like any good machine, wear and tear is common especially if we do not maintain a healthy lifestyle. Valvular heart disease (VHD) may not only be caused by degenerative heart valves due to advanced aging but additionally by a bacterial infection and chronic rheumatic fever in children that may only develop symptoms of VHD 5-20 years later. A heart valve becomes diseased for many varied reasons, therefore it is imperative to inform your doctor of your medical history so that an accurate diagnosis can be reached.

The most common diseased heart valves are the mitral valve and aortic valve. The valve may become either narrowed (stenotic)

or incompetent (leaky) which means the valve is no longer efficiently opening and closing properly thus causing the heart to pump harder to push blood out through the aorta or backflow of blood. Before recommending a treatment option, patient evaluation is the main priority as there are many factors to consider – age, lifestyle, severity of diseased valve, gender, and other comorbidities such as diabetes and high blood pressure.

REPAIRING THE DISEASED VALVE

Ideally, heart valve repair is preferred over replacement because it has a lower risk of infection, preserves valve strength and function, and avoids the need to take warfarin for the rest of your life as necessary with a mechanical valve replacement. Traditionally heart valve repair is an open-heart surgery but with technology advancements, some repairs can be done via minimally invasive techniques instead.

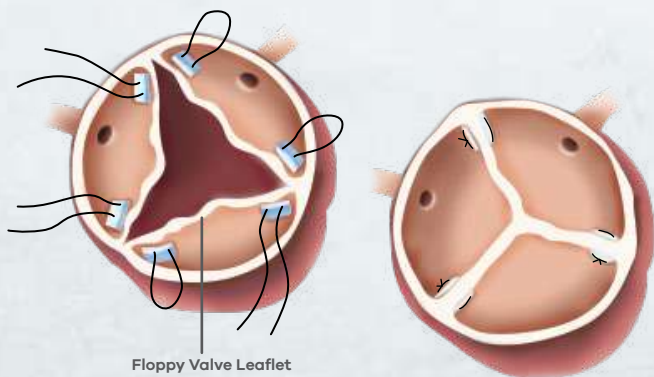


Figure 1.1 Illustration of how to repair and reinforce the aortic leaflet

AORTIC VALVE REPAIR

Bicuspid aortic valve (BAV) is a common congenital cardiac defects – the aortic valve has two leaflets instead of the normal three leaflets. Another common repair is to reshape the incompetent valve with reinforcements to keep its shape and make it long lasting. Sometimes in younger patients, just by removing the calcium deposits from the valve can restore valve function, however, in older patients, the calcification may have caused the leaflets to be stiff and unyielding thus other methods have to be implemented.

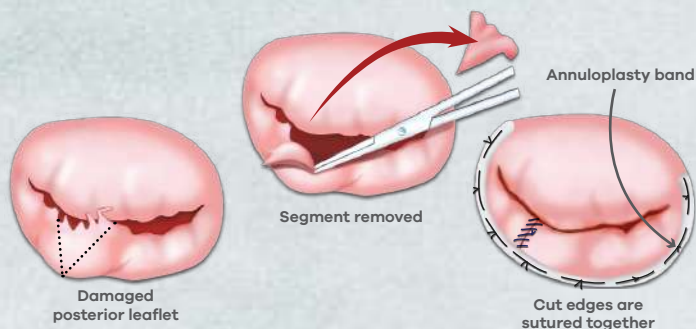


Figure 1.2 The damaged segment of mitral valve is identified and removed. It is then sewn up. An annuloplasty completes the repair.

MITRAL VALVE REPAIR

When it comes to leaky mitral valves, repair is preferable because the native mitral valve is intimately associated with the structure of the left ventricle. The most frequent repair we do at IJN is for prolapse of the posterior mitral valve leaflet. About one-third of the cases, patients with mitral valve disease also have atrial fibrillation which is an abnormal heart rhythm. To address both issues at once, a combined surgical strategy to repair the valve and eliminate atrial fibrillation is recommended for best outcome.

Repairing a heart valve is like tailoring a custom suit. Each person's heart valve differs in size and shape. However, not all heart valves can be repaired. It very much varies from case to case depending on the severity of the valve damage and the expertise and experience of the surgeon.

MINIMALLY INVASIVE SURGERIES

If you're not up to open-heart surgery, there are several minimally invasive surgeries to opt for. Medical technology advancement has been moving aggressively to find more ways to fix heart valves. IJN has been at the forefront of collaborating with panels of specialists to bring new procedures to help patients with VHD such as MitraClip and VenTouch Ventricular Reshaping device for treating leaky mitral valves. IJN performed the first-in-man VenTouch in the world in 2014.

Newer procedures like the Transcatheter Aortic Valve Implantation (TAVI) replaces the diseased aortic valve with a bioprosthetic valve. This procedure was first performed in IJN in 2009. Now that we have TAVI, we look forward to the next technology of treating the mitral valve which is Transcatheter Mitral Valve Implantation (TMVR), the next breakthrough technology.

In some uncommon cases of a diseased pulmonary valve, there is an option to implant a bio-absorbable Pulmonary Valve Conduit (PVC). IJN was the first in Asia-Pacific to perform this procedure.

EITHER WAY...

In any case, it is a win-win situation. There are always options to help manage **valvular heart disease**. Your doctor may implement a watch-and-wait method to monitor the progression of the disease. If needed, blood-thinning medication can be prescribed to aid blood flow as well as introducing a balanced diet plan. As the heart is a muscular organ, a physiotherapist will also guide you on ways to monitor your heart rate as you conduct your exercises to ensure you are not overexerting your heart.

The way forward to a healthy heart and valves is to maintain a healthy lifestyle as well as keeping up with the yearly full body and dental check-ups. No matter how healthy you think you are, it is always a good measure to check consistently as with any disease, early detection is key to better treatment options.

BENEFITS OF HEART VALVE REPAIR

- ✧ Prolonged life
- ✧ Improved lifestyle
- ✧ Better preservation of heart function
- ✧ Lower risk of stroke and bacterial infection (endocarditis)
- ✧ No need for blood thinners (Warfarin)
- ✧ Lower risk of bleeding