



ADVANCES IN HEART BYPASS SURGERIES

Being a cardiothoracic surgeon means that Dr. Kenny Cheng, Consultant Cardiothoracic Surgeon at Subang Jaya Medical Centre (SJMC), is responsible for treating the heart and lungs—vital and irreplaceable organs—of his patients. Most commonly, he's involved in surgeries to combat ischemic heart disease, the No. 1 cause of death in Malaysia.

Recent advancement in the world of medicine has made it possible for skilled surgeons to handle complex heart cases in a straightforward manner. Dr. Kenny Cheng, one of the nation's rare breeds of cardiothoracic surgeons with paediatric cardiac surgery expertise, explains what this means for patients.

Minimally invasive surgery means smaller wounds and faster recovery

Coronary Artery Bypass Graft surgery (CABG), or what is known as heart bypass surgery, remains the most popular type of surgery when it comes to extending the life expectancy of patients. Over the years, advancements in medical technology have changed how heart bypass surgery is carried out.

Conventional heart bypass surgery requires the chest bone to be opened to access the heart. Then the heart is stopped and put through a heart-lung bypass machine that keeps the patient alive throughout the surgery. Next, to get a graft that is suitable for the bypass, a vein would need to be retrieved from the patient's leg and yet another long incision from the ankle to the groin would need to be made.

Today, patients have the option of having minimally invasive EVH leg vein harvest. With a smaller 3 cm incision behind the knee, the graft vein can be retrieved from the patient's leg instead of having a long incision throughout the leg.

Dr. Kenny pointed out that in the last 10 years, doctors have been using advanced medical equipment and instruments called Endoscopic Vein Harvesting (EVH) to perform the procedure, which



Dr. Kenny performs heart surgery with a team of specialised personnel.

means that this sophisticated procedure can reduce pain and provide faster recovery for many patients.

Heart diseases don't happen overnight

Most Malaysians who experience sudden heart attacks don't even realise they have blockages in the heart until it is too late. And this condition doesn't happen overnight.

Coronary heart diseases happen due to the narrowing of arteries that supply blood to the heart. Thick deposits of fat and cholesterol-laden stenosis are left on the walls of the arteries, leading to the formation of plaque. This plaque eventually narrows the artery to such an extent that it reduces the flow of blood to the heart or causes the artery to become severely blocked by a ruptured plaque.

"When this happens, thrombosis and blood clots quickly develop, which can block the arteries and trigger a heart attack," says Dr. Kenny.

"The more fortunate ones probably experience symptoms such as dizziness, cold sweats, and laboured breathing. When those symptoms happen and if the patient seeks medical attention early, a cardiologist can diagnose how much of

their arteries are blocked and what course of treatment should be taken. Otherwise, if they seek medical attention a tad too late, they might not be so lucky."

For patients who have two or more blocked heart vessels, heart bypass surgery is usually the recommended treatment option. Compared to other treatments, it helps improve heart function, increase survival rates, and patients can live longer with better and cheaper long-term results.

Heart bypass surgery is relatively safe

Heart bypass surgery is one of the most important treatments as it creates a new pathway for blood to be supplied to the heart. This is usually done by inserting a graft, such as a saphenous vein from the leg or an internal mammary artery from the chest wall, to complete the bypass surgery.

The saphenous vein in the leg is one of the most used "bridge" vascular materials in heart bypass surgery. It extends from the ankle to the base of the thigh and is the longest superficial vein. It has a small curvature and a calibre that matches that of the coronary arteries, making it good bridge vessel material.

"This vein is used to connect the distal end of the narrowed coronary artery to the aorta, allowing blood to bypass the narrowed part and reach the ischemic area, improving the blood supply to the heart muscle, thus achieving the purpose of relieving angina symptoms like dizziness and fatigue, and improving heart function. A full recovery would not affect the motor function of the lower limbs," shared Dr. Kenny.

Global studies as well as clinical practice guidelines, including the European and American Heart Associations, have also demonstrated the superiority of heart bypass surgery over other treatment modalities in a multi-vessel disease. In Malaysia alone, 80 per cent of common cardiac procedures conducted are heart bypass surgeries.

"Although it is considered a challenging procedure, it is relatively safe. Thousands of heart bypasses are performed worldwide each year, and most patients achieve relief from their symptoms and go on to live normal lives. Overall, the mortality

rate is low, with only about a 2 to 4 per cent risk. Most importantly, it can help people who have life-threatening arterial blockages to regain the quality of life they had before."

Lifestyle changes are needed for prevention

"The prevention of cardiovascular blockage starts with proper exercise. In addition, special attention should be paid if you have high blood pressure, high cholesterol, smoking, diabetes and a family history of the disease yourself."

Dr. Kenny emphasised that cardiovascular obstruction is a life-or-death issue. In addition to maintaining exercise habits, the most important thing is to stay alert and seek medical attention as soon as possible when you feel something is wrong.

He also pointed out that the youngest heart patient he operated CABG on was a 36-year-old male who had diabetes and had been a smoker for many years.

"Although a heart attack is a sudden emergency, it accumulates little by little without the patient even knowing it's there."

Beyond adults – caring for "little hearts"

Dr. Kenny's specialty extends beyond caring for adult hearts. In fact, his second specialty is paediatric congenital heart surgery, a rare but important specialty.

According to Health director-general Tan Sri Dr. Noor Hisham Abdullah, the lack of paediatric cardiac surgeons is not something that Malaysia alone faces, in fact this is a trend that's similar all over the world.

The most common congenital heart defect in children is a



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perforated heart where the holes may form between the heart chambers or may appear between the major blood vessels that begin in the heart. This causes children to have symptoms like rapid breathing, poor growth, recurrent lung infection and so on.

"Congenital heart defects in children is a poignant topic. In addition to being more complex than adult heart surgery, paediatric congenital heart surgery has limited specialists in this area," shares Dr. Kenny.

The complexity and difficulty of congenital heart surgery in children is extremely high, especially in low-weight children because their physiological functions and development are not mature yet, which makes the complexity of the surgery and post-operative care even more difficult. However, the challenge is worth it because once they undergo a successful surgery, children with congenital heart diseases can reach adulthood and live a quality life. ●



The saphenous vein is harvested from the leg for bypass surgery via minimally invasive EVH technique.