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Our arteries are very much like roads: when they become too small and narrow, blood flow through the artery tends to become impeded, much like a small filter lane would often lead to sluggish traffic and eventual jams. Cholesterol tends to gather on the walls of our arteries, and when too much of this plaque gathers along the walls of the arteries – say when about 75 per cent of the artery is obstructed – patients tend to experience central chest tightness when doing anything strenuous. This is known as angina and is fairly common amongst patients who suffer from high blood cholesterol.

While angina can sometimes prove to be a fairly debilitating condition, the real concern is the risk of a heart attack. This happens when the wall over the cholesterol plaque in the artery cracks, exposing the cholesterol to the blood. This causes a blood clot to form rapidly, causing the entire artery to become occluded or obstructed and causing a heart attack. To use the former analogy, this is akin to a multi-car pile-up in the congested lane. Symptoms of a heart attack includes experiencing crushing chest pain or tightness accompanied by sweating or shortness of breath.

In the cases of heart attacks, immediate stenting – the act of inserting a small mesh tube into the artery where the blood clot is – has been known to save lives by temporarily expanding the size of the affected artery and allowing blood to pass freely through the artery again. Even in the case of angina, where the artery is narrowed but not fully occluded, stenting has been also known to relieve the feeling of chest tightness during moments of exertion, making it an extremely effective procedure for all manner of heart problems.

To place a stent in the affected artery, a route to the artery has to be created from the outside of the body to the site of deployment. This is usually done by placing a fine tube that enters the body from the groin or the wrist and, following the path of the artery, all the way to the heart. A wire about as thin as a hair is then wriggled across the

narrowed segment, and a balloon delivered to the affected site to be blown up so that the artery will be dilated (expanded). Once done, the wire mesh tube is then expanded to keep the artery at the new enlarged size, and the rest of the tubes and wires withdrawn.

Regardless of whether the artery in the groin or wrist is used as the site of entry, it has to be compressed for a prolonged period of time to aid in healing. If the groin was used as the site of entry, the patient's entire leg has to be immobilised for at least six hours. This can be quite uncomfortable for many patients, and several complications – such as bleeding and vessel tears – are more common when the groin artery is used.

When the radial artery at the wrist is used, however, only a small pressure bandage need to be used to prevent bleeding. Patients are also not required to lie completely flat for six hours, and they tend to experience less vascular complications and bleedings. However, given that the size of the femoral artery in the groin is to the radial artery what an ink tube in a ball-point pen is to the pen itself, the use of the radial artery for stenting is significantly more demanding from a technical standpoint. However, for doctors who are already familiarised with the procedure, the entire operation can be performed just as quickly as if the femoral artery was used.

