Smaller cut, same result

The mitral valve is one of the four cardiac valves. It sits in the left side of the heart where it serves to prevent backflow of blood from the pumping chamber of the heart (ventricle) and the reservoir chamber of the heart (atrium). In certain people, the mitral valve degenerates with advancing age and becomes “incompetent”. The result is regurgitation of blood between the left ventricle and the left atrium, a condition called mitral regurgitation. When severe, mitral regurgitation results in congestion of blood in the lungs, which leads to symptoms of heart failure, such as shortness of breath and decreased exercise capacity. Importantly, severe mitral regurgitation leads to shorter life expectancy.

Treatment of severe mitral regurgitation is surgical and involves an operation to fix the mitral valve. When feasible, mitral valve repair is the preferred strategy as it allows a patient to keep his/her own mitral valve. However, in certain rare instances, the valve cannot be repaired and must be replaced with a prosthetic valve. This is associated with more long-term complications. Both mitral valve repair and mitral valve replacement have traditionally been carried out via a midline incision through the breastbone (i.e. a median sternotomy). This approach allows for optimal exposure of the heart, but is considered invasive as it requires separation of the breastbone. More recently, a less invasive alternative approach called the minithoracotomy has been proposed. This alternative technique, which has gained popularity over the last two decades, involves a small incision (4-5 cm) between the ribs, with no bone separation. The same operation (i.e. mitral valve repair or replacement) is carried out, albeit through a smaller incision.

Despite its growing popularity, less invasive mitral valve surgery through a minithoracotomy approach has yet to gain widespread adoption. This can be partly explained by the fact that this approach is often perceived as being more challenging than the standard breastbone incision. Thus, there is concern that this technique may less frequently allow for successful repair of the mitral valve and that a higher proportion of patients who undergo less invasive mitral surgery will require valve replacement.

The purpose of this study was to report the Montreal Heart Institute’s early experience with mitral valve surgery through a minithoracotomy, with a special focus on the rate of patients who underwent successful repair of their mitral valve. Our study consisted of 200 consecutive patients, of whom 198 underwent successful mitral valve repair. This 99% repair rate compares favourably with published studies of mitral valve surgery performed through a median sternotomy. Furthermore, patients in this study showed good midterm outcomes, with 98% of patients being alive at 5 years after their surgery.

Thus, this study dispels the commonly held belief that less invasive mitral valve surgery through a minithoracotomy leads to a lower rate of successful valve repair. Building on the experience from previous studies, this report could contribute to the more widespread adoption of less invasive mitral valve surgery.

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