



Endoscopically Assisted Right Anterolateral Minithoractomy Versus Conventional Double Valve Replacement: A Retrospective Cohort Study

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BACKGROUND: This study aimed to compare the perioperative and early clinical outcomes of double valve replacement (DVR) through endoscopically assisted right anterolateral minithoractomy (VATS-RALT) and conventional sternotomy approaches.

METHODS: This was a retrospective, observational, cohort study of prospectively collected data from 176 patients, of which 50 patients were performed through VATS-RALT, undergoing first-time isolated DVR at our institution between January 2020 and December 2023. Perioperative and early outcomes were collected and analyzed to compare these two surgical approaches.

RESULTS: The baseline characteristics of two groups were comparable. There was no significant difference in the size of the implanted prostheses between the two groups. The operation time (median, 272 vs. 240 min; $p < 0.001$), CPB time (median, 125 vs 94min; $p < 0.001$), and aortic cross-clamp time (median, 102 vs 78 min; $p < 0.001$) were significantly longer in the VATS-RALT-DVR versus the conventional DVR group. Patients in the VATS-RALT-DVR group had a shorter ventilation time (median 15 vs 21 h, $p < 0.001$) and a higher rate of rapid extubation (12 vs 0%, $p < 0.001$) than those in the conventional DVR group. Drainage 24 hours after surgery in VATS-RALT-DVR was less than the conventional DVR group (75 vs 300ml, $p = 0.023$). There was a significant reduction in postoperative hospital stay length (median 7 vs 9 d, $p < 0.001$) and the rate of hospital stay longer than 7 days (25% vs 60%, $p < 0.001$) in the VATS-RALT-DVR versus conventional DVR group. The in-hospital mortality rate in both groups was 0. There were no significant differences between the groups regarding postoperative complications.

CONCLUSIONS: In a defined group of valvular disease patients of the same type, VATS-RALT-DVR do not significantly increase surgical time or risk. This group of patients achieved a similar outcome as the conventional DVR group. Although the operation time, cardiopulmonary bypass time and aortic occlusion time have been appropriately extended, there has been significant progress in postoperative tracheal intubation and extubation, hospital stay and other aspects, and patients often can get a better recovery process.