AB018. OS04.04. Is video-assisted thymectomy appropriate for large thymomas? Results of a propensity score matching analysis

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Background: Video-assisted thymectomy is becoming the standard approach on treating of thymoma because of clear view and minimal invasion. However, large thymoma was once recognized as a relatively contraindication of video-assisted thoracoscopic surgery (VATS). This study evaluated the feasibility of performing video-assisted thymectomy for thymomas ≥5 cm using a propensity score matching analysis.

Methods: A total of 278 consecutive patients (136 males, 142 females, average age 52.8±13.1 years) with Masaoka Stage I-IVa thymoma who underwent video-assisted thymectomy or video-assisted extended thymectomy in our center between April 2001 to April 2017 were retrospectively reviewed. All patients were divided into group A (<5 cm, N=164) and group B (≥5 cm, N=114) according to the maximal diameter of the thymoma. The postoperative outcomes were compared between these two groups for surgical safety assessment. A propensity score matching analysis with 1:1 optimal match (±0.01 caliper, N=101) was performed to compare these two groups in the same manner as for unmatched patients. To calculate the propensity scores, we fitted a logistic regression model with the following 6 variables: age, sex, comorbidity, modified Osserman classification of myasthenia gravis (MG), WHO histologic classification and Masaoka stage. Disease-free survival (DFS) and overall survival (OS) were estimated by the Kaplan-Meier method to evaluate the oncologic results of two groups. Significance was defined as P<0.05.

Results: Before matching, the length of operation time was significantly shorter in group A than group B (120.0±19.2 *vs.* 135.0±35.9 mins, respectively; P=0.001), and the conversion rate was significantly lower in group A than group B (1.2% *vs.* 6.1%, respectively; P=0.023). However, there was no significant difference between these two groups on the blood loss, the chest tube duration, the postoperative hospital stay and the postoperative complications (50.0±207.6 *vs.* 50.0±159.6 mL, P=0.333; 3.0±1.5 *vs.* 3.0±2.0 days, P=0.721; 5.0±3.8 *vs.* 5.0±2.9 days, P=0.312; 12 *vs.* 7 patients, P=0.702). After matching, there was no significant difference between these two groups on the blood loss, the chest tube duration, the postoperative hospital stay and the postoperative complications (50.0±93.4 *vs.* 50.0±160.1 mL, P=0.859; 3.0±1.6 *vs.* 3.0±1.8 days, P=0.690; 5.0±4.1 *vs.* 5.0±2.8 days, P=0.745; 7 *vs.* 7 patients, P=0.609). The conversion rate was lower in group A with no significance (1.0% *vs.* 5.9%, respectively; P=0.054). However, the length of operation time was significantly shorter in group A than in group B (110.0±50.1 *vs.* 140.0±52.3 mins, respectively; P<0.001). A total of 230 patients completed the follow-up, among which 5 patients experienced recurrence and 13 patients died for non-surgical or non-thymoma-related causes. The 5-/10-year OS and DFS rates were 92.8%/86.1% and 89.4%/80.8%, respectively. There was no significant difference between group A and group B on the OS (P=0.657) and DFS (P=0.871).

Conclusions: Video-assisted thymectomy is a safe and effective approach for large thymomas (≥5 cm) with comparable surgical and oncologic results except more time during surgery.

Keywords: Video-assisted thymectomy; propensity score matching; thymoma

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