



Video-assisted Thoracoscopic Surgery Vs. Conventional Surgery For Thymoma: Insights From A 10-year Single-center Study

BACKGROUND: To evaluate and compare the long-term outcomes of Video-Assisted Thoracoscopic Surgery (VATS) and open surgery for thymoma, focusing on survival rates and recurrence patterns.

METHODS: This retrospective cohort study evaluated the clinical outcomes of patients diagnosed with thymoma who underwent surgical resection via VATS, thoracotomy, or sternotomy between 2012 and 2022. The following information was included in the data: demographic data (age and gender), clinical data (tumour size, Masaoka stage and WHO classification), and treatment details (surgical procedure, postoperative complications and adjuvant therapy).The primary outcomes were disease-free survival (DFS) and overall survival (OS). Recurrence and survival status were recorded during a follow-up period spanning 12 to 161 months. Subgroup analyses were conducted to examine survival patterns based on Masaoka stage, WHO classification, and surgical approach.

Age	Mean 56.03 (19-78)																
Gender	Female 20 Male 13																
Masaoka staging	Stage I: 7 (%21.2) Stage IIA: 12 (%36.4) Stage IIB: 3 (%9.1) Stage IIIA: 4 (%12.1) Stage IIIB: 3 (%9.1) Stage IVA: 4 (%12.1)																
WHO classification	A: 6 (%18.2) AB: 8 (%24.2) B1: 13 (%39.4) B1-B2: 1 (%3.0) B2: 3 (%9.1) B3: 2 (%6.1)																
Adjuvant RT	+ 15 (%45.5) - 18 (%54)																
Median stays (days)	3.7 (2-10)																
Surgical technique	VATS 16 Sternotomy 11 Thoracotomy 7																
Recurrences	<table><tr><th></th><th>Time to recurrences (months)</th></tr><tr><td>Masaoka</td><td></td></tr><tr><td>Stage IIIB</td><td>12th and 16th</td></tr><tr><td>Stage IVA</td><td>20th, 21th and 50th</td></tr><tr><td>WHO</td><td></td></tr><tr><td>A</td><td>20th</td></tr><tr><td>B1</td><td>12th and 50th</td></tr><tr><td>B3</td><td>21th</td></tr></table>		Time to recurrences (months)	Masaoka		Stage IIIB	12th and 16th	Stage IVA	20th, 21th and 50th	WHO		A	20th	B1	12th and 50th	B3	21th
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Myasthenia Gravis	+ 3 (%9) - 30 (%91)																

RESULTS: A total of 33 patients (20 females, 13 males) with a mean age of 56.03 years (19-78) were included in the study. Of these, 15 underwent VATS and 18 underwent open surgery (11 sternotomy, 7 thoracotomy). The majority of patients were classified as Masaoka stage IIA (36.4%), while stage I (21.2%) was the second most common. According to WHO histological classification, the most frequent types were B1 (39.4%) and AB (24.2%).The median follow-up time was 76 months (12-161 months). Kaplan-Meier analysis showed no statistically significant difference between VATS and open surgery groups in DFS (p=0.31) or OS (p=0.59). A review of data from 19 patients who underwent surgery prior to 2019 revealed a 5-year survival rate of 78.8%, with a recurrence rate of 21% (4 patients).Adjuvant radiotherapy was administered to 45.5% of patients (15 patients). The median hospital stay was 3.7 days (2-10 days). Subgroup analyses revealed no significant differences in survival outcomes based on Masaoka stage or WHO classification between surgical approaches. Non-parametric Mann-Whitney U tests confirmed comparable DFS and OS between VATS and open surgery groups (p>0.05).

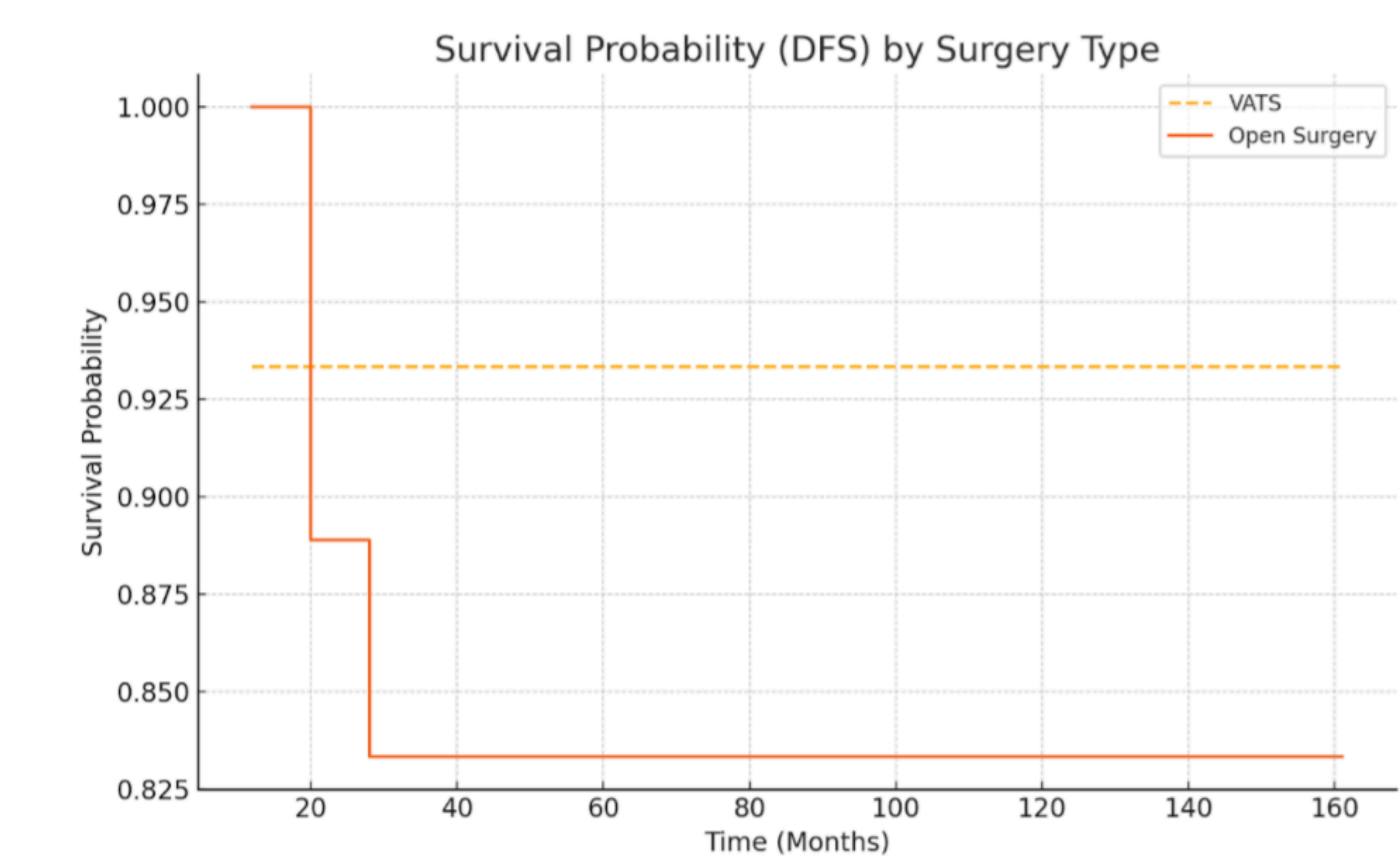
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References available upon request

Kaplan-Meier Style Survival Curves

Below is the visualization of survival probabilities for Disease-Free Survival (DFS) based on surgical types (VATS vs Open Surgery).



Statistical Results

T-Test Results for Survival

- DFS t-test:
 - p-value: 0.1574
 - Test Statistic: -1.45
- OS t-test:
 - p-value: 0.1859
 - Test Statistic: -1.35

CONCLUSIONS: Both VATS and open surgery demonstrated similar survival outcomes for thymoma patients, with no significant differences in DFS or OS. These findings suggest that VATS is a viable, minimally invasive alternative to open surgery for thymoma management, particularly in early-stage cases.

Masaoka Stage	DFS Mean (Months) Open	DFS Mean (Months) VATS	OS Mean (Months) Open	OS Mean (Months) VATS
I	108	70	108	70
IIA	112	57	112	57
IIB	80	114	90	114
IIIA	96	37	96	38
IIIB	27	12	27	76
IVA	40	-	43	-