

Supplementary Material

Complexity score

All procedures were classified in three levels, according to their complexity:

low , intermediate and high.

Low complexity score (L):

simple mediastinal resection
endothoracic lymphadenectomy
sublobar polmonary resection
lobectomy / segmentectomy
pleurectomy and/or decortication
partial diaphragmatic resection
partial rib resection.

Intermediate complexity score (I):

radical tymectomy
vascular resection
left pneumonectomy
sleeve lobectomy / segmentectomy
chest-wall resection < 3 ribs
partial sternectomy
diaphragmatic reconstruction
myo-cutaneous flap / omentoplasty

High complexity score (H):

extended tymectomy
esophagectomy
vascular reconstruction / prosthetic replacement
right pneumonectomy
extra-pleural / completion pneumonectomy
sub-total / total sternectomy
chest-wall resection ≥ 3 ribs with rigid prosthesis
vertebral resection
thoraco-pleuro-pneumonectomy

Table S1. Number of reconstructions according to tumor type.

	0 reconstruction	1 or 2 reconstructions	≥ 3 reconstructions	TOTAL
Sarcoma	62 (20.9%)	49 (26.5%)	116 (71.6%)	227
Thymoma	75 (25.3%)	110 (59.5%)	27 (16.7%)	212
Germ Cell	160 (53.9%)	26 (14.1%)	19 (11.7%)	205
Total	297	185	162	644

Figure S1. Patients' survival according to the number of reconstructions.

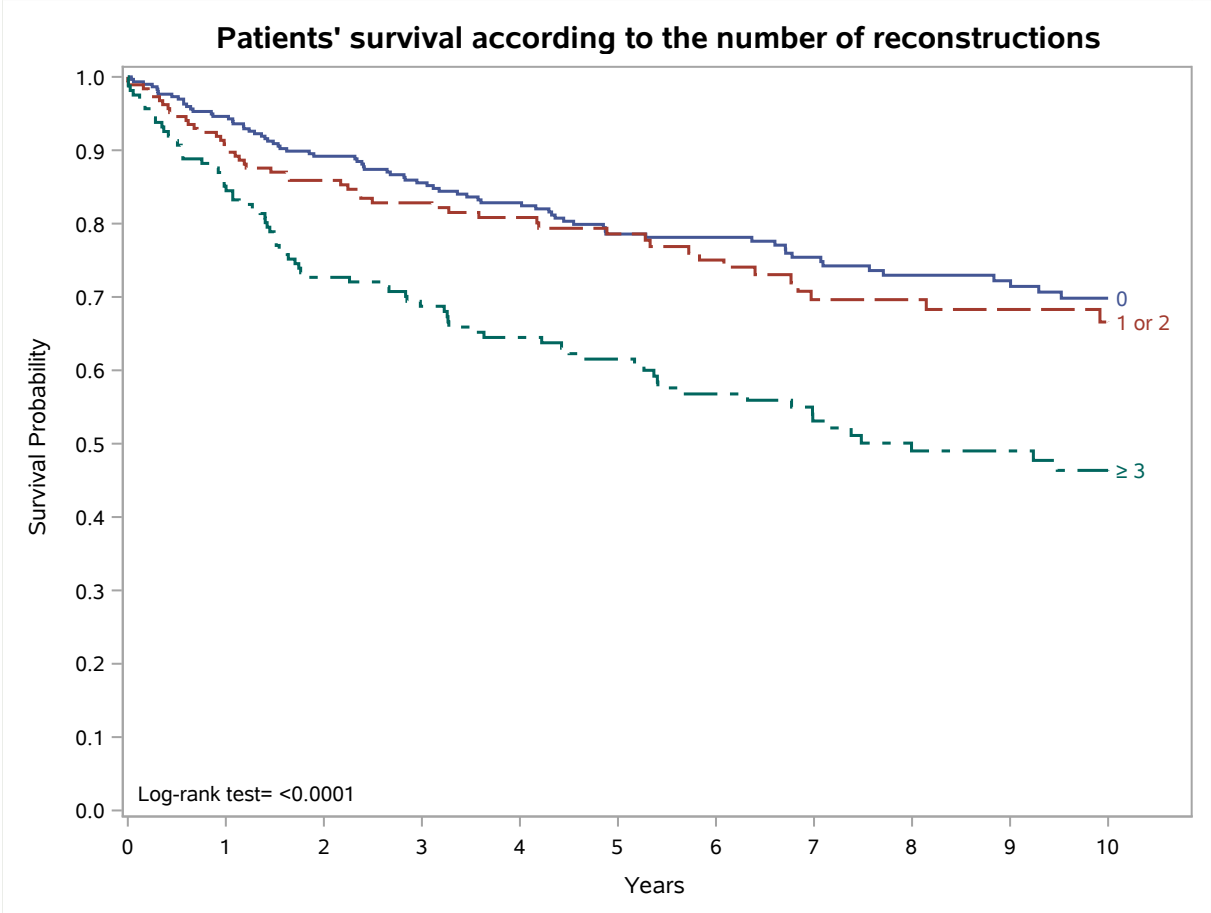


Figure S2. Survival of patients with any reconstructions according to tumor type.

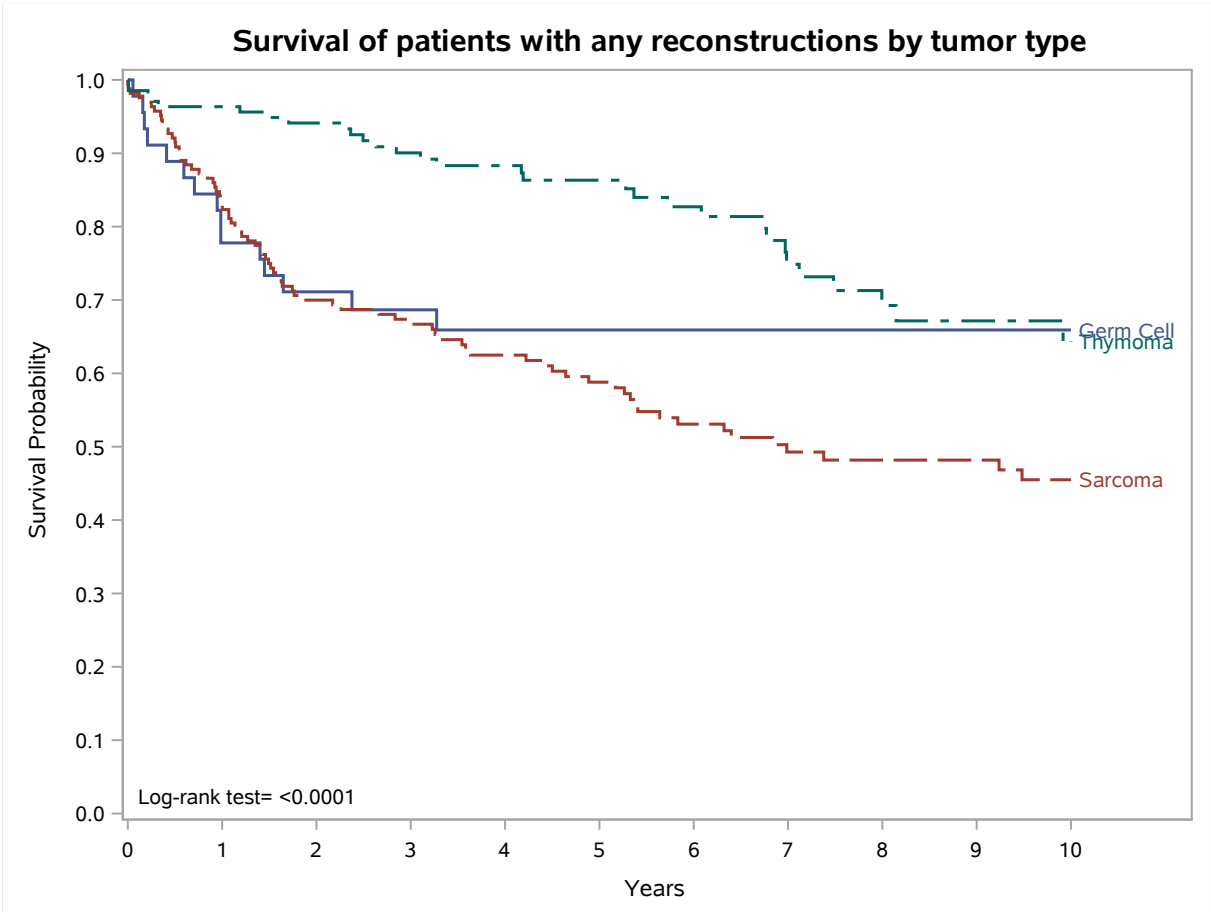


Table S2: Multivariate Cox regression models for 30 day and 90 day post-operative mortality: Model A adjusted for age and sex ; Model B adjusted for age, sex and type of tumor.

		30d post-operative mortality <i>HR (95%CI)</i> <i>p-value</i>		90d post-operative mortality <i>HR (95%CI)</i> <i>p-value</i>	
		Model A	Model B	Model A	Model B
Complexity score	L	Ref.	Ref.	Ref.	Ref.
	I	1.09 (0.08-15.05) 0.9472	0.83 (0.06-11.63) 0.8878	1.10 (0.19-6.46) 0.9135	1.36 (0.22-8.47) 0.7444
	H	1.50 (0.12-19.23) 0.7539	1.17 (0.09-15.14) 0.9052	1.39 (0.26-7.39) 0.7029	1.61 (0.29-8.98) 0.5845
Reconstructions	None	Ref.	Ref.	Ref.	Ref.
	1 OR 2	0.85 (0.08-9.52) 0.8971	0.78 (0.07-8.49) 0.8363	1.07 (0.22-5.30) 0.9374	1.20 (0.23-6.16) 0.8256
	≥ 3	1.75 (0.17-18.26) 0.6386	1.92 (0.17-21.70) 0.5970	1.62 (0.31-8.36) 0.5662	1.84 (0.33-10.33) 0.4885

The results of multivariate Cox models did not show a statistically significant impact of complexity score and number of reconstructions 30-day and 90-day post-operative mortality even after adjustment for age, sex and tumor type.

Table S3. Long-term survival of germ cell tumors and thymomas, stratified by complexity score and primary vs. metastatic site.

		N patients	5-year Cumulative survival	Log-Rank P-value	10-year cumulative survival	Log-Rank P-value	
Germ Cell	Primary	65	75%	0.5868	73%	0.8168	
	Metastatic	140	76%		71%		
	Complexity score L	Primary	11	89%	0.4602	71%	0.7901
		Metastatic	132	79%		74%	
	Complexity score I	Primary	6	67%	0.0942	67%	0.0942
		Metastatic	3	0%		0%	
	Complexity score H	Primary	48	72%	0.0829	72%	0.0829
		Metastatic	5	40%		40%	

		N patients	5-year Cumulative survival	Log-Rank P-value	10-year cumulative survival	Log-Rank P-value	
Thymoma	Primary	195	87%	0.0501	65%	0.0700	
	Metastatic	17	63%		52%		
	Complexity score L	Primary	20	90%	0.1652	72%	0.2828
		Metastatic	12	60%		60%	
	Complexity score I	Primary	46	90%	0.0744	66%	0.0744
		Metastatic	4	50%		50%	
	Complexity score H	Primary	129	85%	0.6880	64%	0.0585
		Metastatic	1	100%		0%	

Figure S3. Survival of patients according to primary vs. metastatic disease with germ cell (A) or thymomas (B).

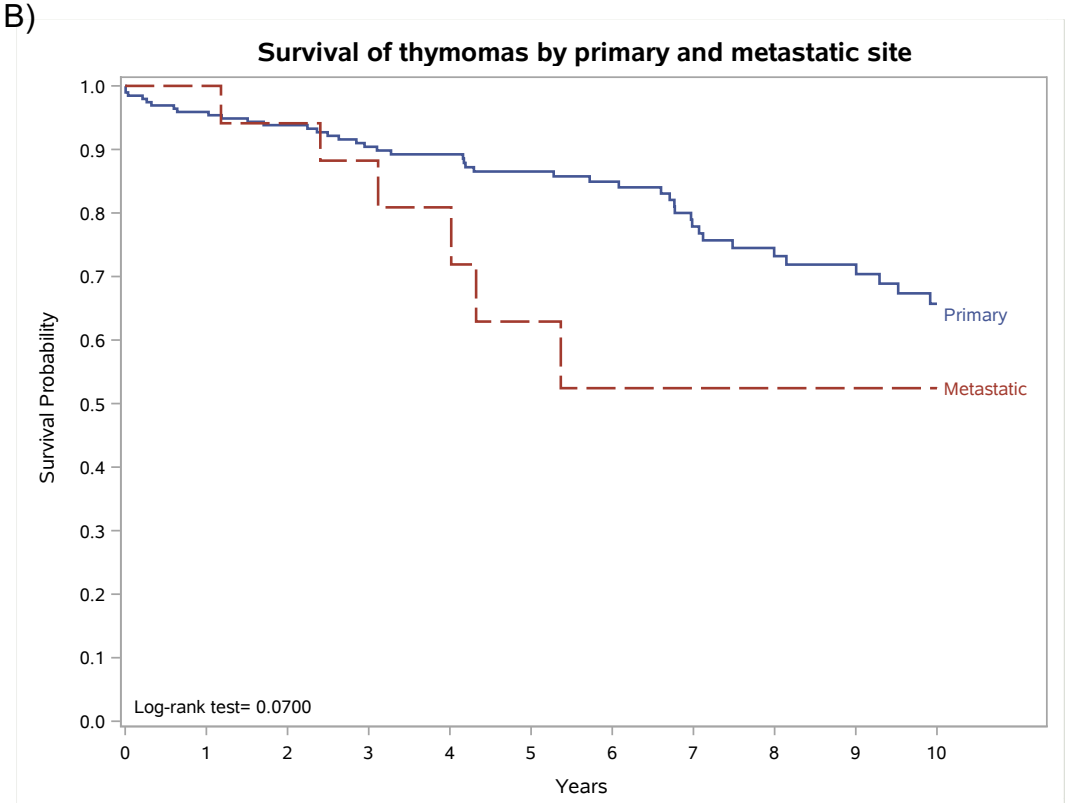
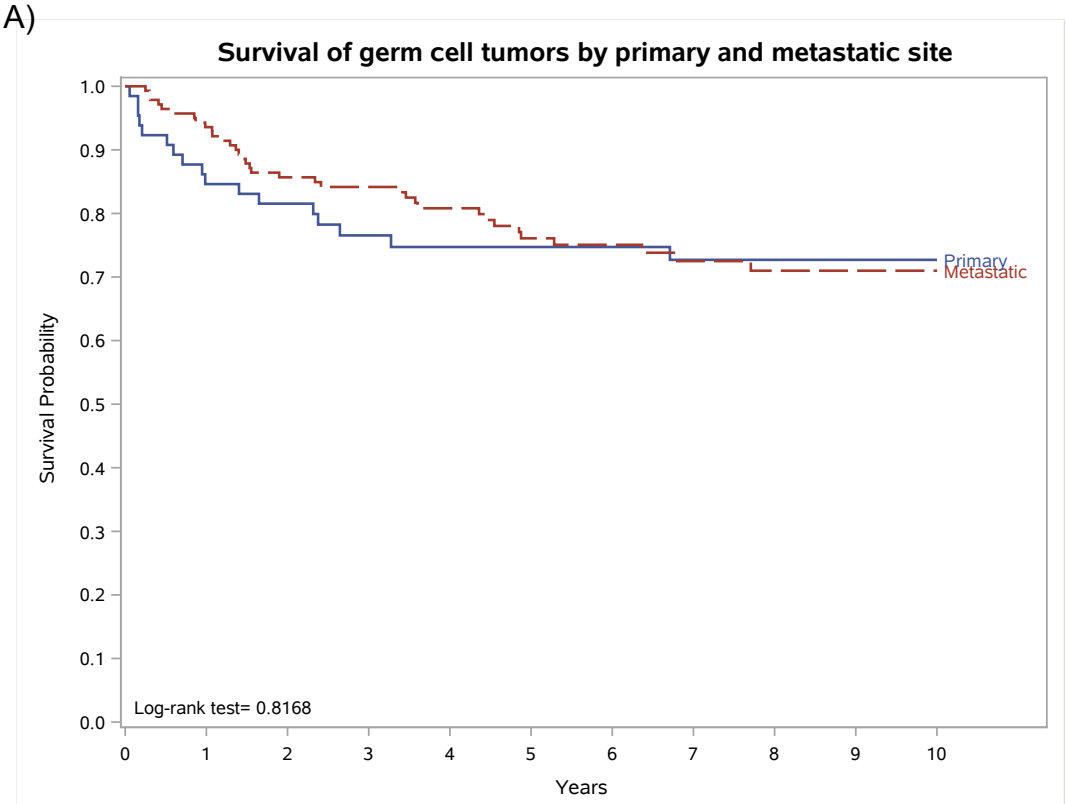


Table S4: Multivariate Cox regression models for 5-year and 10-year mortality: Model A adjusted for age and sex ; Model B adjusted for age, sex and type of tumor.

	5-year survival		10-year survival	
	HR (95%CI)		HR (95%CI)	
	p-value		p-value	
	Model A	Model B	Model A	Model B
Complexity score				
L	Ref.	Ref.	Ref.	Ref.
I	0.96 (0.56-1.65) 0.8854	1.39 (0.79-2.45) 0.2583	0.97 (0.61-1.55) 0.8954	1.20 (0.73-1.96) 0.4705
H	1.48 (0.89-2.47) 0.1356	2.08 (1.23-3.52) 0.0064	1.40 (0.89-2.20) 0.1479	1.72 (1.08-2.75) 0.0225
Reconstructions				
None	Ref.	Ref.	Ref.	Ref.
1 OR 2	0.66 (0.40-1.10) 0.1130	0.77 (0.46-1.29) 0.3168	0.76 (0.48-1.19) 0.2236	0.82 (0.52-1.29) 0.3816
≥ 3	1.17 (0.71-1.94) 0.5436	0.89 (0.52-1.50) 0.6569	1.34 (0.86-2.09) 0.1960	1.05 (0.66-1.67) 0.8409

The results of age and sex adjusted multivariate Cox models (Table S4) showed a nonsignificant impact of complexity score and number of reconstructions on 5-year survival (Model A). After the further adjustment for tumor type, the high complexity score had a significantly poorer 5-year survival compared to low score (HR=2.08, p=0.0064, Model B). A similar risk profile was observed for 10-year survival (high complexity score HR=1.72, p=0.0225, Model B).