Supplementary

Table S1 Preoperative protocol phase

Contemplated domain	Interventions	Evidence level and recommendation grade, following ERAS® recommendations
Pre-admission information, education and counseling	Information provided by the physician team regarding the protocol, benefits and risks of the surgical intervention	Evidence level: low; recommendation grade: strong
Physical conditioning	Stimulation to practice physical activities comprising 15 minutes of walking/per day	Evidence level: low; recommendation grade: strong
Smoking cessation	Smoking cessation was recommended at the first consultation	Evidence level: high; recommendation grade: strong
Pre-analgesic medication	At admission, patients started receiving 500 mg of Metamizole Sodium (if allergic reaction was not reported) or 750 mg of acetaminophen	Evidence level: high; recommendation grade: strong
Preoperative fasting and carbohydrate treatments	Patients were instructed to do 8 hours of fasting, which was abbreviated 2 hours prior to the surgical procedure with clear fluid intake associated with Maltodextrin 200 mL	Evidence level: high; recommendation grade: strong

ERAS, Enhanced Recovery After Surgery.

Table S2 Intraoperative protocol phase

Contemplated domain	Interventions	Evidence level and recommendation grade, following ERAS® recommendations
Anesthetic protocol	Hypnosis induction was made with Propofol 2 mg/kg. Remifentanil (01 to 0.3 mg/kg/min) was used for analgesic maintenance. Regional anesthesia included a paravertebral intercostal blockade of the erector spinae muscles with a combined solution of: 1 mg/kg of clonidine, 5 mg of ketamine, 7.5 mg of ropivacaine, 10 mg of lidocaine, 10 mg of dexamethasone, 500 mg of hydrocortisone, 20 mL of 8.4% sodium bicarbonate and 1000 mg of magnesium sulfate	Evidence level: high; recommendation grade: strong
Anesthesia awakening	Patients were assisted to the sitting position, raising/lowering upper limbs, and extending/flexing lower limbs	Evidence level: low; recommendation grade: strong

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Table S3 Postoperative protocol phase

Contemplated domain	Interventions	Evidence level and recommendation grade, following ERAS® recommendations
Acupuncture and electro-stimulation with Acu-TENS	In order to increase pain control, it involved acupuncture points Huatuojiaji from T2 to T9, Dingchuan and Neiguan points ipsilateral to surgical incision. Electro-stimulation with Acu-TENS sessions were done twice a day, during 30 min immediately after surgery	Evidence level: low; recommendation grade: strong
Prophylactic antibiotic therapy	Antibiotic therapy was started within the first 24 hours after surgery	Evidence level: high; recommendation grade: strong
On-demand prescription	Analgesics, laxatives, antiemetics, gabapentin and opioids were prescribed as requested or after clinical evaluation	Evidence level: moderate; recommendation grade: strong
Roentgenogram	Radiological images were evaluated daily, while the patient had the thoracic drain	Evidence level: no evidence; recommendation grade: no evidence
Laboratory tests	Laboratory tests were required once the patient showed any abnormality on physical examination when compared to the preoperative anesthetic and cardiovascular evaluation	Evidence level: no evidence; recommendation grade: no evidence
Early mobilization and physiotherapy	Physiotherapy was initiated with upper limb passive mobility within two hours after the surgical intervention, until patient's extubation. When the patient was conscious, active and able to respond to commands, active physiotherapy was initiated. The patient was kept in the sitting position with monitored vital signs. Breathing exercises were associated with upper and lower limb mobility, until patient's tolerance to orthostatic physiotherapy. The orthostatic position was held by the physiotherapist and the patient for 4 minutes; if no complications occurred (lipothymia, hypotension and nausea/vomiting), the patient was stimulated to walk. Physiotherapy was prescribed 3 times a day, with each session lasting 45 min and an interval at least of 15 min between sessions. Oxygen therapy could be initiated if saturation levels were less than 90% upon waking. On the day after the surgery, the patient enters the institution's conventional physiotherapy program	Evidence level: low; recommendation grade: strong
Chest drain management	The drain was removed between 12 to 24 hours after the surgical intervention if air leakage ceased and lungs showed full expansion.	
Caregiver counseling	A family member could stay with the patient, in order to receive guidance and assist if necessary.	Evidence level: low; recommendation grade: strong
Hospital discharge	During hospital discharge, the participant and caregiver were instructed to return to the thoracic surgery clinic within 7 days to continue the postoperative follow-up. Painkillers were prescribed and possible signs to detect postoperative complications (fever, dyspnea, bleeding or chest pain refractory to the use of medication) were checked	Evidence level: no evidence; recommendation grade: no evidence

ERAS, Enhanced Recovery After Surgery.

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Table S4 Correlation between PROSM, LOS (ICU, hospital and drain) and post-surgical costs

	PROSM	ICU LOS (Days)	Hospital LOS (Days)	Drain duration (Days)	Post-surgical costs (R$)
PROSM					
Correlation coefficient	1.00	0.29	0.60	0.56	0.43
Sig. (2-tailed)		0.00	0.00	0.00	0.00
ICU LOS (Days)					
Correlation coefficient	0.29	1.00	0.54	0.42	0.56
Sig. (2-tailed)	0.00		0.00	0.00	0.00
Hospital LOS (Days)					
Correlation coefficient	0.60	0.54	1.00	0.88	0.62
Sig. (2-tailed)	0.00	0.00		0.00	0.00
Drain duration (Days)					
Correlation coefficient	0.56	0.42	0.88	1.00	0.48
Sig. (2-tailed)	0.00	0.00	0.00		0.00
Post-Surgical Costs (R$)					
Correlation coefficient	0.43	0.56	0.62	0.48	1.00
Sig. (2-tailed)	0.00	0.00	0.00	0.00	

PROSM, Santa Marcelina's Enhanced Protocol; ICU, intensive care unit; LOS, length of stay; Sig., significance.

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Table S5 Correlation between PROSM and complications (surgical and clinical)

	PROSM	Surgical complications	Clinical complications
PROSM			
Correlation coefficient	1.00	–0.13	–0.03
Sig. (2-tailed)		0.75	0.14
Surgical complications			
Correlation coefficient	–0.13	1.00	0.26
Sig. (2-tailed)	0.75		0.00
Clinical complications			
Correlation coefficient	–0.03	0.26	1.00
Sig. (2-tailed)	0.14	0.00	

PROSM, Santa Marcelina's Enhanced Protocol; Sig., significance.

Table S6 Patients' demographics—subgroup analysis

Variable	PROSM Group (n=47)	Control Group (n=33)	P value
Age, years; Mean (SD)	54.9 (17.80)	49.7 (18.28)	0.206[a]
Gender, n (%), male/female	22 (46.8)/25 (53.2)	8 (24.2)/25 (75.8)	0.040b
BMI, kg/m2; Mean (SD)	25.2 (3.63)	25.6 (4.86)	0.680[a]
VATS, n (%)	6 (12.8)	4 (12.1)	0.932[b]
Main surgery, n (%)			0.510[c]
Bullectomy	2 (4.3)	2 (6.1)	
Lobectomy	4 (8.5)	None	
Pneumectomy	1 (2.1)	1 (3.0)	
Cyst resection	1 (2.1)	1 (3.0)	
Mediastinal tumor resection	3 (6.4)	29 (87.9)	
Segmentectomy	36 (76.6)	None	

[a], Welch's *t*-test; [b], Chi-Square test; [c], Fisher's exact test. PROSM, Santa Marcelina's Enhanced Protocol; BMI, body mass index; VATS, video-assisted thoracoscopic surgery.

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Table S7 Patients' outcomes—subgroup analysis

Variable	PROSM Group (n=47)	Control Group (n=33)	P value
Clinical Complications, n (%)	3 (6.4)	1 (3.0)	0.639[a]
Surgical Complications, n (%)	3 (6.4)	2 (6.1)	0.953[b]
Reoperation, n (%)	2 (4.3)	0 (0.0)	0.509[a]
Mortality, n (%)	0	0 (0.0)	–
Hospital LOS, days, Median (IQR)	1.0 (1.00)	2.0 (1.00)	<0.001[c]
Chest drain duration, days, Median (IQR)	1.0 (1.00)	2.0 (1.00)	<0.001[c]
MatMed costs, R$	2,315.40	1,774.31	0.179c
Median (IQR)	(3,321.89)	(1,503.94)	
Procedure costs, R$	2,412.07	3,566.94	<0.001[c]
Median (IQR)	(1,206.42)	(5,213.38)	
Daily costs, R$	2,271.74	3,274.92	0.007[c]
Median (IQR)	(1,102.93)	(1,638.17)	
Total costs, R$	7,701.72	8,812.47	0.114[c]
Median (IQR)	(4,716.71)	(4,600.82)	
Post-surgical costs, R$	3,512.01	4,965.79	0.002[c]
Median (IQR)	(3,512.01)	(4,965.79)	

[a], Fisher's exact test; [b], Likelihood ratio; [c], Mann-Whitney U test. PROSM, Santa Marcelina's Enhanced Protocol; ICU, intensive care unit; LOS, length of stay; MatMed, material and medication.

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