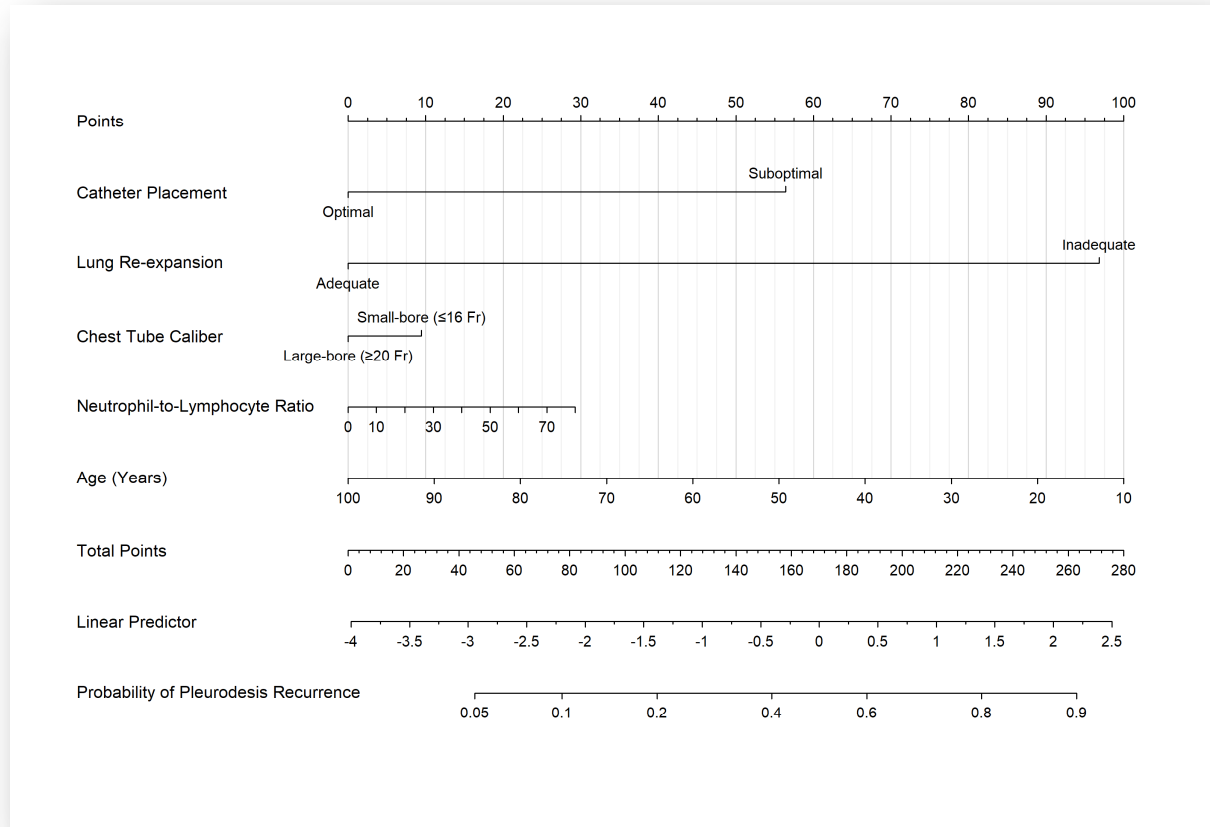


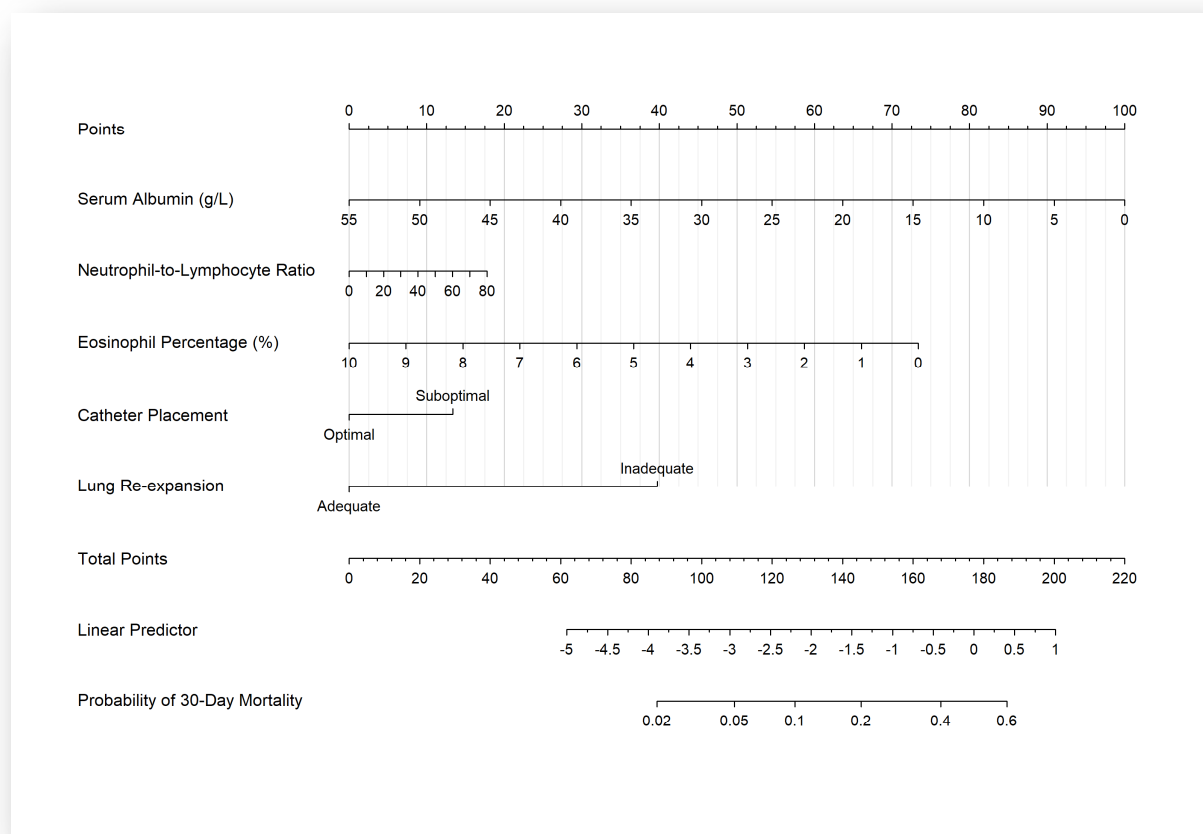
Supplementary Materials

Determinants of Chemical Pleurodesis Recurrence in Malignant Pleural Effusion: Mechanical Apposition or Systemic Inflammation? A Retrospective Cohort Study

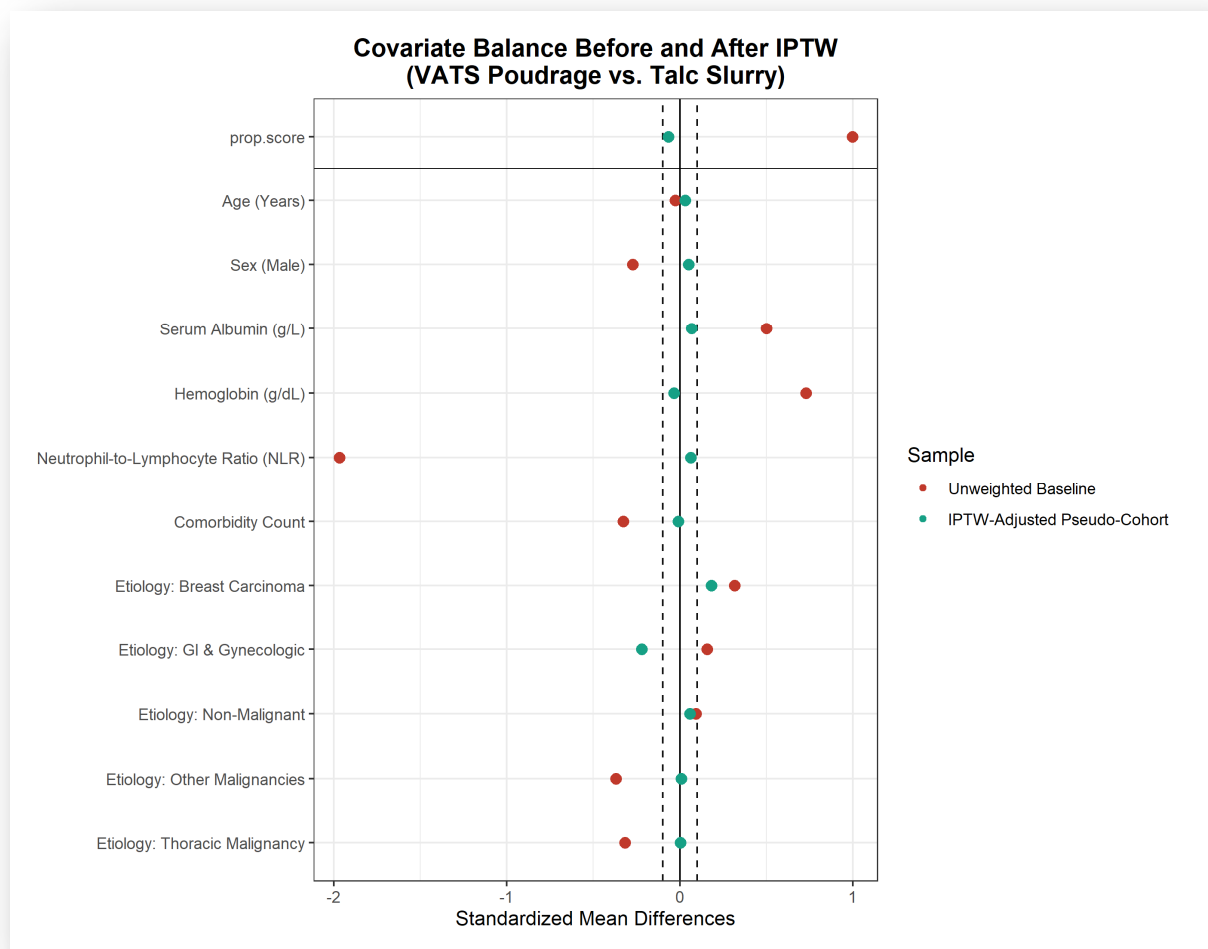
Caner İşevi, Mehmet Gökhan Pirzirenli, Eren Yılmaz, Yavuz Karaca, Burçin Çelik, Yasemin Büyükkarabacak



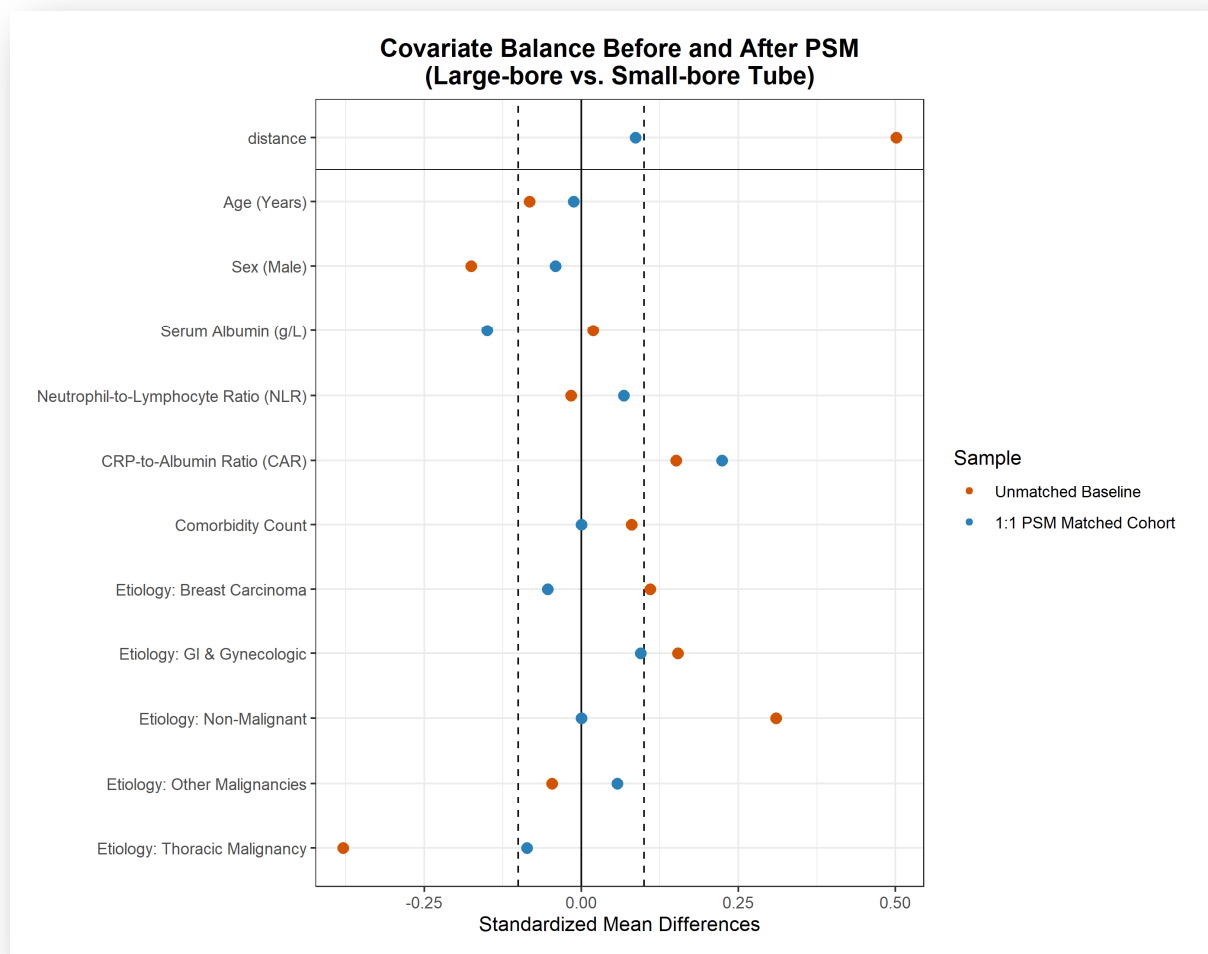
Supplementary Figure S1. Clinical nomogram for bedside prediction of individualized pleurodesis recurrence probability, based on catheter optimality, lung re-expansion status, chest tube caliber, NLR, and age.



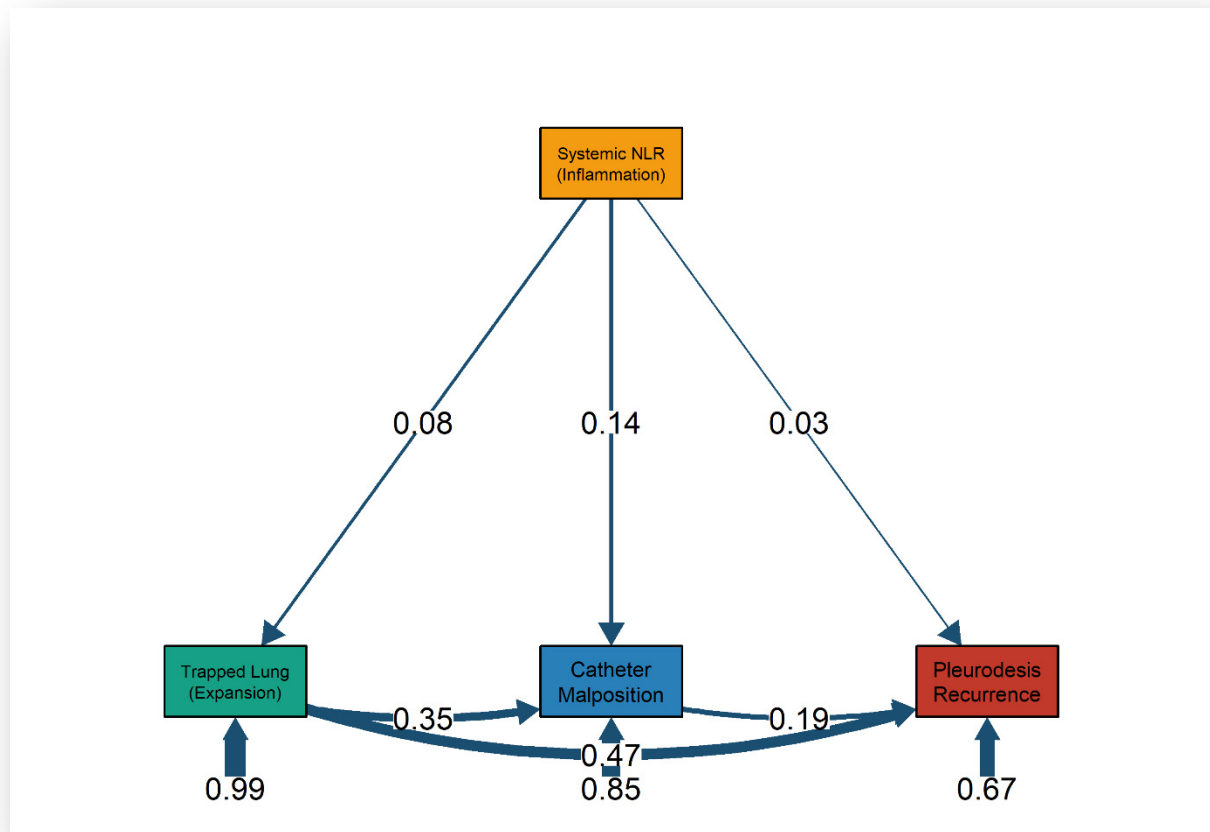
Supplementary Figure S2. Clinical nomogram for bedside prediction of individualized 30-day mortality probability, based on serum albumin, NLR, eosinophil percentage, catheter optimality, and lung re-expansion status.



Supplementary Figure S3. Covariate balance (Love plot) before and after IPTW weighting for administration method (VATS poudrage vs. talc slurry).



Supplementary Figure S4. *Covariate balance (Love plot) before and after 1:1 propensity score matching for chest tube caliber (large-bore vs. small-bore).*



Supplementary Figure S5. Structural equation model path diagram illustrating the mechanical mediation of systemic inflammation (NLR) on pleurodesis recurrence via trapped lung and catheter malposition.

Supplementary Table S1: Structural Equation Modeling Mediation Analysis: Direct, Indirect, and Total Effects of Systemic Inflammation (NLR) on Pleurodesis Recurrence via Mechanical Barriers (5000-Bootstrap BCa Simulation)

Effect Type	Structural Pathway	β	95% Bootstrap CI	p
Direct	NLR → Recurrence	0.0147	−0.0472 to 0.0615	.5897
Indirect 1	NLR → Inadequate Re-expansion → Recurrence	0.0178	−0.0224 to 0.0550	.3621
Indirect 2	NLR → Catheter Malposition → Recurrence	0.0126	0.0014 to 0.0416	.1961
Serial Mediation	NLR → Inadequate Re-expansion → Malposition → Recurrence	0.0026	−0.0023 to 0.0110	.4164
Total Indirect	Cumulative sum of all mediating pathways	0.0330	−0.0155 to 0.0742	.1389
Total Combined	Direct + Total Indirect Effect	0.0476	−0.0409 to 0.1142	.2287

Note. NLR was standardized (z-score) prior to model estimation. Bias-corrected and accelerated (BCa) bootstrap confidence intervals (5000 replications) are the primary inferential criterion for mediation

effects; a CI excluding zero indicates a statistically supported pathway irrespective of the corresponding normal-approximation p-value.

Supplementary Table S2: Sensitivity Analysis: Multivariable Logistic Regression Models for Pleurodesis Recurrence and 30-Day Mortality in the Strictly Malignant Cohort (Benign Effusions Excluded, N=133)

Predictor	Adjusted Odds Ratio (aOR)	95% CI	p-value
Model 1: Pleurodesis Recurrence			
Lung Expansion — Inadequate	9.65	3.81 – 26.10	< .0001
Catheter Position — Suboptimal	4.43	1.22 – 19.20	.0315
Chest Tube — Small-bore ($\leq$ 16 Fr)	1.07	0.36 – 3.12	.9010
NLR	1.01	0.96 – 1.06	.6410
Age (years)	0.98	0.94 – 1.02	.3430
Model 2: 30-Day Mortality			
Lung Expansion — Inadequate	4.49	1.48 – 14.80	.0098
Catheter Position — Suboptimal	2.52	0.64 – 12.60	.2070
Serum Albumin (g/L)	0.91	0.83 – 1.00	.0614
Eosinophil Percentage (%)	0.70	0.41 – 1.03	.1210
Indexed Comorbidity Count	0.90	0.53 – 1.40	.6860
NLR	1.01	0.97 – 1.06	.5220