

Supplementary Table 1 Available structured 30-day event-related variables according to primary outcome status

Component of the primary endpoint	Overall cohort (<i>n</i> = 287), <i>n</i> (%)	Among patients with the primary endpoint (<i>n</i> = 29), <i>n</i> (%)
Therapeutic ERCP for retained or residual common bile duct stones / biliary obstruction	14 (4.9)	14 (48.3)
Bile leak requiring endoscopic, percutaneous, or surgical intervention	5 (1.7)	5 (17.2)
Acute cholangitis requiring hospitalization and/or intravenous antibiotics	7 (2.4)	7 (24.1)
Biliary pancreatitis requiring hospitalization	4 (1.4)	4 (13.8)
Biliary-related readmission or prolonged hospitalization without therapeutic ERCP	9 (3.1)	9 (31.0)

These variables are derived from the structured fields available in the current dataset and are not numerically identical to the adjudicated composite primary outcome. They are presented as descriptive supportive information only.

Supplementary Table 2 Full-cohort two-variable model coefficients and bootstrap-based internal validation

Variable	OR (95%CI)	P value
Preoperative TBil ($\mu\text{mol/L}$)	1.147 (1.088-1.209)	3.1e-07
CBD/height index (mm/m)	2.059 (1.327-3.196)	0.00127

Supplementary Table 3 Performance metrics

Metric	Value
Apparent AUC	0.892
Bootstrap optimism-corrected AUC	0.890
Apparent Brier score	0.056
Bootstrap optimism-corrected Brier score	0.058
Bootstrap-estimated calibration slope	0.974

Bootstrap validation was performed with 1000 resamples. The final two-variable model included preoperative total bilirubin and the CBD/height index.

Supplementary Table 4 Sensitivity analysis excluding patients who underwent preoperative endoscopic retrograde cholangiopancreatography within 30 days

Item	Value
Cohort size	233
Number of primary outcome events	24
Preoperative TBil ($\mu\text{mol/L}$), OR (95%CI)	1.148 (1.081-1.219)
Preoperative TBil ($\mu\text{mol/L}$), P value	6.87e-06
CBD/height index (mm/m), OR (95%CI)	2.057 (1.246-3.394)
CBD/height index (mm/m), P value	0.00479
Apparent AUC	0.895
Apparent Brier score	0.054