

TRIPOD Checklist — Location Mapping

Item	TRIPOD requirement	Location in manuscript	Status
1	Title identifies prediction model development/validation, participants, outcome	Page 1, Title: Development and Temporal Validation of a Predictive Model for Difficult Laparoscopic Cholecystectomy	Done
2	Abstract with background, methods, results, conclusions	Page 1, Abstract (Background / Materials and methods / Results / Conclusions)	Done
3	Background & study objectives	Introduction, final paragraph (P28)	Done
4	Source of data, study design, setting, dates	Section 3.1–3.2 (P33): retrospective study, Shijiazhuang People's Hospital, Sep 2025–May 2026; Ethics (P31)	Done
5	Participants: inclusion/exclusion criteria	Section 3.2 (P34–P35); Figure 1 STROBE flow diagram (P37)	Done
6	Outcome definition and measurement	Section 3.4 (P39): Nassar grade III–IV; Table 1 Nassar scale; Section 5.4 (P58): grade I–IV distribution; kappa = 0.907	Done
7	Candidate predictors and measurement	Section 3.4 (P39): demographics, comorbidities, laboratory, ultrasound; BRI formula and WC measurement protocol	Done
8	Sample size, rationale, EPV	Section 3.5 (P44): 194 training / 90 validation; events 53 / 30	Done
9	Missing data handling	Section 3.5 (P44): complete-case, no imputation	Done
10	Statistical analysis: variable selection, model building, validation	Section 3.5 (P42–P44): LASSO 10-fold CV, $\lambda_{1se} = 0.0526$; Firth penalized logistic regression; bootstrap 500 with full pipeline nested; DeLong test; DCA; R 4.5.2	Done
11	Model specification: predictors, coefficients, intercept	Section 5.6 (P62): full logit equation; Table 4 (P65): β , SE, OR, 95% CI, P	Done
12	Internal/external validation method	Section 3.5 (P44): chronological split, training finalized before validation enrolment; bootstrap internal validation	Done
13	Participants in results: flow, numbers excluded	Section 5.1 (P48); Figure 1	Done

14	Model development: candidate → final predictors	Section 5.5 (P60–P62): 8 LASSO candidates → 3 final predictors; bootstrap retention 88.4% / 74.0% / 60.6%	Done
15	Final model presentation	Section 5.6 (P62) equation; Table 4; Figure 4 nomogram	Done
16	Model performance: discrimination, calibration	Section 5.7 (P73–P77): AUC 0.827 / 0.849; H-L χ^2 ; calibration intercept 0.0471 / 1.0215; slope 1.0513 / 1.3357 with 95% CIs; DCA 10–90% / 10–80%	Done
17	Model updating	Not applicable (no external model updating performed)	NA
18	Limitations	Discussion, Limitations paragraph (P86): single-center, near-complete separation, low EPV, two-stage selection instability, H-L low power, small validation cohort, age case-mix drift	Done
19	Interpretation vs. prior studies	Discussion (P86): comparison with previous nomogram studies; BRI novelty qualified with "to our knowledge"	Done
20	Implications for practice	Discussion (P86): high-risk patients → experienced surgeons, additional imaging; not a validated decision rule; Conclusion (P88)	Done
21	Supplementary information	TRIPOD checklist to be uploaded as Supplementary File S1	To upload
22	Funding	Declarations → Funding (P102–P104): no funding received	Done