

STROBE Statement — Checklist of items that should be included in reports of cohort studies

Manuscript: “Haemoptysis Recurrence After Arterial Embolization in Lung Cancer: A 5-Year Retrospective Cohort Study” (DIR-2026-114, resubmission)

Item recommendations are reproduced verbatim from the official STROBE Statement (cohort studies) checklist available at strobe-statement.org. The ‘Reported on page / section’ column is supplied by the authors and indicates where each item is addressed in the resubmitted manuscript. Page numbers refer to the manuscript PDF as compiled.

Section / Topic	Item No	Recommendation	Reported on page / section
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	Title (page 1) states '5-Year Retrospective Cohort Study'; Abstract — Methods (page 2) describes the design as a 'single-centre retrospective cohort study'.
	1	(b) Provide in the abstract an informative and balanced summary of what was done and what was found	Abstract (page 2): structured Background/Methods/Results/Conclusions; Main Points and Clinical Significance (page 2) summarise the exploratory framing.
Introduction			
Background/ rationale	2	Explain the scientific background and rationale for the investigation being reported	Introduction, paragraphs 1–3 (pages 3–4): haemoptysis epidemiology in lung malignancy, BAE first-line role, recurrence burden, and the unresolved question of clinical/procedural determinants.
Objectives	3	State specific objectives, including any prespecified hypotheses	Final paragraph of Introduction (page 4): evaluate haemoptysis-free survival in 126 consecutive lung cancer patients and assess whether five prespecified baseline tumour characteristics (diameter, stage, histology, age, sex) are associated with recurrence.
Methods			
Study design	4	Present key elements of study design early in the paper	Methods — Study Design and Patient Selection (page 5): retrospective single-centre cohort, 126 consecutive patients, January 2021 – December 2025.
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Methods — Ethical Approval and Study Design (page 5); Results — Haemoptysis-Free Survival (page 7) reports median follow-up of 31.3 months (IQR 14.6–47.8).
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up	Methods — Inclusion/Exclusion criteria (page 5): pathologically confirmed primary lung cancer or pulmonary metastasis; significant haemoptysis refractory to conservative management; pre-procedural CTA within 48 h. Exclusion: coagulopathy, severe renal insufficiency, estimated life expectancy <30 days. Methods — Follow-up and Outcome Definitions (page 6): 48–72 h post-procedure clinical monitoring; scheduled outpatient visits; structured telephone contact when outpatient attendance was incomplete.
	6	(b) For matched studies, give matching criteria and number of exposed and unexposed	Not applicable — this is an unmatched cohort study; no exposed/unexposed matching was performed.
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	Significant haemoptysis defined on page 5 (≥30 mL within 24 h, or any volume causing haemodynamic/respiratory compromise; references 4 and 5). Primary outcome — haemoptysis-free survival — defined in Methods (page 6). Five prespecified Cox covariates listed in Statistical Analysis (page 6). Technical/clinical success and SIR-graded complications defined on pages 6 and the Results — Procedural Safety paragraph (page 8).
Data sources / measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	Methods — Pre-procedural Imaging (page 5): multi-detector CTA reviewed by two senior interventional radiologists. Methods — Interventional Procedure (pages 5–6): operators with ≥10 years' experience, standardised DSA suite, embolic agent selection criteria. Methods — Follow-up (page 6): medical records and structured telephone contact. Adverse events graded per the SIR classification (reference 13).
Bias	9	Describe any efforts to address potential sources of bias	Methods — Statistical Analysis (page 6): a priori covariate selection. Limitations (pages 10–11): treatment-threshold bias in recurrence definition, confounding by indication for embolic agent allocation, and unmeasured-confounder discussion (NBSC supply, concurrent systemic anticancer therapy, prior thoracic radiotherapy).
Study size	10	Explain how the study size was arrived at	126 consecutive patients meeting eligibility over the 5-year study period; flow from 152 assessed → 126 included shown in Figure 1 and its legend (page 13). The events-per-variable ratio of approximately 6.4 (32 events / 5 covariates) is acknowledged in Methods — Statistical Analysis (page 6) and Limitations (page 10).
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	Methods — Statistical Analysis (page 6): age (per year) and tumour diameter (per mm) entered continuously; cancer stage as ordinal (per unit); histology dichotomised as squamous cell vs other. Continuous variables also reported as mean (SD) or median [IQR]; categorical as frequency and percentage.
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	Methods — Statistical Analysis (page 6): Kaplan–Meier estimation, log-rank tests, multivariable Cox proportional hazards model with five prespecified covariates, Mann–Whitney U test, Pearson correlation. R version 4.3.0; two-sided P < 0.05.
	12	(b) Describe any methods used to examine subgroups and interactions	Methods — Statistical Analysis (page 6) and Results — Haemoptysis-Free Survival (page 7): Kaplan–Meier curves stratified by embolic agent (Figure 2). Discussion (page 10) explicitly treats this as descriptive only because allocation was non-protocolised.
	12	(c) Explain how missing data were addressed	Methods — Follow-up and Outcome Definitions (page 6): no missing data were present for the five covariates included in the Cox model.
	12	(d) If applicable, explain how loss to follow-up was addressed	Methods — Follow-up and Outcome Definitions (page 6): no patient was lost to follow-up; patients who died without recurrence were censored at the date of death.
	12	(e) Describe any sensitivity analyses	Limitations (page 11): a sensitivity analysis using an objective recurrence definition (any documented haemoptysis episode regardless of management) was considered but not feasible because untreated episodes were not consistently recorded in the source documentation; this limitation is explicitly disclosed.
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	Figure 1 (legend on page 13): 152 assessed → 26 excluded (coagulopathy 9, renal insufficiency 7, life expectancy <30 days 10) → 126 included → technical success in 124 → 32 recurrences. Results — Baseline Characteristics and Technical Outcomes (page 7) cross-references.
	13*	(b) Give reasons for non-participation at each stage	Reasons for the 26 exclusions are itemised in Figure 1 and its legend (page 13).
	13*	(c) Consider use of a flow diagram	Figure 1 is a CONSORT-style enrollment flow diagram (legend on page 13; figure file separately).
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Table 1 (pages 14–17): baseline characteristics overall and stratified by recurrence status (No Recurrence n = 94 vs Recurrence n = 32). Results — Baseline Characteristics (page 7) summarises age, sex, histology, stage, and embolic agent distribution.
	14*	(b) Indicate number of participants with missing data for each variable of interest	Methods — Follow-up (page 6): no missing data for the five Cox covariates; explicitly stated.
	14*	(c) Summarise follow-up time (eg, average and total amount)	Results — Haemoptysis-Free Survival (page 7): median follow-up 31.3 months (IQR 14.6–47.8).
Outcome data	15*	Report numbers of outcome events or summary measures over time	Results — Haemoptysis-Free Survival (page 7): 32 of 126 patients (25.4%) experienced recurrence; median time to recurrence among those who re-bled was 13.9 months. Recurrence proportions by embolic agent reported descriptively (Figure 2; page 13 legend).
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Results — Predictors of Haemoptysis Recurrence (pages 7–8) and Figure 4 forest plot: tumour diameter HR 1.00 (95% CI 0.98–1.01, P = 0.783); cancer stage 1.21 (0.75–1.94, P = 0.432); squamous cell vs other 0.80 (0.36–1.77, P = 0.585); age 0.98 (0.94–1.02, P = 0.299); male sex 1.12 (0.53–2.36, P = 0.761). Unadjusted Mann–Whitney U for tumour diameter (P = 0.9285) and unadjusted log-rank across embolic agents (P = 0.45) are reported as descriptive only.
	16	(b) Report category boundaries when continuous variables were categorized	Continuous variables were not categorised for the primary Cox analysis. For descriptive presentation in Table 1, no arbitrary cut-points were used; medians and IQRs are reported.
	16	(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	Figure 2 Kaplan–Meier curves report absolute haemoptysis-free probability over the follow-up period; the numbers-at-risk panel (Figure 2) gives absolute remaining-at-risk counts at 10-month intervals.
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Embolic-agent–stratified Kaplan–Meier curves reported as descriptive only (Figure 2, page 7). Pearson correlation between tumour diameter and fluoroscopy time (r = 0.039; P = 0.661) reported as a secondary exploratory analysis (Results — Procedural Safety, page 8). The proposed objective–recurrence sensitivity analysis was not feasible (Limitations, page 11; see Item 12e).
Discussion			
Key results	18	Summarise key results with reference to study objectives	Discussion paragraph 1 (page 9): three key results — (1) high technical success and acceptable safety; (2) no statistically detectable association between any of the five prespecified covariates and recurrence on multivariable analysis; (3) descriptive embolic-agent recurrence proportions reported without comparative-efficacy interpretation.
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	Limitations paragraph (pages 10–11), eight points: (1) EPV ≈ 6.4, exploratory model, risk of overfitting; (2) NBSC, culprit-vessel count, vessel tortuosity, completeness of collateral mapping not recorded; (3) concurrent systemic anticancer therapy not captured; (4) prior thoracic radiotherapy not entered as predictor; (5) treatment-threshold bias in recurrence definition and clinical-estimation-based haemoptysis volume; sensitivity analysis not feasible; (6) 30-day mortality attribution without autopsy; (7) embolic-agent group imbalance and non-protocolised allocation; (8) single-centre design.
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Discussion paragraphs 2–6 (pages 9–11) compare findings against published BAE / lung cancer literature (Syha, Itrich, Han, Garcia-Olivé, Hanotin 2024, Sebastiani 2025 systematic review). The implications paragraph (page 11) frames the findings as exploratory and hypothesis-generating, recommending close post-procedural surveillance for all patients.
Generalisability	21	Discuss the generalisability (external validity) of the study results	Limitations point 8 (page 11): single-centre study; generalisability of institutional practice patterns — particularly the high proportion of coil embolization — to centres with different embolic agent preferences is uncertain. Conclusions (page 12) call for adequately powered prospective studies.
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	[To be completed by the authors at submission — please confirm funding/sponsor disclosure on the title page, COI form, or in a Funding statement, consistent with journal's submission packet. If no external funding was received, state explicitly: “This study received no specific funding from any agency in the public, commercial, or not-for-profit sectors.”]

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.