

## Appendix 1: Search strategies

### *PubMed*

(((((bronchial artery) OR (artery embolization)) OR (bronchial artery embolization)) OR (transcatheter embolization)) AND (hemoptysis[MeSH Terms])) AND (("2010/01/01"[Date - Publication]: "2023/08/31"[Date - Publication]))

### *Embase*

('bronchial artery':ti,ab,kw OR 'artery embolization':ti,ab,kw OR 'bronchial artery embolization':ti,ab,kw OR 'transcatheter embolization':ti,ab,kw) AND 'hemoptysis':ti,ab,kw AND [2010-2023]/py

### *Web of Science*

(((((TS=(bronchial artery)) OR TS=(artery embolization)) OR TS=(bronchial artery embolization)) OR TS=(transcatheter embolization)) AND TS=(hemoptysis)) AND PY=(2010-2023)

### *Cochrane*

('bronchial artery' OR 'artery embolization' OR 'bronchial artery embolization' OR 'transcatheter embolization') AND 'hemoptysis':ti,ab,kw with publication year from 2010 to 2023

**Table S1** Sensitivity analysis of technical success rates

Study [year]	Estimate effect (95% CI) (%)	P	Tau <sup>2</sup>	Heterogeneity	
				I <sup>2</sup> (%)	P
Omitting Yan [2023]	96.9 (94.7, 98.6)	<0.001	0.053	91.931	<0.001
Omitting Wang [2023]	96.9 (94.8, 98.5)	<0.001	0.046	90.404	<0.001
Omitting Park [2023]	97.1 (94.9, 98.8)	<0.001	0.058	92.924	<0.001
Omitting Le Tat [2023]	97.1 (94.9, 98.8)	<0.001	0.057	92.960	<0.001
Omitting García Jurado [2023]	97.0 (94.8, 98.7)	<0.001	0.057	92.884	<0.001
Omitting Zhang [2022]	97.1 (94.8, 98.8)	<0.001	0.062	92.899	<0.001
Omitting Lee [2022]	97.2 (95.0, 98.8)	<0.001	0.058	92.968	<0.001
Omitting Omachi [2021]	97.2 (94.9, 98.8)	<0.001	0.059	92.955	<0.001
Omitting Hwang [2021]	97.2 (95.0, 98.9)	<0.001	0.060	92.964	<0.001
Omitting Fu [2021]	96.9 (94.7, 98.6)	<0.001	0.056	92.605	<0.001
Omitting Tayal [2020]	97.0 (94.8, 98.7)	<0.001	0.057	92.896	<0.001
Omitting Takeda [2020]	97.4 (95.4, 99.0)	<0.001	0.056	92.684	<0.001
Omitting Sarioglu [2020]	97.1 (94.9, 98.8)	<0.001	0.058	92.958	<0.001
Omitting Han [2019]	97.1 (94.9, 98.7)	<0.001	0.058	92.939	<0.001
Omitting Kucukay [2018]	96.9 (94.7, 98.6)	<0.001	0.055	92.532	<0.001
Omitting Choi [2018]	97.1 (94.9, 98.7)	<0.001	0.058	92.952	<0.001
Omitting Ishikawa [2017]	97.3 (95.1, 99.0)	<0.001	0.062	92.530	<0.001
Omitting Tom [2015]	97.4 (95.3, 98.9)	<0.001	0.056	92.758	<0.001
Omitting Bhalla [2015]	97.5 (95.5, 99.0)	<0.001	0.052	91.766	<0.001
Omitting Woo [2013]	97.3 (95.1, 98.9)	<0.001	0.061	92.866	<0.001
Omitting Shin [2011]	97.4 (95.2, 98.9)	<0.001	0.057	92.764	<0.001
Omitting Hahn [2010]	97.5 (95.6, 98.9)	<0.001	0.048	91.019	<0.001

CI, confidence interval.

**Table S2** Sensitivity analysis of clinical success rates

Study [year]	Estimate effect (95% CI) (%)	P	Tau <sup>2</sup>	Heterogeneity	
				I <sup>2</sup> (%)	P
Omitting Yan [2023]	92.8 (90.0, 95.1)	<0.001	0.062	91.350	<0.001
Omitting Park [2023]	93.0 (90.0, 95.5)	<0.001	0.074	92.918	<0.001
Omitting Le Tat [2023]	93.5 (90.6, 95.9)	<0.001	0.073	92.945	<0.001
Omitting Jurado [2023]	93.0 (90.0, 95.6)	<0.001	0.074	93.059	<0.001
Omitting Zhang [2022]	93.1 (90.0, 95.6)	<0.001	0.077	92.838	<0.001
Omitting Lee [2022]	93.8 (91.2, 96.1)	<0.001	0.063	91.887	<0.001
Omitting Hwang [2021]	93.2 (90.2, 95.7)	<0.001	0.077	93.098	<0.001
Omitting Fu [2021]	93.0 (90.0, 95.5)	<0.001	0.074	92.878	<0.001
Omitting Tayal [2020]	93.3 (90.4, 95.8)	<0.001	0.074	93.091	<0.001
Omitting Takeda [2020]	93.0 (90.0, 95.5)	<0.001	0.074	93.000	<0.001
Omitting Sarioglu [2020]	93.1 (90.1, 95.7)	<0.001	0.075	93.092	<0.001
Omitting Peng [2019]	93.2 (90.2, 95.7)	<0.001	0.077	93.097	<0.001
Omitting Han [2019]	93.5 (90.6, 95.9)	<0.001	0.073	92.932	<0.001
Omitting Kucukay [2018]	93.3 (90.3, 95.8)	<0.001	0.076	93.099	<0.001
Omitting Choi [2018]	93.1 (90.1, 95.6)	<0.001	0.075	93.069	<0.001
Omitting Ishikawa [2017]	93.3 (90.2, 95.8)	<0.001	0.081	93.094	<0.001
Omitting Pathak [2016]	92.9 (89.9, 95.4)	<0.001	0.073	92.962	<0.001
Omitting Dabó [2016]	93.0 (90.0, 95.5)	<0.001	0.074	93.032	<0.001
Omitting Tom [2015]	93.5 (90.6, 95.9)	<0.001	0.073	92.911	<0.001
Omitting Bhalla [2015]	93.4 (90.5, 95.9)	<0.001	0.076	92.844	<0.001
Omitting Pei [2014]	93.4 (90.5, 95.9)	<0.001	0.074	93.012	<0.001
Omitting Garcia-Olivé [2014]	93.1 (90.1, 95.6)	<0.001	0.076	93.054	<0.001
Omitting Chen [2014]	93.3 (90.3, 95.8)	<0.001	0.076	93.088	<0.001
Omitting Racil [2013]	93.1 (90.1, 95.6)	<0.001	0.074	93.076	<0.001
Omitting Cornalba [2013]	93.1 (90.0, 95.7)	<0.001	0.079	92.937	<0.001
Omitting Woo [2013]	93.2 (90.1, 95.8)	<0.001	0.080	93.103	<0.001
Omitting Anuradha [2012]	93.2 (90.3, 95.7)	<0.001	0.075	93.104	<0.001
Omitting Shin [2011]	93.1 (90.1, 95.6)	<0.001	0.076	93.038	<0.001
Omitting Hahn [2010]	93.8 (91.4, 95.8)	<0.001	0.049	89.169	<0.001
Omitting Chun [2010]	93.4 (90.5, 95.9)	<0.001	0.074	93.053	<0.001

CI, confidence interval.

**Table S3** Sensitivity analysis of recurrence rates

Study [year]	Estimate effect (95% CI) (%)	P	Tau <sup>2</sup>	Heterogeneity	
				I <sup>2</sup> (%)	P
Omitting Yan [2023]	24.9 (20.4, 29.7)	<0.001	0.082	93.515	<0.001
Omitting Wang [2023]	24.1 (20.1, 28.3)	<0.001	0.062	91.301	<0.001
Omitting Park [2023]	25.2 (20.8, 29.9)	<0.001	0.077	93.372	<0.001
Omitting Le Tat [2023]	24.8 (20.4, 29.4)	<0.001	0.078	93.527	<0.001
Omitting Jurado [2023]	25.3 (20.9, 30.0)	<0.001	0.077	93.396	<0.001
Omitting Zhang [2022]	25.1 (20.7, 29.9)	<0.001	0.079	93.199	<0.001
Omitting Lee [2022]	24.4 (20.1, 29.1)	<0.001	0.078	93.430	<0.001
Omitting Omachi [2021]	25.4 (21.0, 30.0)	<0.001	0.076	93.348	<0.001
Omitting Hwang [2021]	24.7 (20.2, 29.5)	<0.001	0.081	93.518	<0.001
Omitting Fu [2021]	25.4 (21.0, 30.0)	<0.001	0.074	93.103	<0.001
Omitting Tayal [2020]	24.9 (20.5, 29.6)	<0.001	0.078	93.519	<0.001
Omitting Takeda [2020]	25.0 (20.6, 29.7)	<0.001	0.078	93.483	<0.001
Omitting Sarioglu [2020]	25.2 (20.8, 29.9)	<0.001	0.077	93.420	<0.001
Omitting Peng [2019]	24.6 (20.1, 29.3)	<0.001	0.079	93.463	<0.001
Omitting Han [2019]	24.8 (20.4, 29.5)	<0.001	0.079	93.527	<0.001
Omitting Kucukay [2018]	25.5 (21.2, 30.0)	<0.001	0.073	92.924	<0.001
Omitting Choi [2018]	24.7 (20.3, 29.4)	<0.001	0.078	93.522	<0.001
Omitting Ishikawa [2017]	25.3 (21.0, 29.8)	<0.001	0.072	92.438	<0.001
Omitting Pathak [2016]	24.2 (19.9, 28.8)	<0.001	0.076	93.360	<0.001
Omitting Dabó [2016]	24.4 (20.1, 29.1)	<0.001	0.078	93.460	<0.001
Omitting Tom [2015]	24.4 (20.0, 29.0)	<0.001	0.077	93.417	<0.001
Omitting Bhalla [2015]	25.2 (20.8, 29.9)	<0.001	0.077	93.112	<0.001
Omitting Pei [2014]	24.8 (20.4, 29.5)	<0.001	0.079	93.527	<0.001
Omitting Garcia-Olivé [2014]	25.0 (20.6, 29.8)	<0.001	0.079	93.442	<0.001
Omitting Chen [2014]	24.2 (19.9, 28.8)	<0.001	0.076	93.200	<0.001
Omitting Racil [2013]	24.8 (20.4, 29.4)	<0.001	0.078	93.527	<0.001
Omitting Cornalba [2013]	24.6 (20.1, 29.3)	<0.001	0.081	93.413	<0.001
Omitting Woo [2013]	24.8 (20.3, 29.6)	<0.001	0.083	93.527	<0.001
Omitting Anuradha [2012]	24.0 (19.8, 28.6)	<0.001	0.075	93.250	<0.001
Omitting Shin [2011]	24.6 (20.2, 29.3)	<0.001	0.079	93.492	<0.001
Omitting Hahn [2010]	24.3 (20.0, 28.8)	<0.001	0.074	92.779	<0.001
Omitting Chun [2010]	24.7 (20.3, 29.4)	<0.001	0.078	93.524	<0.001

CI, confidence interval.

**Table S4** Sensitivity analysis of mortality rates

Study [year]	Estimate effect (95% CI) (%)	P	Tau <sup>2</sup>	Heterogeneity	
				I <sup>2</sup> (%)	P
Omitting Yan [2023]	2.3 (1.1, 4.0)	<0.001	0.043	87.980	<0.001
Omitting Wang [2023]	2.3 (1.1, 4.0)	<0.001	0.046	87.960	<0.001
Omitting Park [2023]	2.4 (1.1, 4.0)	<0.001	0.041	87.937	<0.001
Omitting Le Tat [2023]	2.2 (1.0, 3.8)	<0.001	0.040	87.837	<0.001
Omitting Jurado [2023]	2.4 (1.2, 4.0)	<0.001	0.041	87.913	<0.001
Omitting Zhang [2022]	2.4 (1.1, 4.0)	<0.001	0.044	87.916	<0.001
Omitting Lee [2022]	2.2 (1.0, 3.8)	<0.001	0.041	87.820	<0.001
Omitting Omachi [2021]	2.4 (1.2, 4.0)	<0.001	0.041	87.898	<0.001
Omitting Hwang [2021]	2.3 (1.1, 3.9)	<0.001	0.042	87.968	<0.001
Omitting Fu [2021]	2.2 (1.0, 3.8)	<0.001	0.041	87.807	<0.001
Omitting Takeda [2020]	2.4 (1.2, 4.0)	<0.001	0.040	87.771	<0.001
Omitting Peng [2019]	2.1 (1.0, 3.6)	<0.001	0.037	86.637	<0.001
Omitting Han [2019]	1.7 (0.9, 2.8)	<0.001	0.023	80.652	<0.001
Omitting Kucukay [2018]	2.5 (1.2, 4.1)	<0.001	0.040	87.537	<0.001
Omitting Choi [2018]	2.4 (1.2, 4.0)	<0.001	0.041	87.873	<0.001
Omitting Ishikawa [2017]	2.4 (1.1, 4.0)	<0.001	0.044	87.843	<0.001
Omitting Pathak [2016]	2.2 (1.0, 3.7)	<0.001	0.040	87.792	<0.001
Omitting Dabó [2016]	2.3 (1.1, 3.9)	<0.001	0.041	87.979	<0.001
Omitting Tom [2015]	1.9 (0.9, 3.2)	<0.001	0.032	84.965	<0.001
Omitting Bhalla [2015]	2.4 (1.1, 4.0)	<0.001	0.043	87.937	<0.001
Omitting Pei [2014]	2.4 (1.2, 4.0)	<0.001	0.040	87.752	<0.001
Omitting Chen [2014]	2.3 (1.1, 3.9)	<0.001	0.042	87.943	<0.001
Omitting Racil [2013]	2.4 (1.2, 4.0)	<0.001	0.041	87.918	<0.001
Omitting Woo [2013]	2.5 (1.2, 4.1)	<0.001	0.039	86.476	<0.001
Omitting Anuradha [2012]	2.1 (1.0, 3.6)	<0.001	0.039	87.567	<0.001
Omitting Shin [2011]	2.4 (1.1, 4.0)	<0.001	0.042	87.893	<0.001
Omitting Chun [2010]	2.2 (1.0, 3.7)	<0.001	0.040	87.792	<0.001

CI, confidence interval.

**Table S5** Sensitivity analysis of major complication rates

Study [year]	Estimate effect (95% CI) (%)	P	Tau <sup>2</sup>	Heterogeneity	
				I <sup>2</sup> (%)	P
Omitting Yan [2023]	0.1 (0.0, 0.4)	0.02	0.004	39.114	0.02
Omitting Wang [2023]	0.2 (0.0, 0.4)	0.007	0.003	31.908	0.047
Omitting Park [2023]	0.1 (0.0, 0.4)	0.01	0.003	38.749	0.02
Omitting Le Tat [2023]	0.1 (0.0, 0.3)	0.03	0.002	28.230	0.07
Omitting Jurado [2023]	0.1 (0.0, 0.4)	0.01	0.003	39.117	0.02
Omitting Zhang [2022]	0.2 (0.0, 0.4)	0.009	0.003	35.125	0.03
Omitting Lee [2022]	0.1 (0.0, 0.4)	0.01	0.003	38.864	0.02
Omitting Omachi [2021]	0.1 (0.0, 0.4)	0.01	0.003	39.117	0.02
Omitting Hwang [2021]	0.1 (0.0, 0.4)	0.01	0.003	37.812	0.02
Omitting Fu [2021]	0.1 (0.0, 0.4)	0.01	0.003	38.635	0.02
Omitting Tayal [2020]	0.1 (0.0, 0.3)	0.02	0.003	36.234	0.03
Omitting Takeda [2020]	0.1 (0.0, 0.3)	0.02	0.003	37.654	0.02
Omitting Sarioglu [2020]	0.1 (0.0, 0.4)	0.01	0.003	39.047	0.02
Omitting Peng [2019]	0.1 (0.0, 0.4)	0.02	0.003	38.753	0.02
Omitting Han [2019]	0.1 (0.0, 0.4)	0.01	0.003	39.066	0.02
Omitting Kucukay [2018]	0.1 (0.0, 0.4)	0.01	0.003	38.438	0.02
Omitting Choi [2018]	0.1 (0.0, 0.4)	0.01	0.003	39.103	0.02
Omitting Ishikawa [2017]	0.1 (0.0, 0.2)	0.07	0.002	24.619	0.11
Omitting Pathak [2016]	0.1 (0.0, 0.3)	0.02	0.003	32.227	0.02
Omitting Dabó [2016]	0.1 (0.0, 0.4)	0.01	0.003	39.110	0.02
Omitting Tom [2015]	0.1 (0.0, 0.4)	0.01	0.003	39.107	0.02
Omitting Bhalla [2015]	0.1 (0.0, 0.4)	0.01	0.003	36.480	0.02
Omitting Pei [2014]	0.1 (0.0, 0.4)	0.01	0.003	38.929	0.02
Omitting Garcia-Olivé [2014]	0.1 (0.0, 0.4)	0.02	0.003	38.526	0.02
Omitting Chen [2014]	0.1 (0.0, 0.4)	0.02	0.003	38.315	0.02
Omitting Racil [2013]	0.1 (0.0, 0.3)	0.02	0.003	36.342	0.02
Omitting Cornalba [2013]	0.1 (0.0, 0.4)	0.03	0.003	38.062	0.02
Omitting Woo [2013]	0.1 (0.0, 0.4)	0.02	0.004	39.053	0.02
Omitting Anuradha [2012]	0.1 (0.0, 0.4)	0.01	0.003	39.117	0.02
Omitting Shin [2011]	0.1 (0.0, 0.4)	0.02	0.003	38.464	0.02
Omitting Hahn [2010]	0.2 (0.0, 0.4)	0.009	0.003	34.955	0.03
Omitting Chun [2010]	0.1 (0.0, 0.3)	0.02	0.003	32.227	0.045

CI, confidence interval.

**Table S6** Subgroup analysis of technical success rates

Subgroups ( $P_{\text{interaction}}$ )	No. of studies	Effects model	Estimate effect (95% CI) (%)	P	Heterogeneity	
					$I^2$ (%)	P
Publication year ( $P<0.001$ )						
After 2017	17	Random	98.6 (97.0–99.6)	<0.001	87.775	<0.001
Before 2017	5	Random	97.2 (95.1–98.8)	<0.001	77.84	0.001
Region ( $P=0.001$ )						
Asia	18	Random	97.0 (94.6–98.7)	<0.001	93.699	<0.001
Europe	3	Random	99.7 (97.7–100.0)	<0.001	N/A	N/A
America	1	Random	89.7 (81.9–94.9)	<0.001	N/A	N/A
Sample size ( $P=0.54$ )						
$\geq 100$	16	Random	96.7 (94.1–98.7)	<0.001	94.402	<0.001
<100	6	Random	98.3 (95.0–100.0)	<0.001	67.857	0.008
Amount of hemoptysis ( $P=0.003$ )						
Massive	1	Random	100.0 (97.9–100.0)	<0.001	N/A	N/A
Non-massive	3	Random	97.5 (95.7–98.8)	<0.001	N/A	N/A
Bronchiectasis ( $P=0.02$ )						
Yes	2	Random	99.7 (99.1–100.0)	<0.001	N/A	N/A
No	5	Random	97.4 (94.0–99.5)	<0.001	66.314	0.02
Tuberculosis ( $P=0.09$ )						
Yes	1	Random	91.7 (86.5–95.4)	<0.001	N/A	N/A
No	5	Random	97.7 (92.0–100.0)	<0.001	91.37	<0.001
Type of disease ( $P>0.99$ )						
Benign	7	Random	97.6 (93.3–99.8)	<0.001	95.462	<0.001
Malignant	3	Random	97.9 (95.6–99.4)	<0.001	N/A	N/A
NBCA ( $P=0.60$ )						
Yes	3	Random	98.3 (95.5–99.9)	<0.001	N/A	N/A
No	17	Random	97.2 (94.5–99.1)	<0.001	93.297	<0.001
Coils ( $P=0.12$ )						
Yes	3	Random	93.9 (89.2–97.4)	<0.001	N/A	N/A
No	11	Random	98.0 (94.4–99.9)	<0.001	95.624	<0.001
Particles ( $P=0.28$ )						
Yes	7	Random	97.8 (92.9–100.0)	<0.001	95.584	<0.001
No	7	Random	95.1 (91.6–97.8)	<0.001	78.304	<0.001
Gelatins sponge ( $P=0.001$ )						
Yes	1	Random	85.1 (75.0–92.3)	<0.001	N/A	N/A
No	12	Random	97.7 (94.6–99.6)	<0.001	93.481	<0.001
NBCA vs. particles ( $P=0.94$ )						
NBCA	3	Random	98.3 (95.5–99.9)	<0.001	N/A	N/A
Particles	7	Random	97.8 (92.9–100.0)	<0.001	95.584	<0.001

CI, confidence interval; NBCA, N-butyl-2-cyanoacrylate; N/A, not available.

**Table S7** Subgroup analysis of clinical success rates

Subgroups ( $P_{\text{interaction}}$ )	No. of studies	Effects model	Estimate effect (95% CI) (%)	P	Heterogeneity	
					$I^2$ (%)	P
Publication year ( $P=0.52$ )						
After 2017	16	Random	94.0 (90.2–96.9)	<0.001	92.037	<0.001
Before 2017	14	Random	92.3 (87.7–95.9)	<0.001	92.775	<0.001
Region ( $P=0.47$ )						
Asia	20	Random	92.9 (89.0–95.9)	<0.001	94.615	<0.001
Europe	7	Random	93.7 (89.3–97.1)	<0.001	76.553	<0.001
America	2	Random	91.3 (85.9–95.6)	<0.001	N/A	N/A
Africa	1	Random	97.8 (88.5–99.9)	<0.001	N/A	N/A
Sample size ( $P=0.81$ )						
$\geq 100$	18	Random	93.3 (89.5–96.3)	<0.001	95.183	<0.001
<100	12	Random	93.1 (88.4–96.7)	<0.001	78.929	<0.001
Amount of hemoptysis ( $P=0.01$ )						
Massive	3	Random	90.6 (86.7–93.9)	<0.001	N/A	N/A
Non-massive	3	Random	96.6 (93.1–99.0)	<0.001	N/A	N/A
Bronchiectasis ( $P=0.003$ )						
Yes	1	Random	98.1 (93.4–99.8)	<0.001	N/A	N/A
No	8	Random	87.4 (79.4–93.7)	<0.001	89.679	<0.001
Tuberculosis ( $P=0.48$ )						
Yes	4	Random	93.2 (88.7–96.7)	<0.001	67.859	0.03
No	5	Random	88.7 (72.4–98.5)	<0.001	94.482	<0.001
Type of disease ( $P<0.001$ )						
Benign	8	Random	96.0 (91.9–98.7)	<0.001	90.771	<0.001
Malignant	3	Random	76.3 (65.2–85.8)	<0.001	N/A	N/A
NBCA ( $P=0.79$ )						
Yes	3	Random	93.4 (82.2–99.6)	<0.001	N/A	N/A
No	21	Random	91.8 (87.5–95.4)	<0.001	94.405	<0.001
Coils ( $P=0.26$ )						
Yes	2	Random	93.5 (91.3–95.3)	<0.001	N/A	N/A
No	13	Random	90.1 (83.4–95.3)	<0.001	96.188	<0.001
Particles ( $P=0.49$ )						
Yes	7	Random	87.0 (75.8–95.3)	<0.001	95.72	<0.001
No	7	Random	91.0 (84.5–95.9)	<0.001	87.455	<0.001
Gelatin sponge ( $P=0.03$ )						
Yes	2	Random	81.2 (75.2–86.5)	<0.001	N/A	N/A
No	10	Random	91.2 (83.8–96.5)	<0.001	94.791	<0.001
NBCA vs. particles ( $P=0.37$ )						
NBCA	3	Random	93.4 (82.2–99.6)	<0.001	N/A	N/A
Particles	7	Random	87.0 (75.6–95.3)	<0.001	95.72	<0.001

CI, confidence interval; NBCA, N-butyl-2-cyanoacrylate; N/A, not available.



**Table S8** Subgroup analysis of recurrence rates

Subgroups ( $P_{\text{interaction}}$ )	No. of studies	Effects model	Estimate effect (95% CI) (%)	P	Heterogeneity	
					$I^2$ (%)	P
Publication year ( $P=0.006$ )						
After 2017	18	Random	19.8 (14.3–25.9)	<0.001	94.223	<0.001
Before 2017	14	Random	31.7 (25.7–37.9)	<0.001	89.852	<0.001
Region ( $P=0.002$ )						
Asia	22	Random	23.7 (18.4–29.4)	<0.001	94.94	<0.001
Europe	7	Random	28.0 (16.2–42.5)	<0.001	78.49	<0.001
America	2	Random	41.4 (33.5–49.6)	<0.001	N/A	N/A
Africa	1	Random	26.1 (14.3–41.1)	<0.001	N/A	N/A
Sample size ( $P=0.50$ )						
$\geq 100$	19	Random	23.7 (18.4–29.5)	<0.001	95.385	<0.001
<100	13	Random	26.7 (19.5–34.5)	<0.001	83.428	<0.001
Amount of hemoptysis ( $P=0.78$ )						
Massive	3	Random	26.4 (6.3–53.7)	0.001	N/A	N/A
Non-massive	3	Random	22.7 (13.8–33.0)	<0.001	N/A	N/A
Bronchiectasis ( $P=0.003$ )						
Yes	2	Random	40.8 (37.2–44.5)	<0.001	N/A	N/A
No	8	Random	30.4 (24.8–36.3)	<0.001	67.474	0.003
Tuberculosis ( $P=0.85$ )						
Yes	4	Random	33.8 (24.8–43.4)	<0.001	78.953	0.003
No	6	Random	32.4 (22.2–43.5)	<0.001	89.686	<0.001
Type of disease ( $P=0.46$ )						
Benign	10	Random	24.3 (15.4–34.5)	<0.001	96.214	<0.001
Malignant	3	Random	29.0 (21.3–37.3)	<0.001	N/A	N/A
NBCA ( $P=0.001$ )						
Yes	3	Random	12.6 (8.4–17.5)	<0.001	N/A	N/A
No	23	Random	25.4 (20.1–31.2)	<0.001	93.934	<0.001
Coils ( $P=0.006$ )						
Yes	3	Random	12.5 (8.3–17.3)	<0.001	N/A	N/A
No	14	Random	23.8 (17.3–31.0)	<0.001	94.951	<0.001
Particles ( $P=0.26$ )						
Yes	8	Random	26.5 (15.7–39.0)	<0.001	96.459	<0.001
No	8	Random	18.1 (10.6–27.2)	<0.001	90.36	<0.001
Gelatin sponge ( $P=0.007$ )						
Yes	2	Random	35.9 (29.2–43.0)	<0.001	N/A	N/A
No	12	Random	19.7 (11.6–29.3)	<0.001	96.291	<0.001
NBCA vs. particles ( $P=0.02$ )						
NBCA	3	Random	12.6 (8.4–17.5)	<0.001	N/A	N/A
Particles	8	Random	26.5 (15.7–39.0)	<0.001	96.459	<0.001

CI, confidence interval; NBCA, N-butyl-2-cyanoacrylate; N/A, not available.

**Table S9** Subgroup analysis of mortality rates

Subgroups ( $P_{\text{interaction}}$ )	No. of studies	Effects model	Estimate effect (95% CI) (%)	P	Heterogeneity	
					$I^2$ (%)	P
Publication year ( $P=0.75$ )						
After 2017	16	Random	2.2 (0.8–4.1)	0.002	87.92	<0.001
Before 2017	11	Random	2.5 (0.5–05.7)	<0.001	87.788	<0.001
Region ( $P<0.001$ )						
Asia	20	Random	1.9 (0.8–3.3)	<0.001	87.711	<0.001
Europe	4	Random	2.2 (0.1– 5.8)	0.02	48.929	0.12
America	2	Random	15.6 (9.5–22.9)	<0.001	N/A	N/A
Africa	1	Random	0.0 (0.0–6.7)	>0.99	N/A	N/A
Sample size ( $P=0.08$ )						
$\geq 100$	16	Random	1.3 (0.6–2.2)	<0.001	76.052	<0.001
<100	11	Random	4.9 (0.7–11.7)	0.005	90.567	<0.001
Amount of hemoptysis ( $P=0.97$ )						
Massive	3	Random	1.0 (0.0–6.7)	0.34	N/A	N/A
Non-massive	3	Random	1.1 (0.2–2.5)	0.004	N/A	N/A
Bronchiectasis ( $P=0.04$ )						
Yes	2	Random	1.1 (0.4–2.0)	<0.001	N/A	N/A
No	7	Random	6.0 (1.1–13.9)	0.002	92.818	<0.001
Tuberculosis ( $P=0.52$ )						
Yes	4	Random	2.9 (0.0–9.3)	0.045	89.241	<0.001
No	6	Random	5.6 (0.6–14.3)	0.008	93.854	<0.001
Type of disease ( $P= 0.12$ )						
Benign	10	Random	1.7 (0.6–3.2)	<0.001	78.724	<0.001
Malignant	3	Random	11.7 (0.4–33.2)	0.02	N/A	N/A
NBCA ( $P=0.15$ )						
Yes	3	Random	0.4 (0.0–03.2)	0.41	N/A	N/A
No	18	Random	2.9 (1.1–5.4)	<0.001	90.93	<0.001
Coils ( $P=0.21$ )						
Yes	3	Random	0.5 (0.0–1.3)	0.02	N/A	N/A
No	10	Random	1.3 (0.4–2.7)	<0.001	76.855	<0.001
Particles ( $P=0.20$ )						
Yes	6	Random	1.5 (0.1–3.8)	0.01	81.132	<0.001
No	7	Random	0.3 (0.0–0.9)	0.052	5.395	0.39
Gelatin sponge ( $P=0.17$ )						
Yes	1	Random	0.0 (0.0–3.2)	>0.99	N/A	N/A
No	10	Random	1.0 (0.2–2.0)	0.001	59.423	0.008
NBCA vs. particles ( $P=0.56$ )						
NBCA	3	Random	0.4 (0.0–3.2)	0.41	N/A	N/A
Particles	6	Random	1.5 (0.1–3.8)	0.01	81.132	<0.001

CI, confidence interval; NBCA, N-butyl-2-cyanoacrylate; N/A, not available.

**Table S10** Subgroup analysis of major complication rates

Subgroups ( $P_{\text{interaction}}$ )	No. of studies	Effects model	Estimate effect (95% CI) (%)	P	Heterogeneity	
					$I^2$ (%)	P
Publication year ( $P=0.62$ )						
After 2017	18	Random	0.1 (0.0–0.4)	0.13	42.697	0.03
Before 2017	14	Random	0.1 (0.0–0.4)	0.06	32.884	0.11
Region ( $P=0.02$ )						
Asia	22	Random	0.1 (0.0–0.2)	0.08	13.47	0.28
Europe	7	Random	0.8 (0.1–2.1)	0.01	38.279	0.14
America	2	Random	0.9 (0.0–3.9)	0.17	N/A	N/A
Africa	1	Random	1.9 (0.0–10.1)	0.16	N/A	N/A
Sample size ( $P=0.03$ )						
$\geq 100$	19	Random	0.2 (0.0–0.4)	0.004	32.315	N/A
$< 100$	13	Random	0.5 (0.0–1.5)	0.03	25.882	N/A
Amount of hemoptysis ( $P=0.88$ )						
Massive	3	Random	0.0 (0.0–0.5)	$>0.99$	N/A	N/A
Non-massive	3	Random	0.0 (0.0–0.4)	$>0.99$	N/A	N/A
Bronchiectasis ( $P=0.050$ )						
Yes	2	Random	0.0 (0.0–0.3)	$>0.99$	N/A	N/A
No	8	Random	0.3 (0.0–1.1)	0.07	23.216	0.24
Tuberculosis ( $P=0.54$ )						
Yes	4	Random	0.2 (0.0–1.0)	0.17	0	0.89
No	6	Random	0.6 (0.0–2.5)	0.17	72.723	0.003
Type of disease ( $P=0.58$ )						
Benign	10	Random	0.2 (0.0–0.7)	0.046	41.903	0.08
Malignant	3	Random	0.6 (0.0–4.2)	0.37	N/A	N/A
NBCA ( $P=0.51$ )						
Yes	3	Random	0.0 (0.0–0.8)	$>0.99$	N/A	N/A
No	23	Random	0.2 (0.0–0.6)	0.006	43.629	0.01
Coils ( $P=0.007$ )						
Yes	3	Random	1.1 (0.3–2.2)	$<0.001$	N/A	N/A
No	14	Random	0.1 (0.0–0.4)	0.21	46.855	0.03
Particles ( $P=0.02$ )						
Yes	8	Random	0.0 (0.0–0.2)	0.96	22.977	0.25
No	8	Random	0.4 (0.1–1.1)	0.006	0.000	0.54
Gelatin sponge ( $P=0.67$ )						
Yes	2	Random	0.0 (0.0–1.0)	$>0.99$	N/A	N/A
No	12	Random	0.1 (0.0–0.6)	0.25	56.444	0.008
NBCA vs. particles ( $P=0.78$ )						
NBCA	3	Random	0.0 (0.0–0.8)	$>0.99$	N/A	N/A
Particles	8	Random	0.0 (0.0–0.2)	0.96	22.977	0.25

CI, confidence interval; NBCA, N-butyl-2-cyanoacrylate; N/A, not available.