SUPPLEMENTAL MATERIAL

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DATA S1-SEARCH STRATEGY

12.20.19 PubMed (274) Search: ((("Stenosis, Pulmonary Vein"[Mesh]) OR pulmonary vein stenosis)) AND (((((("Angioplasty, Balloon"[Mesh] OR "Angioplasty, Balloon, Laser-Assisted"[Mesh])) OR pulmonary balloon angioplasty) OR "Stents"[Mesh]) OR stent*) Filters: English

12.20.19 Embase <1974 to 2019 December 19> Search Strategy (295)
1 pulmonary vein stenosis.mp. or exp pulmonary vein stenosis/ (1191)
2 exp percutaneous transluminal angioplasty/ or pulmonary balloon angioplasty.mp. (29690)
3 stent*.mp. or exp stent/ (207077)
4 2 or 3 (221920)
5 1 and 4 (304)
6 limit 5 to english language (295)

12.20.19 Scopus (158) (TITLE-ABS-KEY ("pulmonary vein stenosis")) AND ((TITLE-ABS-KEY (stent*) OR TITLE-ABS-KEY ("balloon angioplasty"))) AND (LIMIT-TO (LANGUAGE , "English"))

12.20.19 Web of Science (128) TOPIC: ("pulmonary vein stenosis") **AND** TOPIC: ("balloon angioplasty" OR "pulmonary balloon angioplasty") OR TOPIC: (stent*) Refined by: LANGUAGES: (ENGLISH)

12.20.19 Cochrane Database of Systematic reviews (0)

pulmonary vein stenosis.mp. [mp=title, short title, abstract, full text, keywords, caption text] AND
(stent* or angioplast*).mp. [mp=title, short title, abstract, full text, keywords, caption text]

12.19.19 Author supplied (1)

DATABASE	RESULTS	DUPLICATES	REMAINING
PubMed	274	0	274
EMBASE	295	139	156
Scopus	158	153	5
Web of Science	128	113	15
Cochrane Database of Systematic Reviews	0	0	0
Author Supplied	1	1	0
TOTAL	856	406	450

Supplemental Table 1: PRISMA checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	3, 4
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	4, 5
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	5
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	6
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	6, 7

Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	6
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	6
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	6
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	7
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	6, 7
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	7, 8
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	7, 8
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	8
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	7, 8

Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	8
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	9
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	9
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	7, 8
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	9, 10
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	10, 11
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	10
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	10, 11
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	13

Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	13
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	13, 14
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	19

Supplemental Table 2 Risk bias assessment

STUDY	Selection				Comparability		Outcome			EXPLANATION
	1	2	3	4	1	2	1	2	3	
Qureshi et al, 2003	*	*	*	*	*	*	*		*	Less than 1 year follow up time
Prieto et al, 2008	*	*	*	*	*		*	*		Change in interventional plan during study period, <90% of patients followed up
Neumann et al, 2009	*	*	*	*	*	*	*	*	*	
Fender et al, 2016	*	*	*	*	*	*	*	*	*	
Cory 2017	*	*	*	*	*		*	*	*	Specific protocol for BA vs. stent is not established
Schoene 2018	*	*	*	*	*	*	*		*	Less than 1 year follow up time
Kurita 2019	*	*	*	*	*		*	*	*	3 groups with BA, percutaneous intervention and hybrid surgery
Suntharos 2019	*	*	*	*	*		*	*		Small vessels dilated and stented few months later, <90% follow up

Supplemental Table 3 Primary outcome- risk of restenosis requirng reintervention

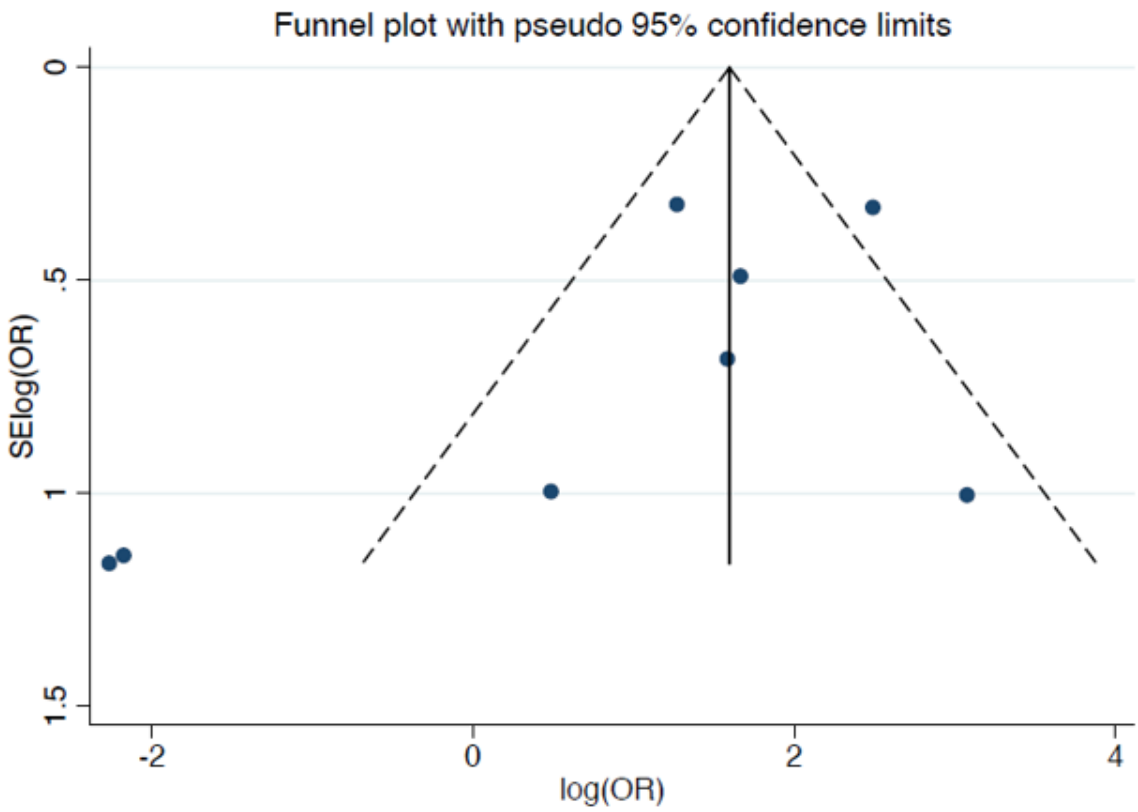
Primary outcome	Risk of restenosis requiring reintervention			
	BA		Stenting	
Study	Events	Total	Events	Total
Qureshi et al.	13	25	2	5
Prieto et al.	28	39	13	40
Neumann et al.	13	15	3	13
Fender et al.	52	92	23	86
Cory et al.	1	9	11	21
Schoene et al.	36	68	3	16
Kurita et al.	8	15	11	12
Suntharos et al.	45	62	45	250

Supplemental Table 4 Secondary outcome- risk of procedure related complications

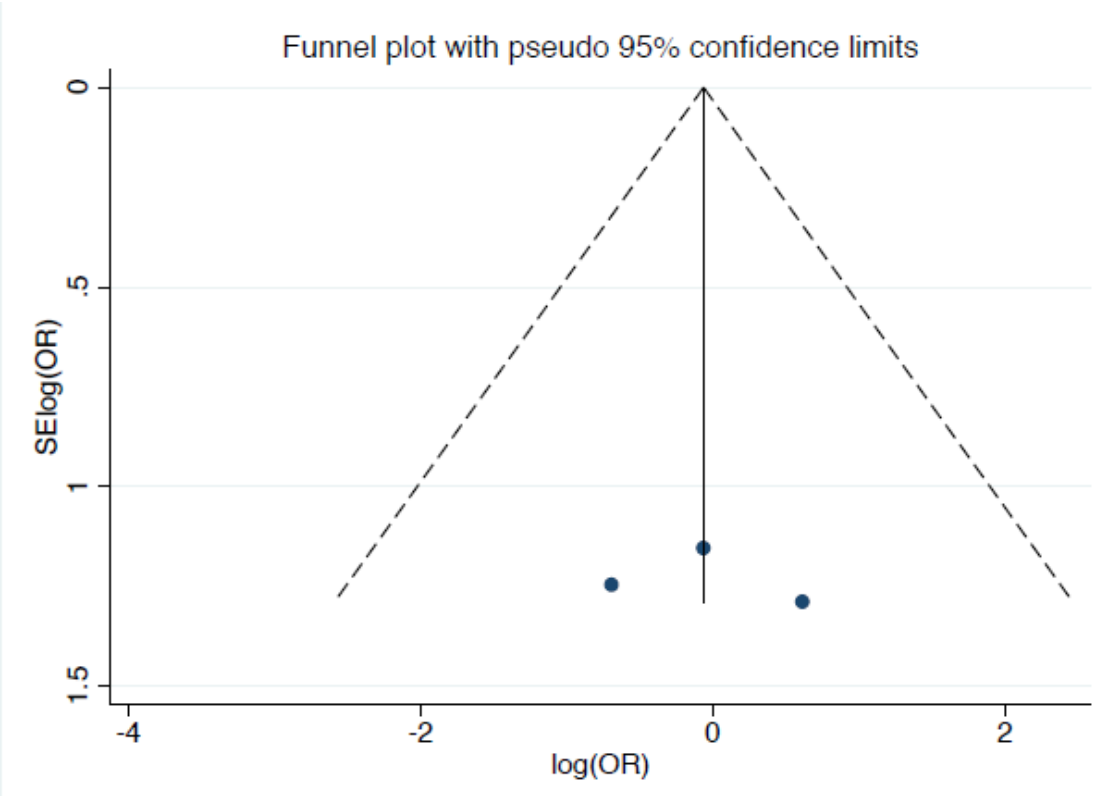
Secondary outcome	Risk of procedure related complications			
	BA		Stenting	
Study	Events	Total	Events	Total

Qureshi et al.	NA	NA	NA	NA
Prieto et al.	1	39	2	40
Neumann et al.	2	15	1	13
Fender et al.	NA	NA	NA	NA
Cory et al.	NA	NA	NA	NA
Schoene et al.	4	68	1	16
Kurita et al.	NA	NA	NA	NA
Suntharos et al.	NA	NA	NA	NA

Sensitivity analysis



Supplemental Figure 1: Funnel plot for studies reporting restenosis requiring reintervention.



Supplemental Figure 2: Funnel plot for studies reporting procedure related complications.