

Supplementary table 1 Risk of bias for non-randomized controlled trials included in the meta-analysis

Items/author*	Tulchinsky 2010	Koo 2012	Polese 2012	Kwag 2014	Adloff 1980	Cheregi 2017	Lu 2016
Inclusion criteria	1	1	1	1	1	1	1
Exclusion criteria	1	1	1	1	1	1	1
Comparable demographics?	1	0	0	1	0	0	1
Could the number of participating centers be determined?	1	1	1	1	1	1	1
Could the number of surgeons who participated be determined?	0	0	0	1	0	0	0
Could the reader determine where the authors were on the learning	0	0	0	1	0	0	0
Curve for the reported procedure?					0	0	0
Were diagnostic criteria clearly stated for clinical outcomes if required?	1	1	1	1	0	0	1
Was the surgical technique adequately described?	1	1	1	1	1	1	1
Did they try to standardize the surgical technique?	0	0	1	0	1	1	1
Did they try to standardize perioperative care?	0	0	1	1	0	0	0
Was the age and range given for patients in the Study group?	1	0	1	0	1	1	1
Did the authors address whether there were any missing data?	0	1	0	0	0	0	1
Was the age and range given for patients in the Control group?	1	0	0	0	1	1	1
Were patients in each group treated along similar timelines?	1	1	0	1	1	1	1
Of the patients asking to enter the study, did they actually take part in it?	0	0	0	0	0	0	0
Were drop-out rates stated?	0	0	1	0	1	0	1
Were outcomes clearly defined?	1	1	1	1	1	1	1
Were there blind assessors?	0	0	0	0	0	0	0
Were there standardized assessment tools?	0	1	1	0	0	0	1
Was the analysis by intention to treat?	0	0	0	1	1	0	1
Score	10	9	11	12	11	9	15

*Total score, 20; <8, poor quality; 8-14, fair quality; ≥15, good quality.

Supplementary table 2 Risk of bias for randomized controlled trials included in the meta-analysis

	Random Sequence Generation	Allocation concealment	Blinding of participants	Incomplete Outcome data	Selective Reporting	Other Bias
McGinn et al. 1985	?	+	?	+	+	+
Everett et al. 1986	+	+	-	+	-	+
Kracht et al. 1993	+	+	+	+	+	+
Docherty et al. 1995	+	+	?	+	+	+
Cahill et al. 1989	+	+	-	+	+	+
Bubrick et al. 1991						
Gullichsen et al. 1992	?	?	-	+	+	+
Seow-Choen et al. 1994	+	+	-	+	?	+
Galizia et al. 1999	+	+	-	+	+	+
Pahlman et al. 1997	+	+	-	+	+	+
Chen et al. 2009	+	+	-	+	?	+
Nudelman et al. 2005	?	?	-	+	+	+
Friend et al. 1990	+	+	-	+	-	+
Thiede et al. 1984	+	+	?	-	+	+
Beart et al. 1991	+	+	?	?	?	+
Didolkar et al. 1986	?	+	?	?	?	+
Brennan et al. 1982	?	+	?	+	+	+
Fingerhut et al. 1995	+	+	?	?	?	+
Sarker et al. 1994	?	?	?	?	+	+