Comparison of hospital stay

Heterogeneity testing revealed significant heterogeneity among the studies ($I^2 = 82\%$; $P < 0.00001$), necessitating the use of a random-effects model for meta-analysis(Fig.1).

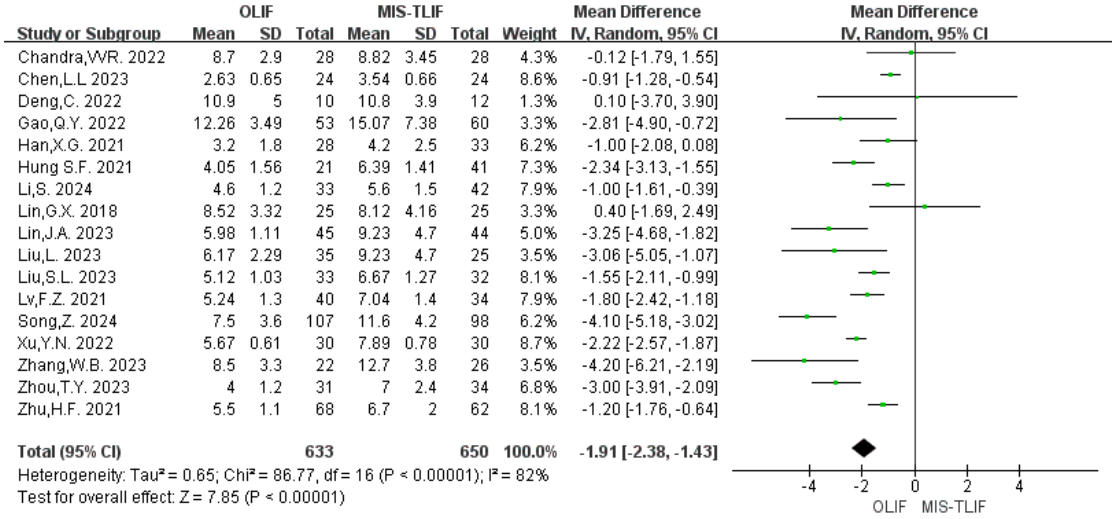


Fig.1 Forest plot hospital stay

Comparison of intraoperative blood loss

Heterogeneity testing revealed significant heterogeneity ($I^2 = 99\%$; $P < 0.00001$), necessitating the use of a random-effects model(Fig.2).

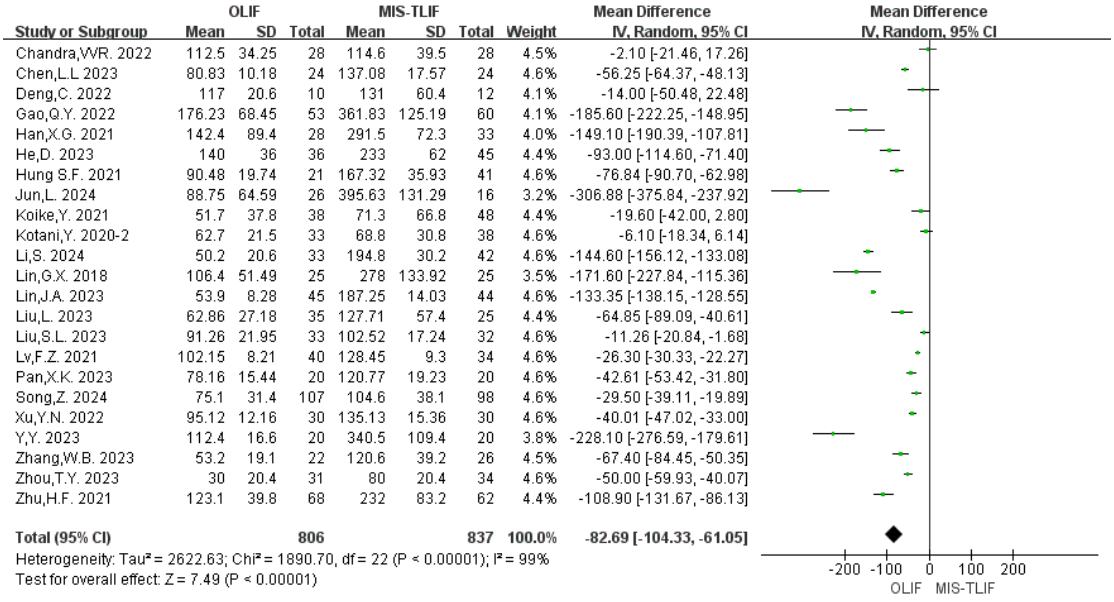


Fig.2 Forest plot intraoperative blood loss

Comparison of surgical time

Heterogeneity testing revealed significant heterogeneity ($I^2 = 97\%$; $P < 0.00001$), necessitating the use of a random-effects model(Fig.3).

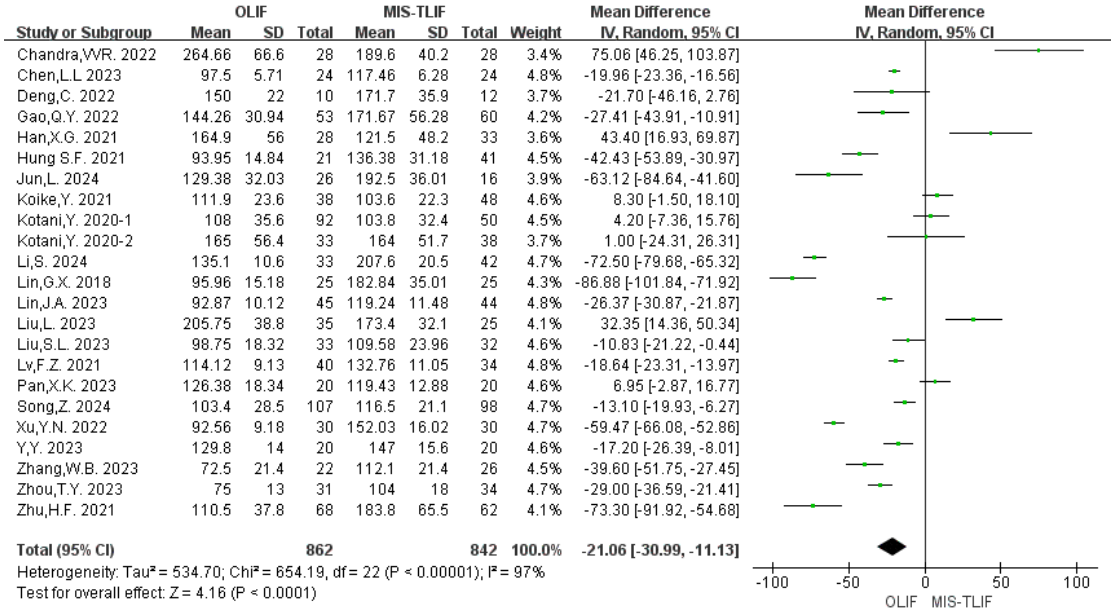


Fig.3 Forest plot surgical time

Comparison of patient satisfaction

Heterogeneity testing revealed no significant heterogeneity among the studies (I^2 = 0%; P = 0.59). Consequently, a fixed-effects model was employed for meta-analysis(Fig.4).

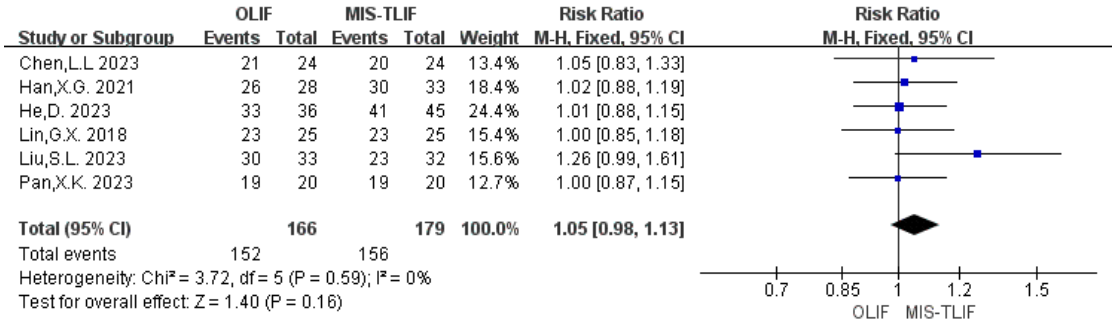


Fig.4 Forest plot patient satisfaction

Comparison of fusion rate

Heterogeneity analysis revealed no significant differences among the studies (P = 0.95, I^2 = 0%). A fixed-effects model was employed for the analysis(Fig.5).

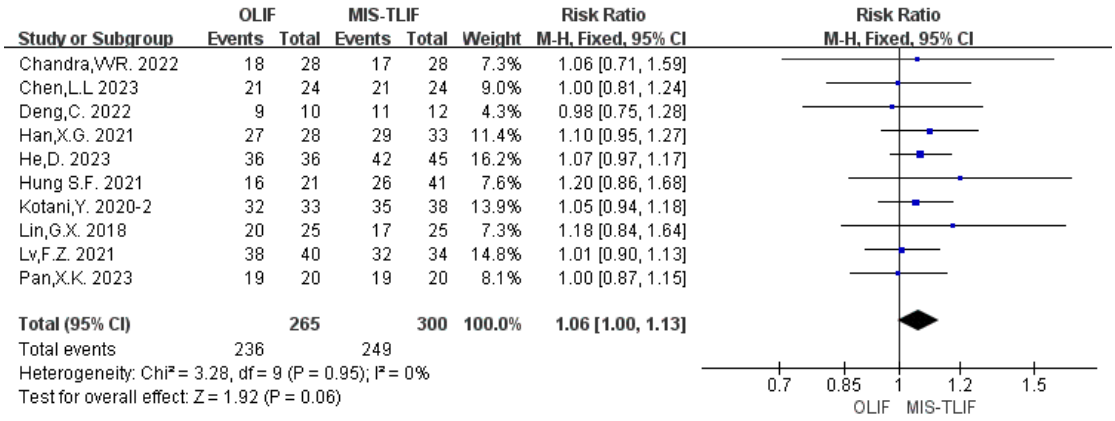


Fig.5 Forest plot Fusion Rate

Comparison of postoperative VAS score

Heterogeneity analysis revealed no significant differences among the studies, with back pain VAS score heterogeneity (P = 0.54, I^2 = 0%) and lower limb pain VAS score heterogeneity (P = 0.38, I^2 = 7%). Consequently, a fixed-effects model was employed for the analysis(Fig.6).

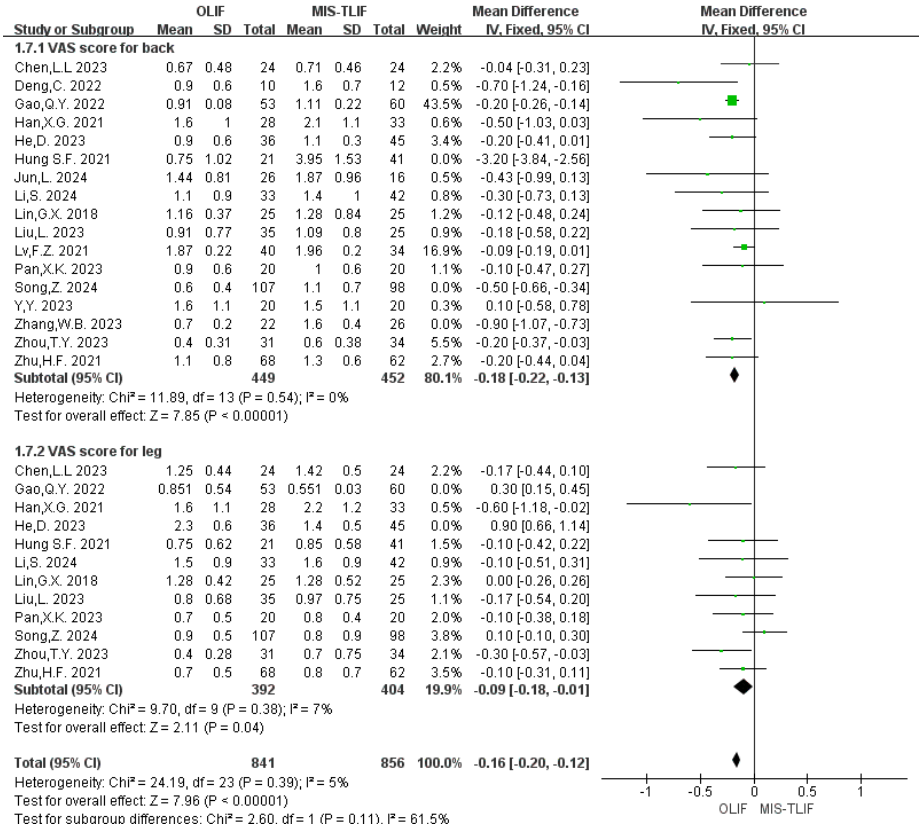


Fig.6 Forest plot postoperative VAS score

Comparison of postoperative ODI Score

Heterogeneity analysis revealed significant differences among the studies ($P < 0.00001$, $I^2 = 82\%$). A random-effects model was employed for the analysis(Fig.7).

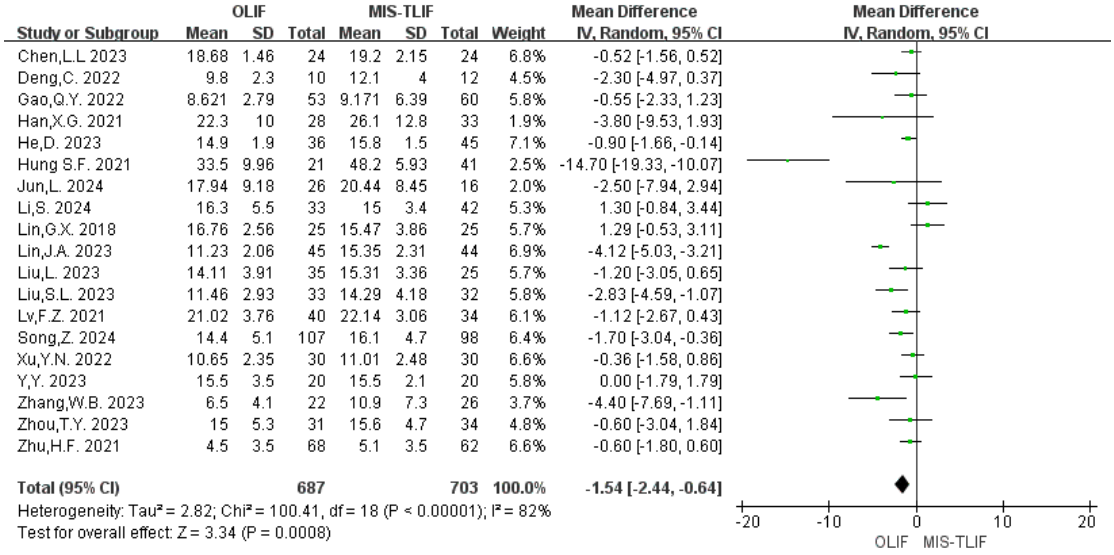


Fig.7 Forest plot postoperative ODI score

Comparison of postoperative SLA

Heterogeneity analysis revealed no significant differences among the studies (P = 0.27, I^2 = 22%). A fixed-effects model was employed for the analysis(Fig.8).

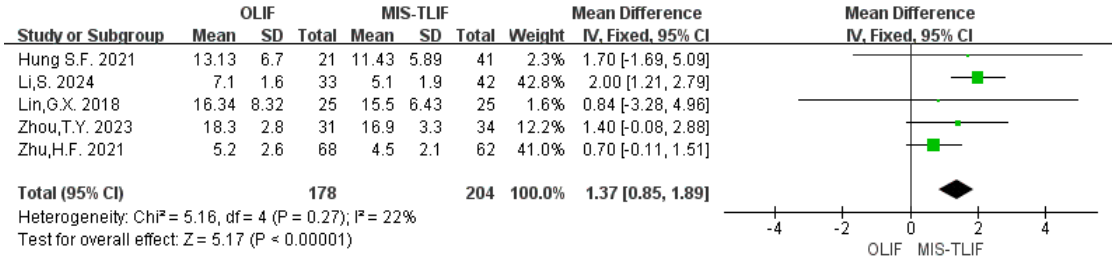


Fig.8 Forest plot postoperative SLA

Comparison of postoperative LLA

Heterogeneity analysis revealed no significant differences among the studies (P = 0.13, I^2 = 38%). A fixed-effects model was employed for the analysis(Fig.9).

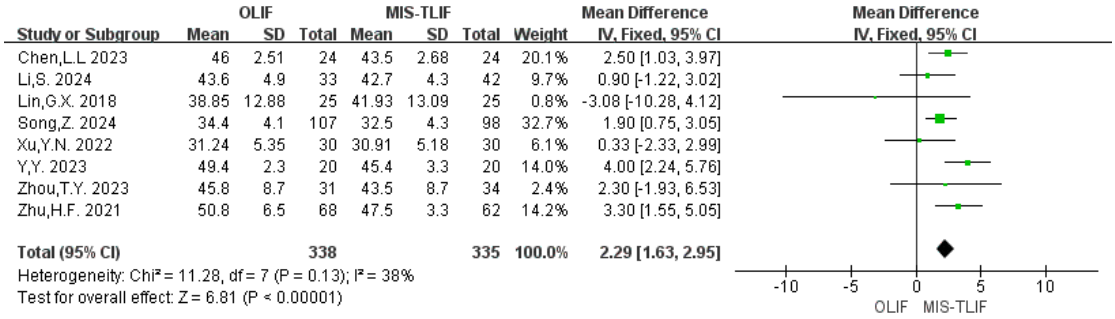


Fig.9 Forest plot postoperative LLA

Comparison of postoperative JOA

Heterogeneity analysis revealed no significant differences among the studies (P = 0.29, I^2 = 19%). A fixed-effects model was employed for the analysis(Fig.10).

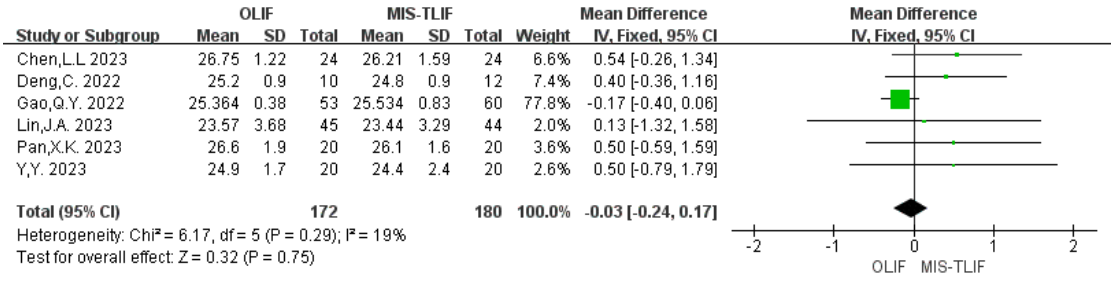


Fig.10 Forest plot postoperative JOA

Comparison of postoperative DH

Heterogeneity analysis revealed significant differences among the studies ($P < 0.00001$, $I^2 = 87\%$). A random-effects model was employed for the analysis(Fig.11).

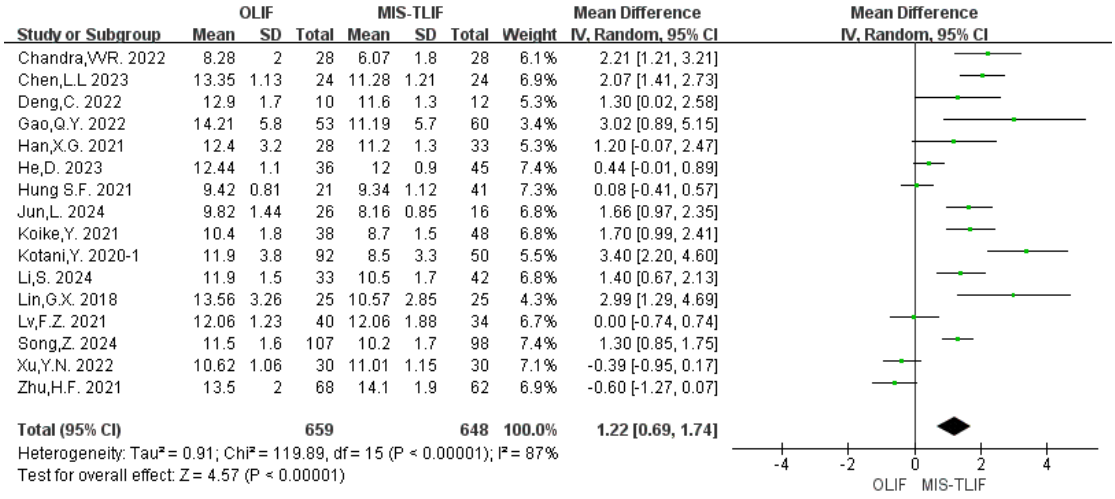


Fig.11 Forest plot postoperative DH

Comparison of postoperative complications

Heterogeneity analysis revealed no significant differences among the studies (P = 0.18, I^2 = 22%). A fixed-effects model was employed for the analysis(Fig.12).

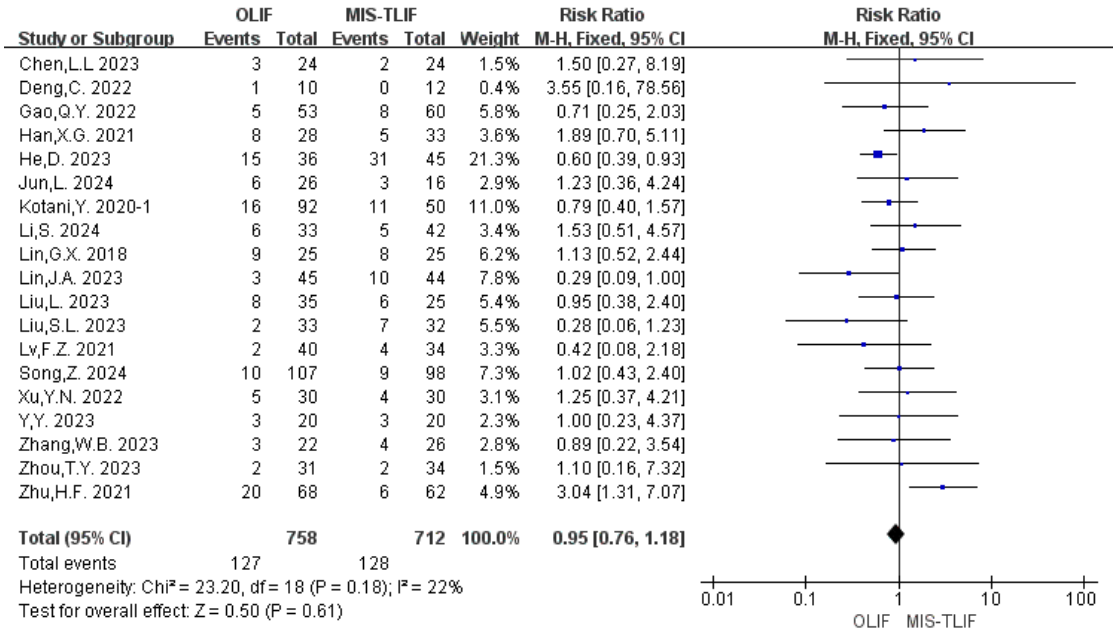


Fig.12 Forest plot postoperative complications

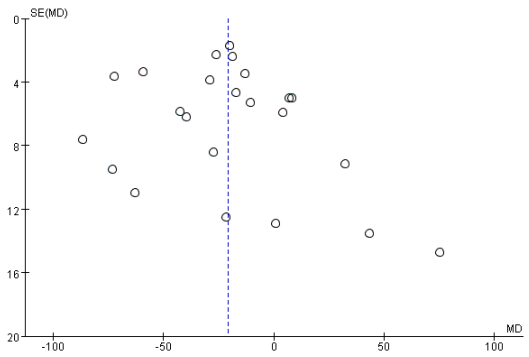
Table 1 The summarizes the complication rates reported in the included studies.

Table 1 Postoperative Complications Summary Table

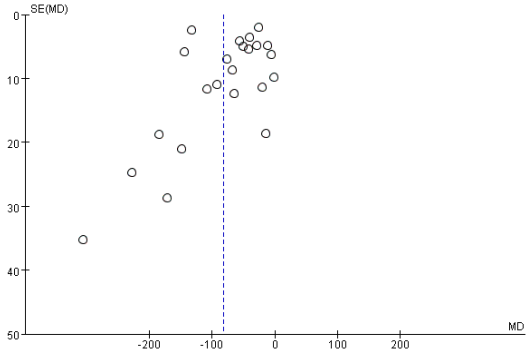
Complication,N(%)	OLIF(n=898)		MIS-TLIF(n=887)	
Dural tear and root injury	5	0.56%	19	2.14%
ileus	4	0.45%	1	0.11%
Leg pain	10	1.11%	31	3.49%
Thigh numbness	27	3.01%	2	0.23%
Hip flexion weakness	9	1.00%	2	0.23%
Segmental artery injury	8	0.89%	0	0.00%
Sympathetic chain injury	8	0.89%	0	0.00%
Cage retropulsion	3	0.33%	3	0.34%
Screw malposition	0	0.00%	2	0.23%
Cerebrospinal fluid leak	3	0.33%	9	1.01%
Vertebral fracture	1	0.11%	0	0.00%
Endplate injury	7	0.78%	1	0.11%
subsidence	22	2.45%	25	2.82%
Adjacent segment disease	1	0.11%	0	0.00%
Edema	3	0.33%	0	0.00%
Deep venous thrombosis	0	0.00%	1	0.11%
Infection	6	0.67%	17	1.92%
Late multiple sclerosis	1	0.11%	0	0.00%
Pseudarthrosis	4	0.45%	5	0.56%
Pulmonary thromboembolism	1	0.11%	3	0.34%
Thrombocytopenia	0	0.00%	1	0.11%
Revision surgery	4	0.45%	6	0.68%
total	127	14.14%	128	14.43%

Sensitivity Analysis and Publication Bias

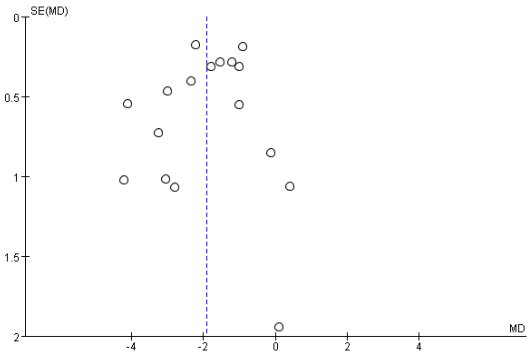
The results of this study indicate considerable heterogeneity in surgical time, intraoperative blood loss, length of hospital stay, ODI, and postoperative disc height. Removing each study one by one and reanalyzing did not significantly change the heterogeneity, suggesting that the results are relatively reliable. The sources of heterogeneity may arise from differences in surgeons' skill levels, methods of internal fixation, and variations in postoperative care protocols across various medical institutions. A publication bias test was conducted for each statistical metric, revealing that, except for the LSA funnel plot, which displayed a symmetrical distribution, the other funnel plots exhibited asymmetrical distributions, indicating potential publication bias ((Fig.13)).



(1)



(2)



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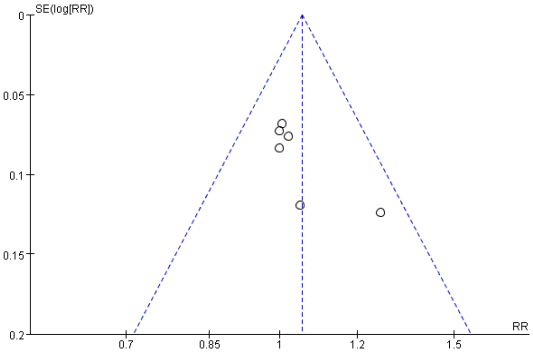

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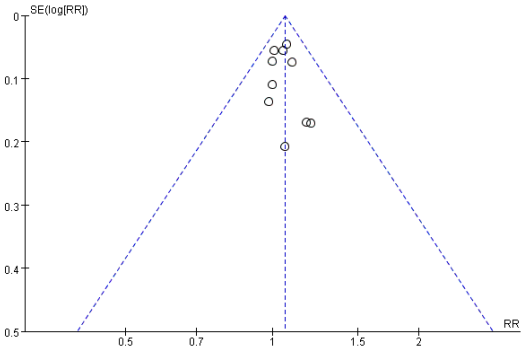

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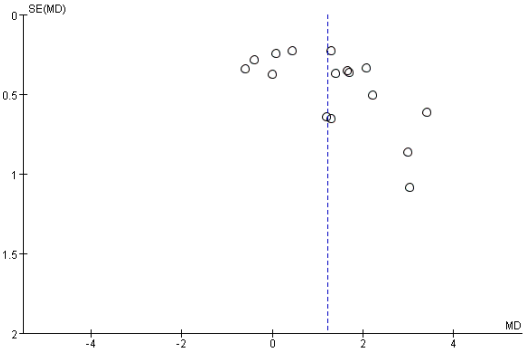

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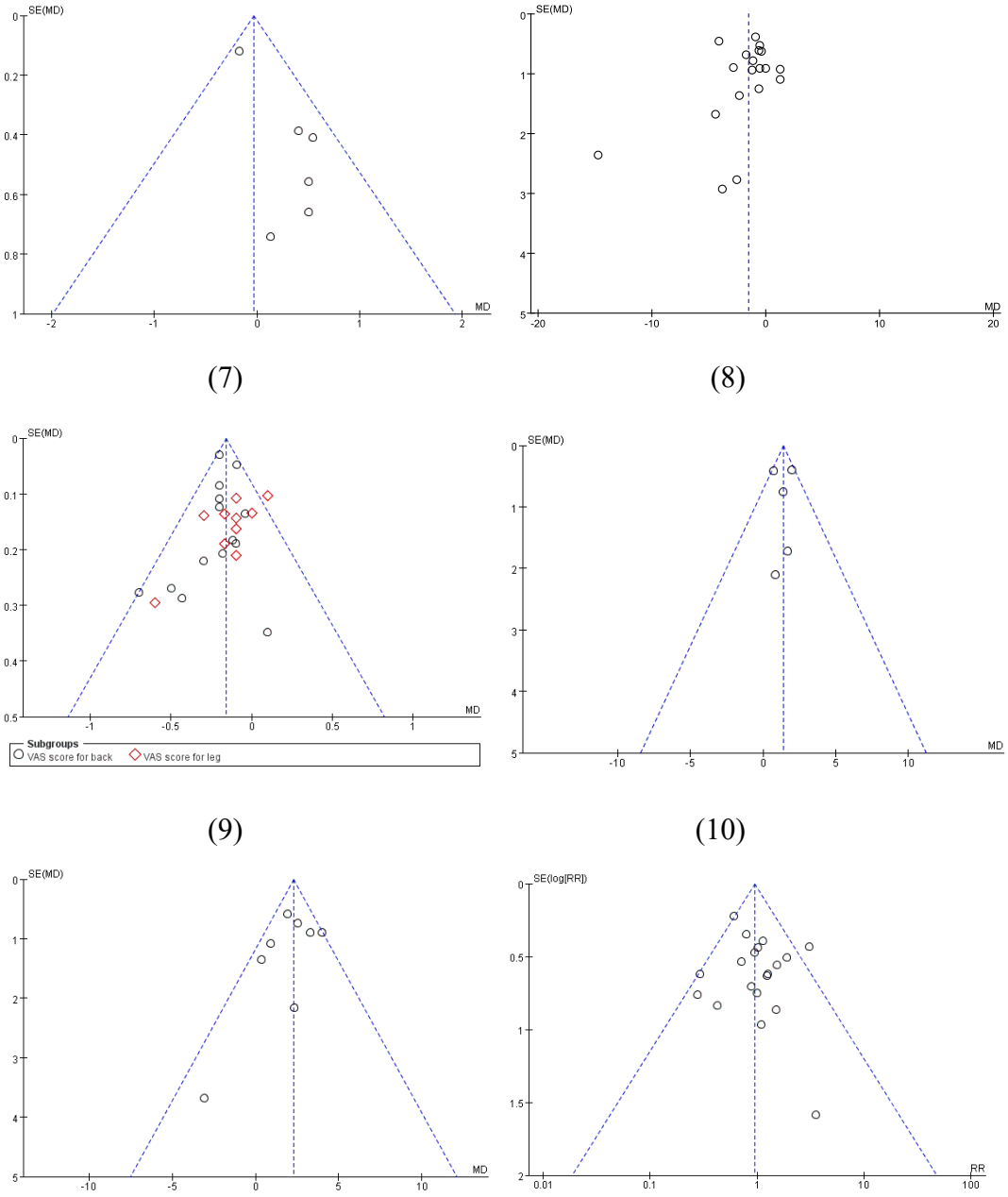

Fig.13 meta-analysis funnel plots(1)surgery time, (2)blood loss, (3)hospital stay, (4)patient satisfaction, (5)postoperative fusion rate, (6)postoperative DH, (7)postoperative JOA score, (8)postoperative ODI function score, (9)postoperative VAS score,(10)postoperative SLA,(11) postoperative LLA,(12)postoperative complications.