Supplementary

Table S1 PICO table

P: Population of interest	Adult patients diagnosed with a single level lumbar disc herniation which hadn't responded to conservative treatment
I: Intervention	Lumbar discectomy; open discectomy (OD), micro-discectomy (MD), full-endoscopic discectomy (FED), micro-endoscopic discectomy (MED)
C: Control	Comparison of complication rates between each surgical technique
O: Outcome	Evaluating the complication rates and clinical outcomes between different lumbar discectomy techniques

https://dx.doi.org/10.21037/jss-21-59

Table S2 Recurrent disc hernia rate (same site)

Complications	Contributing Studies (follow-up: months)	No. of Patients (rate%)	Overall Rate
Recurrent disc hernia	-	-	-
Open discectomy	Teli 2010 (24m)	70 (2.8%)	4.80%
	Hussein 2014 (102m)	100 (9%)	
	Garg 2011 (12m)	57 (0%)	
Microdiscectomy	Thome 2018 (24m)*	550 (19.2%)	7.10%
	Teli 2010 (24m)	72 (2.8%)	5.1% (excluding*)
	Mummaneni 2014 (12m)	148 (4%)	
	van den Brink 2019 (12m)*	554 (12.8%)	
	Debono 2017 (6m)	201 (2.4%)	
	Bono 2017 (12m)	108 (9.2%)	
	Carragee 1999 (56m)	152 (11.1%)	
	Ruetten 2008 (24m)	87 (5.7%)	
	Peul 2008 (24m)	187 (3.7%)	
	Arts 2009 (12m)	161 (4.9%)	
	Martin Laez 2012 (12m)	101 (2.9%)	
	Weinstein 2006 Cohort (24m)	528 (4.5%)	
	Weinstein 2006 RCT (24m)	243 (5.3%)	
Micro-endoscopic discectomy	Patil 2018 (6m)	300 (2%)	3.90%
	Teli 2010 (24m)	70 (11.4%)	
	Jhala 2010 (12m)	100 (3%)	
	Ranjan 2006 (not stated)	107 (1.8%)	
	Hussein 2014 (102m)	100 (6%)	
	Chen 2018 (12m)	73 (4.1%)	
	Chen 2019 (24m)	122 (4%)	
	Garg 2011 (12m)	55 (1.8%)	
	Arts 2009 (12m)	167 (7.1%)	
	Casal Moro 2011 (60m)	120 (1.6%)	
	Martin Laez 2012 (12m)	37 (8.1%)	
	Parikh 2008 (12m)	141 (2.8%)	
Full endoscopic discectomy	Gadjradyj 2016 (12m)	158 (6.9%)	3.90%
	Hoogland 2006 (24m)	272 (2.2%)	3.5% (excluding*)
	Ahn 2018 (60m)	204 (2.4%)	
	Song 2017 (27m)	126 (0.7%)	
	Gotecha 2016 (6m)	112 (5.3%)	
	Chen 2018 (12m)	80 (6.2%)	
	Chen 2011 (12m)	123 (3.2%)	
	Gibson 2017 (24m)	70 (7.1%)	
	Liu 2019 (46m)*	184 (7.6%)	
	Chen 2019 (24m)	119 (3.3%)	
	Wu 2019 (24m)	140 (0%)	
	Ruetten 2008 (24m)	91 (6.5%)	

*, Studies with all patients reported to have large defects.

https://dx.doi.org/10.21037/jss-21-59

Table S3 Re-operation rates

Complications	Contributing Studies (follow-up: months)	No. of Patients (rate%)	Overall Rate
Open discectomy	Teli 2010 (24m)	70 (2.8%)	5.20%
	Hussein 2014 (102m)	100 (9%)	
	Garg 2011 (12m)	57 (0%)	
Microdiscectomy	Thome 2018 (24m)*	550 (12.5%)	8.80%
	Teli 2010 (24m)	72 (2.8%)	7.5% (excluding*)
	Mummaneni 2014 (12m)	148 (14.8%)	
	van den Brink 2019 (12m)*	554 (10.1%)	
	Gibson 2017 (24m)	70 (2.8%)	
	Debono 2017 (6m)	201 (1.9%)	
	Bono 2017 (12m)	108 (2.7%)	
	Carragee 1999 (56m)	152 (5.2%)	
	Ruetten 2008 (24m)	87 (5.7%)	
	Peul 2008 (24m)	187 (3.7%)	
	Arts 2009 (12m)	161 (6.8%)	
	Martin Laez 2012 (12m)	101 (9.9%)	
	Weinstein 2006 Cohort (24m)	528 (9%)	
	Weinstein 2006 RCT (24m)	243 (17.6%)	
Micro-endoscopic discectomy	Patil 2018 (6m)	300 (3.3%)	4.90%
	Teli 2010 (24m)	70 (11.4%)	
	Jhala 2010 (12m)	100 (4%)	
	Ranjan 2006 (not stated)	107 (1.8%)	
	Hussein 2014 (102m)	100 (6%)	
	Chen 2018 (12m)	73 (4.1%)	
	Chen 2019 (24m)	122 (4%)	
	Garg 2011 (12m)	55 (1.8%)	
	Arts 2009 (12m)	167 (7.1%)	
	Casal Moro 2011 (60m)	120 (1.6%)	
	Martin Laez 2012 (12m)	37 (0%)	
	Parikh 2008 (12m)	141 (2.8%)	
Full endoscopic discectomy	Gadjradyj 2016 (12m)	158 (7.5%)	4%
	Hoogland 2006 (24m)	272 (2.2%)	
	Ahn 2018 (60m)	204 (4.4%)	
	Song 2017 (27m)	126 (0.7%)	
	Gotecha 2016 (6m)	112 (5.3%)	
	Chen 2018 (12m)	80 (6.2%)	
	Chen 2011 (12m)	123 (3.2%)	
	Gibson 2017 (24m)	70 (7.1%)	
	Chen 2019 (24m)	119 (3.3%)	
	Wu 2019 (24m)	140 (2.1%)	
	Ruetten 2008 (24m)	91 (6.5%)	

*, Studies with all patients reported to have large defects.

https://dx.doi.org/10.21037/jss-21-59

Table S4 Wound complication rates including superficial infection, deep infection and 'other' (delayed healing, haematoma and dehiscence)

Type of surgery	Contributing studies	No of patients	No of complications/types	Rates
Open discectomy	3/3	227	Overall: 8	3.5%
			Superficial infection: 8	3.5%
			Deep infection: 0	-
			Other: 0	-
Micro-discectomy discectomy	14/16	2,942*	Overall: 55	1.8%
			Superficial infection: 40	1.3%
			Deep infection: 6	0.2%
			Other: 9	0.3%
Micro-endoscopic discectomy	13/13	1,526	Overall: 19	1.2%
			Superficial infection: 4	0.2%
			Deep infection: 10	0.6%
			Other: 5	0.3%
Full endoscopic discectomy	9/14	1,337	Overall: 28	2%
			Superficial infection: 0	-
			Deep infection: 8	0.5%
			Other: 20	1.4%

*, 548 patients from 2 studies who had an annular closure device (ACD) inserted are included (as there was no difference in wound complication rates between patients who had the ACD and those who did not.

https://dx.doi.org/10.21037/jss-21-59

Table S5 Comparison of current review with review of 2015

	Review 2015	Review 2020
Number of patients	5390	7354
Number of selected studies	42	35
Period of review	1990-2014	1997-2019
Nerve root injury: n. patients, %		
MD	618 (2.6%)	1777 (0.3%)
MED	1065 (0.9%)	1241 (0.8%)
FED	89 (1.1%)	1361 (1.2%)
Neurological complications: n. patients, %		
MD	1069 (1.3%)	2399 (2.8%)
MED	573 (3%)	1319 (4.5%)
FED	62 (1.6%)	1931 (4.9%)
Durotomy: n. patients, %		
MD	1479 (3.9%)	2730 (2.3%)
MED	2019 (4.5%)	1526 (4.4%)
FED	-	1519 (1.1%)
Wound complications: n. patients, %		
MD	2016 (2.1%)	2942 (3.5%)
MED	1378 1.2%	1526 (1.2%)
FED	628 (0.5%)	1337 (2%)
Recurrent disc hernia: n. patients, %		
MD	1192 (4.4%)	3092 (5.1%)
MED	1599 (3.1%)	1392 (3.9%)
FED	178 (3.9%)	1679 (3.5%)
Re-operations: n. patients, %		
MD	1631 (7.1%)	3162 (7.5%)
MED	1719 (3.7%)	1392 (4.9%)
FED	714 (10.2%)	1495 (4%)

https://dx.doi.org/10.21037/jss-21-59