

Author Year Country Research Design Score Sample Size	Methods	Outcomes
<p>Luo et al. (2015) China Meta-Analysis AMSTAR=9 N=10 studies</p>	<p>Objective: To evaluate the clinical outcomes and complications between anterior and posterior surgical approaches for the intervention of multilevel cervical spondylotic myelopathy (MCSM). Methods: Comprehensive literature search of English RCTs of participants with CSM caused by multi-segmental spinal stenosis, excluding trauma, tumors, disc herniation, or previous surgery. Data analysis was performed by calculating standardized/weighted mean difference (SMD/WMD) or odds ratio (OR) and 95% confidence intervals (95%CI). Databases: MEDLINE, EMBASE, PubMed, Cochrane. Evidence: Studies were assessed for quality using the Newcastle-Ottawa Scale (NOS, 0-10). Statistical significance was defined as $p < 0.05$.</p>	<ol style="list-style-type: none"> 1. All studies were high quality: nine with NOS=8 and one with NOS=7. 2. Clinical outcome was assessed using the Japanese Orthopedic Association Scale (JOA). 3. In ten studies (n=467), preoperative JOA score was similar in both groups (WMD=0, 95%CI=-0.5 to 0.5, $p > 0.05$). 4. In four studies (n=268), postoperative JOA score was significantly higher in the anterior group than posterior group (WMD=0.79, 95%CI=0.16 to 1.42, $p < 0.05$). 5. In five studies (n=420), recovery rate was similar in both groups (WMD=2.73, 95%CI=-8.69 to 14.15, $p > 0.05$). 6. In nine studies (n=809), complication rate was significantly higher in the anterior group than posterior group (OR=1.65, 95%CI=1.13 to 2.39, $p = 0.009$). 7. In five studies (n=294), reoperation rate was significantly higher in the anterior group than posterior group (OR=8.67, 95%CI=2.85 to 26.34, $p = 0.0001$). 8. In four studies (n=252), blood loss was significantly higher in the anterior group than posterior group (WMD=-40.25, 95%CI=-76.96 to 3.53, $p < 0.05$). 9. In four studies (n=252), operation time was significantly longer in the anterior group than posterior group (WMD=61.3, 95%CI=52.33 to 70.28, $p < 0.00001$). 10. In three studies (n=192), length of stay was significantly shorter in the anterior group than posterior group (WMD=-1.07, 95%CI=-2.23 to -1.17, $p < 0.00001$).
<p>Ghogawala et al. (2011) USA PCT N=50</p>	<p>Population: Mean age: 61.6 yr; Gender: males=32, females=18; Level of injury: cervical. Intervention: Participants received ventral fusion surgery (n=28) or dorsal fusion surgery (n=22) for cervical spondylotic myelopathy. Outcomes were assessed at baseline, 3 mo, 6 mo, and 12 mo. Outcome Measures: Modified Japanese Orthopedic Association Scale (mJOA); Oswestry Neck Disability Index (NDI); EuroQol-5D (EQ-5D); Short-Form 36-Item Health Survey, Physical Component Summary (SF-36 PCS).</p>	<ol style="list-style-type: none"> 1. mJOA mean scores significantly increased in the dorsal (+1.94, $p = 0.0028$) and ventral (+2.04, $p < 0.001$) groups from baseline to 12mo. 2. mJOA mean scores were significantly higher in the ventral group than dorsal group at baseline (13.40 versus 11.60, $p = 0.009$), 6 mo (15.31 versus 13.44, $p = 0.03$), and 12 mo (15.44 versus 13.54, $p = 0.003$). 3. NDI mean scores significantly decreased in the ventral group (-18.4, $p < 0.001$) but not in the dorsal group (-5.89, $p = 0.22$) from baseline to 12 mo. 4. NDI mean scores were significantly lower in the ventral group than dorsal group at 12 mo (17.96 versus 30.13, $p = 0.03$); differences at other time points were not significant. 5. EQ-5D mean scores significantly increased in the dorsal (+0.13, $p = 0.04$) and ventral (+0.16, $p < 0.001$) groups from baseline to 12 mo. 6. EQ-5D mean score at 6 mo was significantly higher in the ventral group than dorsal group (0.77 versus

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		<p>0.59, p=0.04); differences at other time points were not significant.</p> <ol style="list-style-type: none"> 7. SF-36 PCS mean scores significantly increased in the dorsal (+5.74, p=0.03) and ventral (+9.92, p<0.001) groups from baseline to 12 mo. 8. SF-36 PCS mean score at 6 mo was significantly higher in the ventral group than dorsal group (45.00 versus 38.31, p=0.04); differences at other time points were not significant.
<p>Kong et al. (2015) China Pre-Post N=40</p>	<p>Population: Mean age: 57.8 yr; Gender: males=31, females=9; Level of injury: cervical; Mean time since injury: 11.5 mo. Intervention: Participants received anterior decompressive surgery for proximal-type cervical spondylotic amyotrophy. Outcome Measures: Surgical outcome.</p>	<ol style="list-style-type: none"> 1. Surgical outcome improvement rate was 75%: 16 participants had excellent outcome, 14 had good outcome, and 10 had fair outcome. 2. Surgical outcome improvement rate in participants with spinal cord compression (n=34) was 71%; disease duration was a significant negative predictor of improvement (p<0.01). 1. Surgical outcome improvement rate in participants with nerve root compression (n=6) was 100%.
<p>Liu et al. (2012) China Case Series N=286</p>	<p>Population: Mean age: 54 yr; Gender: males=166, females=120; Level of injury: C2-C5=57, C3-C6=75, C4-C7=135. Intervention: Participants who received anterior cervical surgery for multilevel cervical spondylotic myelopathy were retrospectively analyzed. Techniques were anterior cervical decompression and fusion (ACDF; n=103), hybrid construct (HC; n=96), and long corpectomy (LC; n=87). Outcome Measures: Japanese Orthopedic Association Scale (JOA); Neck Disability Index (NDI); Short-Form 36-Item Health Survey (SF-36); Complications.</p>	<ol style="list-style-type: none"> 1. JOA mean scores improved after intervention in the ACDF group (10.2 to 14.8), HC group (11.3 to 13.9), and LC group (10.7 to 14.5). 2. NDI mean scores improved after intervention in the ACDF group (35.6 to 14.7), HC group (34.9 to 14.3), and LC group (35.2 to 16.0). 3. SF-36 mean scores improved after intervention in the ACDF group (33.2 to 58.5), HC group (35.8 to 52.2), and LC group (34.5 to 49.6). 4. Complication rate was 15.53% in the ACDF group, 22.92% in the HC group, and 26.44% in the LC group, and 21.33% overall.
<p>Liu et al. (2009) China Case Control N=28</p>	<p>Population: Mean age: 53.5 yr; Gender: males=19, females=9; Level of injury: C3-C6=17, C4-C7=11. Intervention: Participants who received anterior cervical surgery for multilevel cervical spondylotic myelopathy were retrospectively analyzed. Techniques were hybrid decompression (HD; n=12) and two-level corpectomy (TLC; n=16). Outcome Measures: Japanese Orthopedic Association Scale (JOA); Neck Disability Index (NDI); Segmental lordosis; Graft fusion.</p>	<ol style="list-style-type: none"> 2. JOA mean scores significantly improved in the HD group (11.2 to 14.3, p<0.05) and TLC group (10.9 to 14.3, p<0.05) after intervention; post-op scores were not significantly different between groups (p=0.964). 3. JOA score improvement rate was not significantly different between the HD and TLC groups (55.8% versus 56.8%, p=0.720). 4. NDI mean scores significantly improved in the HD group (34.3 to 14.9, p<0.05) and TLC group (34.6 to 17.2, p<0.05) after intervention; post-op scores were not significantly different between groups (p=0.053).

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		<p>5. Segmental lordosis significantly increased in the HD group (3.75 to 10.7, $p < 0.05$) and TLC group (5.06 to 13.0, $p < 0.05$) after intervention; post-op scores were not significantly different between groups ($p = 0.146$).</p> <p>6. Graft fusion rate was not significantly different between the HD and TLC groups (100% versus 94%, $p = 0.378$).</p>