



No Difference in Reoperation Rates for Adjacent Segment Disease in Posterior Cervical Fusions Stopping at C7 Versus T1/T2

The challenges of posterior cervical fusions (PCFs) at the cervicothoracic junction (CTJ) are widely known. Two recent publications in *Spine* and the *Journal of Neurosurgery*, supported by MDSA research scientists, Neurosurgeons, and Orthopedic Spine surgeons, reported on the implications of crossing the CTJ. The authors sought to investigate whether there is a difference in operative adjacent segment disease (ASD) or operative nonunions by comparing PCFs that stop at C7 versus T1/T2.

Sometimes evidence from biomechanical studies do not always translate into clinical practice and these two papers are examples of that. I have frequently stopped my PCFs at C7 over the past 20 years and have not seen a significant number of ASD and nonunions. The literature has been controversial on its recommendations. The KP spine registry study puts that to rest.

– Kern Guppy, MD, PhD, Department of Neurosurgery,
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Study Details

875 patients with PCFs beginning at C3, C4, C5, or C6 and stopping at either C7 (n = 470) or T1/T2 (n = 405) with follow up time of 4.6 ± 3.3 years were included.

Operative Nonunion Outcome Findings

- Similar incidence rates between constructs stopping at C7 and those that extended to T1/T2 (C7: 1.91% vs. T1/T2: 1.98%).
- No difference in risk of operative nonunion for constructs extended to T1/T2 compared to those stopping at C7 was found (adjusted Hazard Ratio (HR) = 1.09 [95% confidence interval (CI) 0.42–2.84], $p = 0.86$).

Operative Adjacent Segment Disease Findings

- Comparable crude overall incidence rates between fusions stopping at –C7 and –T1/T2 (C7: 2.12% vs –T1/T2: 2.48%).
- No statistical difference in risk of operative ASD (adjusted HR = 1.47, 95% CI = 0.61–3.53, $p = 0.39$).

Practice Considerations

In one of the largest cohort of patients with PCFs stopping at C7 or T1/T2 with an average follow-up of > 4 years, the authors found no statistically significant difference in reoperation rates for symptomatic nonunions or for ASD. These findings suggest that there is no additional benefit of extension to T1/T2 and surgeon choice is the deciding factor on fusions crossing the cervicothoracic junction.

[Link to Full Publication](#)

Guppy KH, Royse KE, Fennessy JH, Norheim EP, Harris JE, Brara HS (2022). **No difference in reoperation rates for nonunion (operative nonunions) in posterior cervical fusions stopping at C7 versus T1/2: a cohort of 875 patients** *J Neurosurg Spine*, 36 (): 979-985.