

Round 1

Comment 1: “The fact, that fusion rate was lower in patients WITHOUT C7 fixation, despite more frequent use of BMP raises the concern, that in fact pseudarthrosis rate in this group might be higher. The fact, that the difference did not reach statistical significance might be attributable to the unbalanced number of patients in both groups (19 vs 295 patients). It has to be assessed statistically if this unbalanced case number still allows for a proper interpretation of data (eg. postHoc analysis)”

Reply 1: The difference does not reach statistical significance which indicates that there is no statistically significant difference in fusion rates between the two groups. The unbalanced groups were taken into account in statistical analysis as data was analyzed using independent-samples T Test which provides P-value accounting for “equal variances not assumed”.

Comment 2: “Secondly the fact, that radiographic outcome is superior in patients WITH C7 fixation has potential clinical implications, which should be addressed in the Conclusion and Discussion session.”

Reply 2: The radiographic outcome is not *statistically significantly* different between patients with C7 fixation versus those with C7 skipped. Thus, the clinical implications remain the contrary, that skipping C7 does not sacrifice any degree of radiographic correction based on our study.

Comment 3: “it is unclear why EBL was so much higher in patients with C7 fixation. This should be discussed in depth.”

Reply 3/Changes in Text: See Lines 260-270

Round 2

Comment 1: **Reply Reviewer: Understood. The difference in usage of BMP was statistically significant, however. Do the authors not feel, that this makes the comparison of fusion status between groups difficult?**

Reply 1: We believe that the comparison of fusion status between groups is feasible because we also recorded “long-term complications” as a separate variable. This variable tracked instances of pseudoarthrosis/hardware failure which was the initial concern regarding more frequent use of BMP in C7 skip group even with a lower rate of overall fusion. Thus, the fact that neither the rates

of long-term complications nor the rates of long-term radiographic fusion were statistically significantly different between groups indicates that our conclusions are fair, even in the setting of the increased BMP usage.

Comment 2: Reply Reviewer: Table 3 shows, that postoperative C2SVA is significantly less (20.2mm vs 29.3mm), while baseline values showed no significant difference. I believe that this result cannot be interpreted as "equal" radiographic outcome.

Reply 2: The main comparison regarding radiographic outcome is the degree of radiographic correction. Conclusions cannot be drawn from looking at comparisons between pre-operative and post-operative measurements in isolation. The degrees of radiographic correction in each group were not found to be statistically significant, thus we can conclude that skipping C7 instrumentation does not result in inferior radiographic outcomes.

Comment 3: Reply Reviewer: I was not able to find a reasonable explanation for this significant difference in blood loss in Lines 260-270.

Reply 3: The C7 skip group had significantly longer constructs (increased levels of fusion) compared to the group instrumented at C7. However, there was no statistically significant difference in operative time between the two groups. Thus, perhaps the relative operative time per level fused was lower in the C7 skip group compared to control, which would indicate that the decreased blood loss could be related to decreased functional operative time.

Changes in text: Lines 262-271

“ We initially hypothesized that this may be due to decreased operative time considering one fewer vertebral levels requires instrumentation and time spent fashioning the needed coronal bent for a single rod construct or adding a second rod to join a second rod with side connectors. However, operative time did not significantly differ between groups. Interestingly, patients in the C7 bridge group did have a significantly greater average number of vertebral levels fused per operation compared to the control group ranging anywhere from 3-17 vertebral levels fused. Furthermore, the functional operative time per level fused would be lower in the C7 skip group than the control. Thus, perhaps skipping C7 does permit faster operation and subsequently decreased blood loss, while longer fusions overall accounted for lack of significant difference in operative time between groups.”