Critical portions of a surgical procedure are those parts of the surgery that require the primary surgeon's direct involvement and decision-making. These portions may include the initial incision, the removal of tissue or organs, and the closing of incisions or wounds. During these critical portions, the surgeon must be physically present and actively engaged in the procedure to ensure the safety and success of the surgery.

In overlapping surgery, the primary surgeon typically performs the critical portions of each procedure and may delegate less critical tasks to other members of the surgical team. However, the concern with overlapping surgery is that the primary surgeon may be distracted or delayed in attending to the critical portions of one procedure if they are performing another procedure at the same time. This can potentially compromise patient safety and the quality of care.

In a systematic review and meta-analysis of articles evaluating the effects of OS on patient outcomes. PubMed and Scopus were searched for studies that analyzed outcome differences between overlapping and non-overlapping neurosurgical procedures. Study characteristics were extracted, and random-effects meta-analyses were performed to analyze the primary outcome (mortality) and secondary outcomes (complications, 30-day readmissions, 30-day operating room returns, home discharge, blood loss, and length of stay). Mantel-Haenszel tests were completed for binary outcomes, whereas the inverse variance tests were conducted for continuous outcomes. Heterogeneity was measured using the I2 and X2 tests. Egger's test was conducted to evaluate publication bias. Eight of 61 non-duplicate studies were included. Overall, 21,249 patients underwent non-OS (10,504 female) and 15,863 patients underwent OS (8393 female). OS was associated with decreased mortality ($p = 0.002$), 30-day returns to OR ($p < 0.001$), and blood loss ($p < 0.001$) along with increased home discharges ($p < 0.001$). High heterogeneity was observed for home discharge ($p = 0.002$) and length of stay ($p < 0.001$). No publication bias was observed. OS was not associated with worse patient outcomes compared to non-OS. However, considering multiple sources of limitation in the methodology of the included studies (such as a limited number of studies, reports originating from mostly high-volume academic centers, the discrepancy in the definition of “critical portion(s)” of the surgery across studies, and selection bias), extra caution is advised in the interpretation of our results and further focused studies are warranted [1)].

1)
Kumarapuram S, Elmogazy O, Mokhtari P, Goldstein I, Tayebi Meybodi A. Do overlapping neurosurgical procedures affect patient outcomes? A systematic review and meta-analysis. Neurosurg Rev. 2023 Apr 19;46(1):92. doi: 10.1007/s10143-023-01993-7. PMID: 37072635.