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Omission of Bladder Flap Formation in Cesarean Section: A Systematic Review and Meta-analysis of Randomized Controlled Trials

Abstract:

Background: Simplifying cesarean section (CS) by omitting non-essential steps, such as bladder flap (BF) formation, is increasingly explored to optimize outcomes. Historically, BF was used to prevent bladder injury and infection, but recent evidence questions its necessity, linking it to prolonged operative time, adhesions, and complications. This updated review evaluates whether omitting BF improves CS outcomes.

Objective: to evaluate whether omitting bladder flap formation during cesarean sections improves clinical outcomes compared to standard cesarean sections with bladder flap creation. Methods: We searched PubMed, Scopus, Web of Science, and Cochrane without filters, including RCTs comparing BF versus no BF (NBF) in pregnant women undergoing CS. Outcomes included operative time, blood loss, bladder injury, postoperative pain, urinary symptoms, and hospital stay. Statistical analysis used RevMan 5.4.1, employing a random-effects model to calculate mean differences (MD) and risk ratios (RR) with 95% confidence intervals (CI). Heterogeneity was assessed using I^2 and Chi^2 tests, with sensitivity analyses to ensure robustness.

Results: BF was associated with significantly longer operation time (WMD 4.96 minutes, 95% CI 1.17–8.76, p=0.01) and incision-to-delivery time (WMD 83.78 seconds, 95% CI 38.15–129.41, p=0.0003). No significant differences were found in blood loss (p=0.26), hospital stay (p=0.26), hemoglobin change (p=0.39), pain scores (p=0.47), or UTI incidence (p=0.95). Heterogeneity was high for most outcomes (I^2 > 50%), except for hospital stay and UTI (I^2 = 0%).

Conclusion: Omitting BF during CS significantly reduces operative and incision-to-delivery times without increasing complications, making it a safe option for routine, uncomplicated CS. However, further research is needed to evaluate high-risk scenarios and long-term complications to generalize these findings to broader obstetric populations.

Biography

Ziad Walid Elmezayen is an intern doctor at Kafr Elsheikh University Hospitals. He graduated from the Faculty of Medicine at Kafr Elsheikh University, where he developed a strong interest in cardiology. Dr. Elmezayen is dedicated to advancing his knowledge in GYNA and OBS health and is committed to providing quality care to patients. His passion for obstetrics drives his pursuit of excellence in both clinical practice and ongoing medical education.