

[Metal] Staples Compared With Subcuticular Suture for Skin Closure After Cesarean Delivery: A Systematic Review and Meta-Analysis

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OBJECTIVE: To estimate whether [metal] staples or subcuticular suture closure is associated with a higher risk of wound complications when used for transverse skin incisions after cesarean delivery.

DATA SOURCES: A systematic review and meta-analysis were performed through electronic database searches (MEDLINE, Cochrane, and Trial Registries).

METHODS OF STUDY SELECTION: We searched electronic databases from 1966 to September 2010 for randomized controlled trials (RCTs) and prospective cohort studies comparing [metal] staples to subcuticular sutures after cesarean delivery. The primary outcome was occurrence of a wound complication (infection or separation). Secondary outcomes were components of the composite outcome, operating time, postoperative pain, cosmesis, and patient satisfaction. Heterogeneity was assessed using the I^2 test for heterogeneity, and I^2 test. Pooled odds ratios (ORs) were calculated using a fixed-effects model. We assessed publication bias using funnel plots and Egger test.

RESULTS: Six studies met inclusion criteria: five RCTs and one prospective cohort study. [Metal] staple closure (n803) was associated with a twofold higher risk of wound infection or separation compared with subcuticular suture closure (n684) (13.4% versus 6.6%, pooled OR 2.06, 95% confidence interval [CI] 1.43–2.98). The number needed to harm associated with [metal] staple closure was 16. The increased risk persisted when analysis was limited to the RCTs (OR 2.43, 95% CI 1.47– 4.02). There was no evidence of significant statistical heterogeneity among studies (20.74, P.327, I^2 13.7%) or publication bias (Egger test, t0.86, P.439). [Metal] staple closure was associated with shorter duration of surgery, whereas the two techniques appeared equivalent overall with regard to pain, cosmesis, and patient satisfaction.

CONCLUSION: [Metal] staple closure is faster to perform [than suture] but associated with a higher risk of wound complications.