

A Randomized Controlled Trial Of Wound Complication Rates Of Subcuticular Suture Vs [Metal] Staples For Skin Closure At Cesarean Delivery

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OBJECTIVE: To determine the wound complication rates for different methods of skin closure at cesarean delivery (subcuticular sutures vs. [metal] staples).

STUDY DESIGN: This is a randomized prospective trial. Women were enrolled on admission to the hospital and randomized to closure with subcuticular suture (4.0 monocryl) or [metal] staples at the time of cesarean delivery. Women undergoing cesarean delivery in labor as well as scheduled cesarean delivery were eligible. Surgical and postpartum care was otherwise at the discretion of the provider. Demographic, intrapartum and delivery data were collected during the hospitalization. Wound complication data (including wound separation, wound infection, antibiotic use, need for a wound related physician visit, and readmission) were collected via telephone interview 2-4 weeks postoperatively by a single investigator. Student t test, chi square and regression analysis were used to analyze the data.

RESULTS: A total of 425 patients were randomized. Wound complication data was complete for 98% of subjects (219 suture and 197 [metal] staples). Maternal demographic data was similar in both groups. Use of [metal] staples resulted in a higher wound separation rate (16.8 v. 4.6%, $p_{0.001}$), higher composite wound complication rate (21.8 v. 9.1%, $p_{0.001}$), and increased post-operative physician visits (36.0 v. 10.6%, $p_{0.001}$); these associations persisted after adjusted analysis. [Metal] staple closure was associated with a more than 4-fold increased risk of wound separation (adjusted OR 4.66, 95%CI 2.07, 10.52, $p_{0.001}$). Median operative time was 8 minutes shorter in the staple group (49 vs. 57 min $p_{0.0001}$).

CONCLUSION: Use of [metal] staples for cesarean delivery closure is associated with an increased risk of wound complications and post-operative physician visits. Subcuticular suture may therefore be the preferred method of skin closure for cesarean delivery.