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2010

## Which is the Best Surgical Incision/ Technique for Cesarean Section?

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## Which is the best surgical incision/technique for cesarean section?

### Evidence-Based Answer

The Joel-Cohen skin incision is associated with less fever, pain, analgesic use, and blood loss, as well as shorter surgeries and hospital stays when compared with the Pfannenstiel skin incision (SOR: **A**, based on a systematic review). For uterine incision, the answer is not clear, but blunt dissection is associated with less blood loss when compared with sharp dissection (SOR: **A**, based on a systematic review and subsequent RCT). Cephalad-caudad blunt dissection appears safer than transverse blunt dissection (SOR: **B**, based on 1 RCT).

A Cochrane review of 2 RCTs (with 411 participants) compared the Joel-Cohen incision with the Pfannenstiel incision.<sup>1</sup> Both are lower abdominal transverse skin incisions, but they vary in that the Joel-Cohen incision is placed about 3 cm below the line joining the anterior superior iliac spines. This incision is higher than the traditional Pfannenstiel incision, which is placed 2 fingers-breadth above the pubic symphysis and curves gently up at the ends. Sharp dissection in Joel-Cohen is minimized.

Overall, there was a 65% reduction in postoperative morbidity (RR=0.35; 95% CI, 0.14–0.87) with the Joel-Cohen incision. One of the trials reported reduced operating time (weighted mean difference [WMD] –11 minutes; 95% CI, –16 to –6 minutes); delivery time (WMD –1.9 minutes; 95% CI, –2.5 to –1.3); total doses of analgesia in the first 24 hours (given on demand as Pethidine 75 mg IM, WMD –0.9; 95% CI, –1.2 to –0.6); estimated blood loss (WMD –58 mL; 95% CI, –110 to –7 mL); postoperative hospital stay for the mother (WMD –1.5 days; 95% CI, –2.1 to –0.84); and increased time to the first dose of analgesia (WMD 0.8 hours; 95% CI, 0.1 to 1.5) compared with the Pfannenstiel group.<sup>1</sup>

In a study of 600 women undergoing primary cesarean section, patients were randomly assigned to Joel-Cohen or Pfannenstiel-Kerr skin incision methods. Of these, 124 were later evaluated at a repeat cesarean section. Investigators found intraperitoneal adhesions in 7 (11.3%) of the patients using the modified (Joel-Cohen) technique and in 22 (35.5%) of the patients using the standard (Pfannenstiel-Kerr) technique (RR=3.1; 95% CI, 1.5–6.8;  $P=.0026$ ).<sup>2</sup>

A 2008 Cochrane review evaluated modes of uterine dissection: blunt (expansion of the uterine incision by digital extension) vs sharp (extending the uterine incision laterally with scissors). Two US studies were found involving a total of 1,241 women. Both trials reported that extensions of the uterine incision (defects occurring outside the line of the original incision) were less common with blunt dissection (combined RR=0.41; 95% CI, 0.31–0.54). One study, with 945 women, reported less blood loss with blunt extension (mean difference –43 mL, 95% CI, –66 to –20 mL) and a lower absolute change in hematocrit (blunt 5.5% vs sharp 6.1%;  $P=.003$ ). Postpartum hemorrhage was less common in the blunt dissection group (RR=0.67; 95% CI, 0.46–0.97).<sup>3</sup>

A subsequent prospective randomized study included 200 nulliparous women who underwent lower segment transverse cesarean section. One hundred women were assigned to have blunt expansion of the uterine incision by fingers of the surgeon, and 100 women to have sharp expansion using bandage scissors. Maternal blood loss (375 mL in blunt vs 443 mL in sharp;  $P=.001$ ) and absolute postoperative hematocrit drop (2.4% in blunt vs 4.1% in sharp;  $P=.001$ ) were significantly lower in the blunt dissection group.<sup>4</sup>

Another study of 811 randomized women showed that blunt expansion of the uterus in the cephalad-caudad dissection was safer than transverse expansion. The incidence of unintended extension (7.4% vs 3.7%;  $P=.03$ ) and blood loss of >1,500 mL (2.0% vs 0.2%;  $P=.04$ ) was significantly higher in the transversal expansion group, compared with the cephalad-caudad group.<sup>5</sup>

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