Expert Offers Insights on C-Section Techniques

Small improvements in surgical technique said to confer substantial benefits to maternal health.

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ASHEVILLE, N.C. — Small changes in technique can make a big difference in cesarean section outcomes, which is why it's important to keep up to date with the evidence concerning this procedure, Thomas Ivester, M.D., said at the Southern Obstetric and Gynecologic Seminar.

With an estimated 800,000-1,000,000 C-sections performed in the United States each year, "small improvements in our technique and reductions in morbidity and mortality have a profound effect on the public's health and confer substantial benefits with regard to maternal health," said Dr. Ivester, of the University of North Carolina at Chapel Hill.

Still, "for a lot of things that we do, we don't really know why we do it. I think that a lot of our specialty is governed by tradition and convention that's just been handed down over the years," said Dr. Ivester. He offered his thoughts on the existing data for a number of aspects of C-section.

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Incision Type

Low transverse incisions (Pfannenstiel, Maylard, Cherney) have a far lower rate of dehiscence than do midline incisions. Good exposure is possible, especially with extension techniques. These incisions are less painful for patients. Low transverse abdominal incisions are appropriate for obese patients, who have complication rates similar to or better than those of patients receiving vertical incisions.

Cautery Use

Minimal cautery use is generally recommended; the assumption is that cauterization devitalizes tissue, hindering the angiogenesis needed for wound repair.

Bladder Flaps

Forming a bladder flap is very commonly done, but there's actually not much data to support it or refute this practice, said Dr. Ivester. In one small study, forming a bladder flap increased operative time by as much as 5 minutes and resulted in a small increase in the amount of blood lost, compared with no bladder flap (Obstet. Gynecol. 2001;98:1089-92).

Blunt vs. Sharp Extension

Data suggest that extension 3 cm beyond the proposed incision occurs less frequently with blunt dissection than with dissection using banded scissors. In addition, sharp dissection appears to lead to slightly greater blood loss and a higher transfusion rate than does blunt dissection.

Placental Delivery

There does not appear to be a difference in the amount of blood loss or in transfusion rates between women who undergo manual extraction versus spontaneous delivery of the placenta. A significant reduction in the rate of endometriosis for women who had spontaneous placental delivery compared with manual extraction has been noted in the literature. Postpartum hemorrhage may occur less frequently with spontaneous delivery, and wound infection rates appear to be lower, too.

Additional Deliveries

Less than 18 months between deliveries increases the risk of uterine rupture by 3-4 times compared with intervals of 18 months or greater, said Dr. Ivester. Ensure that your patients are on appropriate birth control to avoid deliveries less than 18 months apart.

Avoid using a T-incision in cases when an extension is needed to deliver a baby. "You've now interrupted blood flow in two different directions, and you've actually increased the risk of rupture [during subsequent deliveries] to the same degree as with the classic incision," if not more, he said.

Uterine Repair

The question remains whether to take the uterus out or leave it in. The potential advantages of exteriorization of the uterus include better exposure, decreased blood loss, easier access for uterine massage and inspection of the pelvic nexa, but maternal postoperative and intrapartum discomfort is greater, said Dr. Ivester.

Peritoneal Closure

Peritoneal closure is another hotly debated topic. "There's probably 15%-20% of obstetricians who close the peritoneum, because in their own series, they had a significantly lower risk of adhesion formation," said Dr. Ivester.

Most of the limited data come from retrospective series, in which it was often hard to tease out who had peritoneal closure. In these small prospective series, patients who did not have peritoneal closure had lower rates of narcotic use, improved bowel function at 24 hours, decreased operative time, and decreased rates of cystitis. There are a number of studies in progress that might shed some light on whether to close the peritoneum.

There is also a question about the choice of suture material. "If you're closing this peritoneum with some highly inflammatory type suture material like chromic, certainly some inflammatory changes or responses may be elicited," said Dr. Ivester. Switching to something less reactive, such as Vicryl or Monocryl, might be a better choice. Recent evidence from Stanford University demonstrates that closure of the parietal peritoneum resulted in substantially improved rates of adhesion formation for women undergoing cesarean delivery (Obstet. Gynecol. 2005;106:275-80).

Fascia Closure

A number of studies have shown that a continuous running suture works well for fascia closure. Vicryl is an appropriate choice of suture material for a first delivery. Polydioxanone suture is a good choice for obese or diabetic patients. A loop is preferable, because it tends to reduce the number of knots.

The zone of optimal healing is 0.75 mm back from the incision edge. Dr. Ivester recommends working 1 cm back and 1 cm apart with sutures. This provides a balance between optimizing the strength of the repair and allowing space to promote angiogenesis and healing of the incision.

Avoid "postage-stamping" the incision. "You don't necessarily want to be neat. Frequently you'll see—especially in obese patients—it's not the sutures themselves that break. It's this line that's created from this perfectly approximated fascia that looks really beautiful and is really neat. You've basically just created a perforation line like a postage stamp that they rip open the first time they cough or have a good chuckle," said Dr. Ivester.

The data are mixed on whether to use drains or subcutaneous closure. Some studies have shown significant reductions in wound complications by using drains or subcutaneous closure compared with patients who received neither. Other studies have shown no differences.

"In patients with low platelets or bleeding disorders, drains may be useful, while we tend toward subcutaneous closure in obese women," Dr. Ivester said.

Antibiotic Use

The debate continues over when to give antibiotics. At Dr. Ivester's hospital antibiotics were previously given on the way to the operating room. Now they are given at cord clamping. The gynecology literature suggests that the best results are obtained when antibiotics are given 30-60 minutes preoperatively. Prophylactic antibiotics (first-generation cephalosporins) have reduced endometritis rates at his hospital.

Wound complications also appear to be lower in the literature for prophylactic antibiotics. ■