Laparoscopic Cervicoisthmic Cerclage in Pregnancy

BY BETSY BATES
Los Angeles Bureau

UNIVERSAL CITY, CALIF. — A significant number of successful deliveries have occurred, and one patient has delivered two babies, following laparoscopic cervicoisthmic cerclage performed during pregnancy at the University of Illinois, Chicago.

Andrew I. Brill, M.D., professor of ob.gyn. and director of gynecologic endoscopy at the university, reported on more than a dozen cases at the annual meeting of the Obstetrical and Gynecological Assembly of Southern California.

The innovative laparoscopic procedure could offer hope of a minimally invasive alternative to a technically demanding and often complicated abdominal surgery during pregnancy, in patients for whom conventional vaginal cerclage has failed or is not possible.

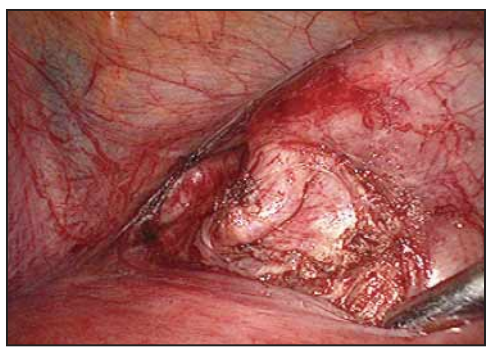
"These are patients who are quite desperate, with a history of multiple losses despite repeated conventional procedures," Dr. Brill said.

All the patients in his series had experienced failure of conventional vaginal cerclages for cervical incompetence, and many had suffered repeated second-trimester losses. In some patients, previous cervical procedures precluded placement of a vaginal cerclage.

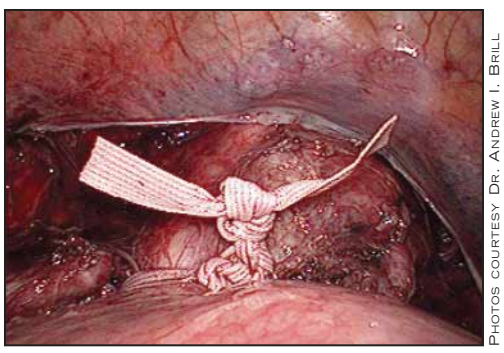
If such patients desire children, "There really is no salvation but abdominal cervicoisthmic cerclage," he explained.

Conventional abdominal cerclage typically requires an extended midline abdominal incision and a considerable hospital stay. Complications can include hemorrhage and pregnancy loss. Laparoscopic cervicoisthmic cerclage during pregnancy is a novel and technically challenging procedure. Ideally, it should be performed by 12 weeks' gestation, at a point when the risk of spontaneous first trimester loss is minimal but there is still enough space to safely manipulate and work around the gravid uterus, according to Dr. Brill.

Besides the threat of fetal loss, the risk of bleeding is considerable, so the surgical team must be prepared to quickly convert to conventional surgery. Morbid obesity and the risk of significant abdominal adhesions should be viewed with caution, according to Dr. Brill.



The uterine vessels are skeletonized and isolated from the lower uterine segment.



The knotted Mersilene stitch has been placed, and the procedure is completed.

PHOTOS COURTESY DR. ANDREW I. BRILL

"This is a surgery where you know that if you make a mistake, it's over, and it's a very rapid over," he said.

Nonetheless, the University of Illinois experience has been largely successful. Dr. Brill noted that the exact numbers are being compiled for publication but that at least 10 healthy babies have been born following the procedure.

Some patients have undergone the procedure as outpatients, while perinatologists have opted to observe others overnight. Some pregnancies are ongoing.

Fetal viability is carefully assessed before and after the procedure, which initially took about 4 hours but, with experience, has been reduced to about 90 minutes.

Two losses have occurred, one the day following the procedure and one at about 20 weeks' gestation in a patient with recurrent previous losses. In one early case, the laparoscopic procedure was converted to laparotomy to control bleeding when the underside of a harmonic scalpel abrupted a uterine vein. The procedure is performed under general anesthetic.

A cervical cup is placed into the vagina and up to the fornices to aid in lifting the uterus for skeletonization of the uterine vessels and placement of a Mersiline ligature between the uterine vessels and the lower segment at the isthmus.

A port is placed at the umbilicus for the laparoscope. Two right and two left paraumbilical ports are placed high and lateral, and one is placed at the midline suprapubic abutting the mons pubis. Bipolar dissection and sharp dissection are used to mobilize the uterine arteries well off the lower uterine segment.

Using a right-angle dissector placed through the suprapubic port, a Mersilene stitch is pulled from back to front through windows created in the broad ligament and tied snugly around the isthmus of the uterus, insuring the suture remains flat against the posterior lower segment.

Throughout the procedure, precautions are taken against over-manipulating the uterus or causing vascular injury. Cutting is performed with monopolar energy or blunt-tipped mechanical scissors. ■

Oral Misoprostol as Effective as Oxytocin Injection For Treating Postpartum Bleeding

BY KAREN RICHARDSON
Contributing Writer

QUEBEC CITY — Oral misoprostol appears to be as effective as oxytocin by injection in reducing blood loss at delivery, but is associated with an increased need for additional oxytocic drugs, according to a randomized, controlled trial presented in poster format at the annual meeting of the Society of Obstetricians and Gynaecologists of Canada.

"Oral misoprostol may be used to reduce postpartum bleeding, particularly in areas where injectable oxytocic drugs are unavailable," reported lead investigator Thomas Baskett, M.B., professor of obstetrics and gynecology at Dalhousie University in Halifax, Nova Scotia.

The synthetic PGE1 analogue has the advantage of being a cheap, stable, and orally administered uterotonic agent. "The main application for this is in developing countries, where they don't have personnel looking after women who can inject, or where there is no equipment or oxytocics to do so," he said in an interview, adding that it might also have applications in rural communities if injectable oxytocics were not available.

Misoprostol has a role as second-line therapy if other injectables fail. "You might not use it routinely for active management of the third stage to reduce or prevent blood loss, but if bleeding occurs, then you can give misoprostol either orally or rectally with ease, and it's easy to have it stored in nursing stations or hospitals," he said.

To assess efficacy of both agents, he and his colleagues compared 311 women given 400 mcg of oral misoprostol and 311 women who were given intravenous oxytocin, 5 units given after delivery of the anterior shoulder of the fetus. Researchers looked at women who had cephalic presentation and delivered vaginally, between 2000 and 2003 at the IWK Health Centre in Halifax. Those who had a multiple pregnancy, placenta previa, abruptio placentae, coagulation abnormalities, cesarean section, or severe asthma were excluded.

The primary outcome of at least a 10% drop in hematocrit at 24 hours' post partum was not clinically or statistically significantly different between the groups, and occurred in 10 of 291 (3.4%) of oxytocin patients, compared with 11 of 294 (3.7%) in the misoprostol group.

A total of 20 patients in the intravenous oxytocin group and 17 in the oral misoprostol group had missing hematocrit and hemoglobin values.

Of the secondary outcomes, 8.9% of oxytocin patients had a hematocrit drop of at least 30%, compared with 10.2% of patients in the misoprostol group.

Blood loss that was greater than 1,000 mL occurred in 2.3% of the oxytocin group and 4.5% of the misoprostol group. Additional uterotonics were required in 40.5% of those in the oxytocin group compared with 51.1% of those in the oral misoprostol group.

Researchers noted that the number of patients receiving additional oxytocics was high in both groups, and this was most likely due to the prevailing routine at the hospital of giving an intravenous infusion of oxytocin following the initial bolus dose at delivery.

Side effects of shivering and fever were present only in patients in the misoprostol group at the dose used, but were not clinically troublesome, the researchers noted. "Most of the trials that have found often upsetting shivering were with 600 mcg, and our study was with 400 mcg," Dr. Baskett said in an interview.

The study was conducted to substantiate that it is reasonable to use the 400-mcg dose if the local circumstances and resources dictate that it be used, he noted. ■

Passive, Active Smoking Both May Affect Fetus

A pregnant woman's exposure to secondhand cigarette smoke may be just as risky to the fetus as is active smoking, according to a pooled data reanalysis conducted by Stephen G. Grant, Ph.D., of the University of Pittsburgh.

"This analysis shows not only that smoking during pregnancy causes genetic damage in the developing fetus that can be detected at birth, but also that passive, or secondary, exposure causes just as much damage as active smoking, and it's the same kind of damage," Dr. Grant said in a statement.

In an interview, he said, "The women who go to the trouble of quitting smoking feel they have taken care of the problem. This is a cautionary exercise in which we say women have to change their lifestyles in other ways" such as having their husbands quit smoking and not going outside with their friends on smoke breaks even if they don't smoke themselves.

The analysis examined data from two contradictory studies on rates of mutation at the *HPRT* locus (a measure of in vivo mutagenesis) in newborn cord blood samples. Compared with samples from babies who had not been exposed to smoke in utero, exposed babies had significantly higher mutation rates. There were no significant differences in levels of induced mutation among children of exposed women (active smokers, women who had quit smoking when they learned they were pregnant, and women who were only passively exposed to smoke).

In the pooled data, the median *HPRT* mutation frequencies for actively and passively smoking mothers were both 0.87. The median for those who had quit smoking was 0.91, and for unexposed women, 0.60 (BMC Pediatr. 2005;5:20 [Epub ahead of print]).

—Bruce Dixon