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## **Oh Baby, Interventional Radiology Makes Childbirth Safer C-sections and “Invasive” Placenta Condition Can Result in Excessive Bleeding and Be Life Threatening for Mothers**

SAN DIEGO, Calif. (March 10, 2009)—Innovative, interventional radiology treatments are making childbirth safer for women who have C-sections that are complicated by massive bleeding and for those who suffer from the pregnancy condition of “invasive” placenta. The results of two studies detailing the effectiveness of minimally invasive treatments for pregnant women were released at the Society of Interventional Radiology’s 34th Annual Scientific Meeting.

“Interventional radiology is making childbirth safer. Severe bleeding sometimes occurs either immediately after a C-section or up to several weeks after delivery. With embolization, interventional radiologists can block life-threatening bleeding immediately and effectively—from the inside out,” said Michael S. Stecker, M.D., interventional radiologist at Brigham and Women’s Hospital, Boston, Mass. Embolization is a well-established interventional radiology technique that blocks blood vessels, controlling hemorrhage. Interventional radiologists guide a catheter up a uterine artery using X-ray imaging. Once at the site of bleeding, clotting agents, such as tiny sponge-like gelfoam particles (the size of sand) or little metal coils, are released to block an injured vessel and stop the bleeding. “The women we treated tended to need fewer blood transfusions, had shorter hospital stays and did not have recurrence of the bleeding. All in all, our study shows that minimally invasive interventional radiology treatments can help control potentially life-threatening bleeding in women after C-sections with minimal complications,” he added.

Similarly, interventional radiologists are making childbirth safer for women who suffer from a rare—but increasingly frequent—birth condition when a woman’s placenta (attached both to the wall of the uterus and to the baby’s umbilical cord) grows or “invades” into the uterine wall. “Minimally invasive interventional radiology treatments—that safely and immediately control bleeding and that may eliminate the need for a hysterectomy (or removal of the uterus)—are absolutely making childbirth safer for women,” said John R. Kachura, M.D., interventional radiologist at Mount Sinai Hospital in Toronto, Ontario, Canada. “These women are scared; this is a very serious and dangerous condition. Before interventional radiology treatment was available, the placenta couldn’t be delivered and women would have to have a hysterectomy or in some cases died,” he added. Canadian interventional radiologists controlled excessive bleeding in women with a combination of balloon catheters inserted into uterine arteries predelivery (that could be inflated to control bleeding, if necessary) and uterine artery embolization after delivery (if the placenta could not be delivered).

C-section (or Cesarean section) is a common means of birthing today; it involves making a surgical incision in the mother’s uterus to deliver the baby. Most C-sections are done when a vaginal delivery would put either the baby’s or mother’s health at risk. The rate of C-sections in the United States has risen greatly over the past decade, and, in 2005, 30 percent of all births were by C-section, according to recent statistics. Although generally a very safe procedure, complications of C-sections happen rarely and may include injuries to the blood vessels that can cause prolonged and sometimes life-threatening bleeding in the mother.

Typically, treatment options for this bleeding (or postpartum hemorrhage) included conservative management (careful observation with supportive care until the bleeding resolves) or taking the mother to surgery to find the bleeding vessel and stop the bleeding. In some cases, surgical control of bleeding might even require a hysterectomy. More recently, interventional radiologists have added to the treatment options by being able to find and stop the bleeding with embolization, said Stecker.

Over two and a half years, 13 women (ages 28–44) who urgently needed embolization to control bleeding after a C-section were referred to the interventional radiology service at Brigham and Women’s Hospital. Since bleeding complications after C-sections are uncommon, there was limited information as to the outcome of the different treatment methods. In a retrospective study, researchers analyzed trends or

patterns in their hospital course and treatment outcomes, finding that this severe bleeding can happen either immediately after the C-section or up to several weeks after the delivery. A specific type of injury to the blood vessel known as a pseudoaneurysm—which is a contained blood vessel rupture—tends to show up later. “Overall, regardless of any of the clinical circumstances, bleeding following C-section was stopped promptly and effectively with minimal complications by embolization procedures performed by interventional radiology,” said Stecker. He added, “Interventional radiology treatments avoid open surgery, general anesthesia, a long recovery time and other serious risk factors associated with surgical control of the bleeding. In preventing the need for hysterectomy, embolization may preserve a woman’s uterus, allowing her to have other children.”

Canadian researchers studied 14 women (ages 23–40) over a six-year period who were diagnosed with invasive placenta that was confirmed by a predelivery MRI. Interventional radiologists worked in a multidisciplinary team with obstetricians. The interventional radiologists guided balloon catheters into a woman’s left and right uterine artery (preoperative prophylactic insertion of bilateral internal iliac artery occlusion balloons) before delivery—to be ready to inflate (just like in angioplasty), if needed at delivery to block excessive blood flow, explained interventional radiologist J. Robert D. Beecroft, M.D., who along with Kachura was a co-lead for the Mount Sinai study. “Often with massive bleeding, there is so much blood coming at the obstetrician that it is impossible for him or her to see from the outside in order to surgically intervene. Since interventional radiologists visualize what they are doing from the inside of the vessel using imaging, we can see the blood supply, stop the bleeding and pinpoint the location for embolization treatment,” said Beecroft. After delivery, if an invasive placenta could not be delivered, the obstetrician left the placenta in place; interventional radiologists used uterine artery embolization—with absorbable gelatin sponge—to close blood vessels to the placenta, in essence, cutting off its blood supply so that it would die and eventually be reabsorbed by the body.

The retrospective study evaluated intraoperative blood loss, finding that obstetricians immediately see a dramatic decrease in bleeding once the balloons are inflated (allowing for easier surgical intervention). In examining hysterectomy rate, researchers found “considerable improvement,” with 75 percent of the women keeping their uteri (compared to previous statistics showing that 80 percent of women had hysterectomies), said Beecroft. He explained that interventional radiologists worked collaboratively with obstetricians/maternal fetal medicine specialists at Mount Sinai to provide a multidisciplinary approach for patients.

More information about women’s health issues and interventional radiology can be found online at [www.SIRweb.org](http://www.SIRweb.org).

*Abstract 173: “Endovascular Repair of Vascular Complications Following Cesarean Section,” C. Fan, D. Pyne, R.A. Baum, M.S. Stecker, A.K. Chun, S.K. O’Horo, M.P. Schenker, A.S. Han, Brigham and Women’s Hospital, Boston, Mass., SIR 34th Annual Scientific Meeting March 7–12, 2009.*

*Abstract 181: “Combined Prophylactic Internal Iliac Artery Balloon Occlusion and Uterine Artery Embolization in the Management of Invasive Placenta,” D.L. D’Souza, J.R. Kachura, J.R. Beecroft, Mount Sinai Hospital—interventional radiology, Toronto, Ontario, Canada; and R.C. Windrim and J.C. Kingdom, Mount Sinai Hospital—obstetrics, Toronto, Ontario, Canada, SIR 34th Annual Scientific Meeting March 7–12, 2009. Both abstracts can be found at [www.SIRmeeting.org](http://www.SIRmeeting.org).*

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### **About the Society of Interventional Radiology**

Interventional radiologists are physicians who specialize in minimally invasive, targeted treatments. They offer the most in-depth knowledge of the least invasive treatments available coupled with diagnostic and clinical experience across all specialties. They use X-ray, MRI and other imaging to advance a catheter in the body, usually in an artery, to treat at the source of the disease internally. As the inventors of angioplasty and the catheter-delivered stent, which were first used in the legs to treat peripheral arterial disease, interventional radiologists pioneered minimally invasive modern medicine. Interventional oncology is a growing specialty area of interventional radiology.

Today many conditions that once required surgery can be treated less invasively by interventional radiologists. Interventional radiology treatments offer less risk, less pain and less recovery time compared to open surgery. Visit [www.SIRweb.org](http://www.SIRweb.org).

An estimated 5,300 people are attending the Society of Interventional Radiology’s 34th Annual Scientific Meeting in San Diego.

*Local interviews and high-resolution images are available by contacting SIR’s communications department at [mverrillo@SIRweb.org](mailto:mverrillo@SIRweb.org).*