

# JOHNS HOPKINS Gynecology & Obstetrics

WINTER 2018



NEWS FROM THE JOHNS HOPKINS  
DEPARTMENT OF GYNECOLOGY AND OBSTETRICS



Left to right:  
Surgeons  
Edward  
Ahn, Ahmet  
Baschat and  
Jena Miller  
perform a  
minimally  
invasive in  
utero spina  
bifida repair.

## MATERNAL-FETAL MEDICINE

# Minimally Invasive Spina Bifida Surgery has Fewer Maternal Risks

**J**OHNS HOPKINS MATERNAL-FETAL MEDICINE specialists have begun in utero spina bifida surgeries that are minimally invasive to the mother's uterus. The technique uses a small laparoscopic instrument, known as a fetoscope, to perform the repair and avoids the risks associated with cutting open the uterus.

In this surgery, performed at just three hospitals nationwide, doctors move the uterus outside the body, install ports through the uterine wall to replace some amniotic fluid with carbon dioxide, and insert a camera and surgical instruments. The surgeons then close the defect in a manner similar to the open surgery by dissecting the spinal cord membrane away from the skin edge that falls into the spinal canal, then layering muscle and skin on top.

Johns Hopkins maternal-fetal medicine specialists **Ahmet Baschat, Jena Miller** and **Edward Ahn** began offering this procedure to eligible patients in February 2017. To qualify, the surgeons say, the upper border of the spina bifida defect must

be a myelomeningocele and fall between the T1 and S1 vertebra. There must also be a Chiari II malformation, in which the cerebellum is pulled into the spinal canal, and the fetus must have no other known genetic defects or physical abnormalities. The mother must have no known risks of early labor and must have a body mass index of less than 35 kg/m<sup>2</sup> before pregnancy.

By the end of September, Baschat and Miller had performed this procedure on five patients. So far, none of the babies born required additional surgery. They will be followed over the next 30 months to assess their neurological outcomes to determine how they compare to those who received fetal surgery with the open technique. The trial is approved and monitored by the Food and Drug Administration.

Until recently, the gold standard for spina bifida treatment was surgery within two days after birth to close the defect over the spinal cord and correct spinal deformities.

However, research within the past decade has

shown that surgically repairing the defect before birth, between about 20 and 26 weeks gestation, leads to better outcomes for the babies.

Despite the proven benefits of this open fetal surgery, only a fraction of parents whose children are eligible choose it, say Baschat and Miller. That's because this therapy confers risks: about 10 percent of women require blood transfusions during surgery or delivery and the resulting scar leaves the uterus vulnerable to potentially rupture in the present or future pregnancies, requiring women to deliver by scheduled cesarean sections. She also must deliver before 35 weeks, increasing the odds of neurological and other complications for the baby.

The new technique is minimally invasive to the uterus, essentially abolishing these risks, they say.

"We feel strongly about being able to offer procedures that provide proven benefits to mothers and children without fear for their health or future pregnancy outcomes," Miller says. "This surgery is the latest to meet that goal." ■



Dear Colleagues,

In addition to outstanding clinical care, research and education, the Department of Gynecology and Obstetrics continues to grow and develop innovative programs. A few are highlighted in this newsletter.

A decade ago, the gold standard for spina bifida treatment was surgery within two days after birth. Then it was open surgery to repair the defect before birth. Now, the Center for Fetal Therapy, led by **Ahmet Baschat, Jena Miller and Edward Ahn**, is performing in utero spina bifida surgeries that are minimally invasive to the uterus, a technique available at just three hospitals nationwide.

To ensure more surgeons have the training required to perform challenging minimally invasive surgeries, members of the Advanced Minimally Invasive Gynecologic Surgery group—including **Kristin Patzkowsky, Khara Simpson and Karen Wang**—are launching an accredited minimally invasive surgery fellowship in July 2018.

Wang is also leading the creation of a multidisciplinary clinic to help patients with endometriosis by coordinating with other specialists care of the disease and its symptoms.

Gynecologic oncologists **Amanda Nickles Fader, Rebecca Stone, Edward Tanner, Stephanie Wethington and Kim Levinson** are implementing novel ways to reduce surgical site infections, readmission rates and other complications.

For more on our departments and programs, please visit us at [bit.ly/JHMGYNB](http://bit.ly/JHMGYNB).

Andrew J. Satin M.D.  
Director  
Johns Hopkins Department of  
Gynecology and Obstetrics

## COORDINATED CARE

## New Center to Take Multidisciplinary Approach to Endometriosis

**E**NDOMETRIOSIS, WHICH AFFECTS ABOUT ONE IN 10 women of reproductive age, can be complicated and complex, says Johns Hopkins minimally invasive gynecologic surgeon **Karen Wang**.

That's why Wang and other specialists at Johns Hopkins are creating a virtual multidisciplinary center specifically for treating endometriosis and its associated symptoms.

"Our ideal would be to build collaborations with different specialties to attack this condition from a variety of viewpoints that are individualized to the specific patient," she says.

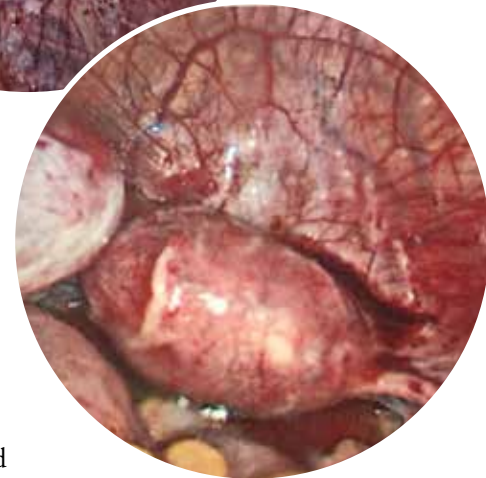
Patients with endometriosis may experience pain, fertility problems or both, but their symptoms don't necessarily correlate with the severity of the disease. Some women will have minor growth of endometrial tissue outside the uterus, while others will have substantial involvement with the uterus, ovaries, bladder, ureters, intestines, lungs, abdominal wall and other adjacent organs.

Because presentation and symptoms vary, treatment can involve a variety of specialists, and isn't always optimal for patients, Wang explains. It can be difficult to coordinate communication between the various providers, who may even provide conflicting recommendations.

The multidisciplinary center, Wang says, will provide a better patient experience and more consistent care at Johns Hopkins, which is a tertiary referral center equipped to handle the most severe cases of this disease.

Once a patient is seen in the Endometriosis Center, coordination of care with other pertinent providers will make visits more convenient and minimize travel for patients. Providers will also meet as a group periodically, she adds, to discuss and reach consensus on each patient's treatment—a care model shown to improve outcomes for numerous other conditions.

In addition to Wang, the center will include minimally invasive gynecologic surgeons **Kristin Patzkowsky** and



Two views of pelvic endometriosis, with the image to the left showing retrograde menstruation and the one to the right showing red and white lesions in the cul-de-sac.

**Khara Simpson,**

who can remove endometriosis with the goal of preserving fertility, if that's a patient's preference; reproductive endocrinologists who can improve fertility outcomes and manage hormonal changes; pain specialists; interventional radiologists who can better assess a patient's disease; gynecologic oncology for patients whose disease has spread beyond the gynecologic organs; and plastic surgery for those whose disease is so severe that treatment will involve repair of the abdominal wall.

The center will also have a strong research component that will be incorporated and patient specific, says **James Segars**, who will be active in the center through his role as director of Johns Hopkins' Division of Reproductive Science and Women's Health Research. The division is currently conducting a variety of endometriosis research studies that could lead to new ways to diagnose and treat this disease.

For example, **le-Ming Shih**, director of Johns Hopkins' TeLinde Gynecologic Pathology Laboratory, led a study published in the May 11, 2017, *New England Journal of Medicine* showing that lesions harvested from women with deeply infiltrating endometriosis harbor cancer-related mutations. Although these mutations weren't causing cancer at the time the tissues were harvested, Segars says, they could have significant implications for both diagnosing and treating endometriosis.

Eventually, he says, a definitive diagnosis might be obtained not through surgery but with less invasive biopsies that reveal the presence of these or other, not-yet-discovered mutations. Those mutations might signal the need for closer follow-up to make sure they don't morph into cancer or become deeply infiltrating. And they would likely become targets for novel medical therapies.

Wang, Segars and others who treat and investigate endometriosis at Johns Hopkins believe this collaborative approach will optimize care for patients with endometriosis.

"We want patients to live normal lives, minimizing their pain and improving their fertility, achieving all the goals they had before they were diagnosed with this condition," Wang says. ■



"OUR IDEAL WOULD BE TO BUILD COLLABORATIONS WITH DIFFERENT SPECIALTIES TO ATTACK THIS CONDITION FROM A VARIETY OF VIEWPOINTS THAT ARE INDIVIDUALIZED TO THE SPECIFIC PATIENT."

—KAREN WANG

# New Protocols Protect Patients from Surgical Complications

**O**UT OF THE ESTIMATED 2 million nosocomial infections that occur in U.S. hospitals yearly, about a quarter are surgical site infections (SSIs).

But SSIs aren't inevitable, says **Amanda Nickles Fader**, director of the Kelly Gynecologic Oncology Service and the Center for Rare Gynecologic Cancers at The Johns Hopkins Hospital. Fader and her gynecologic oncology colleagues, **Rebecca Stone**, **Edward Tanner** and **Stephanie Wethington** are among those leading a national charge to improve patient safety and the quality of care in gynecologic surgery. They have changed their protocols in ways that have significantly reduced the number of SSIs, readmission rates and other surgical complications.

Fader and her team recently examined the effects of an infection prevention bundle on patients who underwent ovarian cancer cytoreduction surgery at The Johns Hopkins Hospital between April 2014 and April 2016. The results were published online in *Obstetrics & Gynecology* in September 2017.

Before implementation of the bundle, which includes interventions before, during and after surgery, infection rates of patients who underwent ovarian cancer surgery were around 20 percent. After implementation, says Fader, SSIs in this group dropped to 3 percent and have stayed at that level for two years. Hospital readmissions after ovarian cancer surgery also fell—from 13 percent to 3 percent.

"These results translate into significantly better care for our patients and lower health-related costs for both patients and hospitals," Fader says.

The Kelly Gynecologic Oncology Service has also analyzed the roles of high-volume surgeons and enhanced recovery after surgery (ERAS) protocols. In a report recently published in the *American Journal of Obstetrics and Gynecology*, Fader and Tanner found that surgeons who performed more than five to 10 hysterectomies annually had significantly lower complication rates and were more likely to offer safer, minimally invasive surgical options to their patients.

The ERAS concept, developed in Denmark in the 1990s, uses an evidence-based approach that incorporates the entire care team, including the patient, to develop protocols that reduce postoperative complications and decrease length of hospital stay.

Preoperatively, the ERAS protocol is designed to ready patients for surgery as they would prepare for a long race, following specific instructions about carbohydrate loading and hydration. Perioperatively, patients benefit from multimodal analgesia to minimize opioid use. Postoperatively, patients walk and resume oral intake within the first 24 hours, even after lengthy and complex procedures.

Stone, who implemented the ERAS protocol, presented findings with colleagues at the annual meeting of the Society of Gynecologic Surgeons in March 2017. The team showed that the protocol lowered the rate of major complications by 30 percent and decreased narcotic use by 80 percent. "The path to recovery starts the very moment we begin to talk about surgery," says Stone. ■

Top to bottom: **Amanda Nickles Fader**, **Rebecca Stone**, **Edward Tanner**, **Stephanie Wethington** and **Kim Levinson**.



# Fellowship Launches for Minimally Invasive Gynecologic Surgery

**C**OMPARED TO TRADITIONAL OPEN surgeries, minimally invasive procedures have indisputable benefits for patients, including less blood loss, decreased risk for infection, faster recovery and return to normal activity, and decreased scarring.

At Johns Hopkins, members of the Advanced Minimally Invasive Gynecologic Surgery group—including **Kristin Patzkowsky**, **Khara Simpson** and **Karen Wang**—take full advantage of these benefits, offering minimally invasive procedures to nearly all patients who need gynecologic surgery. Yet many medical centers are slow to adopt minimally invasive protocols because of the advanced training required to master these skills.

With just 45 fellowship programs accredited by the American Association of Gynecologic Laparoscopists (AAGL) in the United States and Canada, up from seven in 2001, very few surgeons are fellowship-trained in minimally invasive gynecologic procedures.

That's why Wang and other members of the group are launching a minimally invasive surgery fellowship at Johns Hopkins. The program, which starts in July 2018, will feature a curriculum and research component approved by the AAGL, the leading association promoting minimally invasive gynecologic surgery among surgeons worldwide. In its first year, the three surgeons will train a single fellow. That number will increase to two fellows in subsequent years.

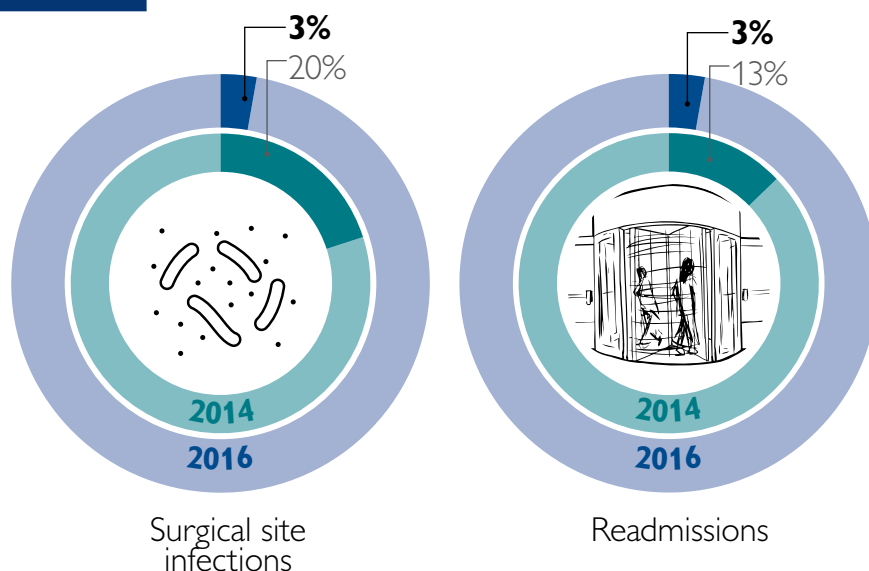
"This program will definitely elevate patient care at Johns Hopkins, providing us extra assistance and increased perspective on cases," Patzkowsky says. "And by training the next generation of minimally invasive gynecologic surgeons, we'll be elevating patient care far beyond our own institution as well." ■



Left to right: Surgeons **Kristin Patzkowsky**, **Khara Simpson** and **Karen Wang** are members of the **Advanced Minimally Invasive Gynecologic Surgery** group.

## INFECTION PREVENTION

The five-part intervention includes preoperative and intraoperative preparation with a 4% chlorohexidine solution, preoperative oral antibiotics and mechanical bowel preparation, appropriate timing of intraoperative antibiotics, enhanced sterile surgical techniques and perioperative incision management.





## ZIKA GUIDANCE

# CDC Announces New Zika Testing Recommendations

**T**HE U.S. CENTERS FOR Disease Control and Prevention (CDC) recently changed its guidelines for Zika virus testing. The new guidance urges testing only for pregnant women who may have been exposed to and are *symptomatic* for the virus. The earlier recommendation, from December 2015, recommended testing all pregnant women in the U.S. who might have been exposed to the Zika virus.

In August 2016, Johns Hopkins opened a multidisciplinary Zika center,

dedicated to testing and treating patients affected by this virus.

“While testing recommendations have recently changed and the prevalence of Zika virus in the Americas has declined, pregnant women should still avoid travel to areas of active Zika virus transmission,” says **Jeanne Sheffield**, director of the Johns Hopkins Division of Maternal-Fetal Medicine and CDC pregnancy consultant. “Women and their partners who must travel to these areas should use appropriate mosquito prevention measures.” ■

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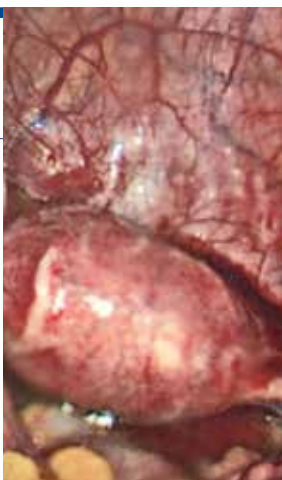
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