Building and Growing a Robotic Surgical Program

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It’s hard to believe the Baptist Health Center for Robotic Surgery is once again hosting the Miami Robotics Symposium. This is our fourth Symposium since starting our robotic surgery program in 2006.

Since that first year, our program has evolved and grown to be one of the country’s largest, according to nationwide volumes tracked by Intuitive Surgical.

We began with one robot being shared among five surgeons at South Miami Hospital. Today, the Baptist Health Center for Robotic Surgery has 11 robots located at four of our six hospital campuses, with another robot scheduled to come online soon. The number of physicians credentialed to perform robotic surgery has grown to more than 100, representing six specialties — benign gynecologic, gynecologic oncology, urology, otolaryngology, thoracic and general surgery, including bariatric surgery.

Our Allied Health Professionals, too, are regularly trained on new technology and procedures. They are a vital part of the healthcare team and focus on patient safety and optimal outcomes.

In our 10 years of experience, our robotic surgical volume has reached more than 18,000 cases. With a foundation based on that volume and experience, we opened a robotics training and simulation lab at South Miami Hospital to continue our focus on innovation and advanced technology. At the lab, our surgeons teach other surgeons from all over the U.S. and the world to train.

In this issue, we examine how new technology and equipment are improving robotic surgery from the surgeon’s to the patient’s standpoint. We also look at a few of the surgical techniques that have been adapted and enhanced using a robotic approach. We are proud that our surgeons are leading these developments and hope you will join us for the Miami Robotics Symposium in April on Miami Beach to learn more about the evolution of robotic surgery.

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From the earliest days of robotic prostatectomy, robotic surgery has come a long way. Today, the platform is employed in gynecologic and thoracic surgeries, for advanced lung and gastrointestinal cancers and much more.

“We now routinely treat high-risk patients with robotic approaches, and achieve perioperative morbidity and mortality profiles much better than with traditional open surgery,” said Mark Dylewski, M.D., a Baptist Health Medical Group thoracic surgeon and chair, thoracic and robotic surgery for Miami Cancer Institute.

“Looking ahead, I expect it to become the standard of care for many procedures.”

What will the next decade hold? With leading experts in robotic techniques, Baptist Health South Florida’s Center for Robotic Surgery continues to expand the boundaries of the technology.

NEW INNOVATIONS

Robotic surgical suites today differ greatly from what was used only a few years ago.

“Older systems were limited to operating in a very narrow space, such as the prostate or heart,” said Dr. Dylewski. “Our new systems are designed to work in multiple quadrants. This opens the arena for treating patients with larger tumors, more advanced disease, complex lung and esophageal cases and complex reconstructions.”

New platforms integrate stapling—often the riskiest part of any surgical procedure—eliminating the need for a bedside assistant to perform this delicate maneuver. They also incorporate fluorescence imaging. Commonly used in colorectal and bariatric revisional surgeries, it provides a clearer picture of the anatomy and vessels of the organs.

“It’s been a game-changer,” said Anthony Gonzalez, M.D., also a member of Baptist Health Medical Group and chief of surgery at Baptist Hospital of Miami. “Even with something as simple as gallbladder removal, I can see the biliary anatomy, define it, and avoid a bile duct injury or leak, which could be disastrous.”

EXPANDING HERNIA REPAIR

Robotic systems, with their superior imaging and freedom of motion, are also rewriting the rules for inguinal hernias. Patients who were not candidates for laparoscopic surgery because of previous abdominal surgeries can now benefit from a minimally invasive approach.

Surgeons also perform robotic ventral, incisional and abdominal wall hernia repairs. “This is a new innovation for most of the country, but we’ve been doing it for many years,” Dr. Gonzalez said.

LOOKING AHEAD

One looming robotic innovation is single-port surgery, now undergoing FDA approval. This will allow surgeons to control four articulated arms, including a camera, through a single one-inch incision.

“As someone involved in developing the next generation of robotic systems, I can tell you that things will be drastically different for both patients and surgeons,” said Dr. Gonzalez. “We are really breaking the mold from what we have today.”
In robotic single-site hysterectomy, the patient’s uterus is removed through one 2.5-cm incision in the umbilicus, leaving no obvious scar. A single multi-lumen port provides access for the camera, instruments and accessory port. If removal of the fallopian tubes and ovaries is necessary, that can be accomplished through the same small incision.

Baptist Health South Florida’s Center for Robotic Surgery was the first facility in the southeastern United States to offer this state-of-the-art procedure. The Center continues to lead the region in the number of robotic single-site hysterectomies performed. “Surgeons now come here from around the country to train in the procedure,” said gynecologic oncology surgeon Ricardo Estape, M.D., medical director of the Center for Robotic Surgery.

A SINGLE INCISION WITH MULTIPLE BENEFITS

Patients appreciate the aesthetic appeal of a virtually scarless surgery. Vaginal hysterectomy also leaves no visible scar, but taking the vaginal route has distinct surgical disadvantages. “During a vaginal hysterectomy, the surgeon is working in a confined space with limited visibility,” said Dr. Estape. “In contrast, robotic technology provides superior visualization and greater maneuverability.”

Research has demonstrated a low rate of conversion from robotic single-site hysterectomy to traditional laparoscopic or open surgery. “Among my own patients, the conversion rate is 0 for about 250 cases,” Dr. Estape said.

In the few short years since robotic single-site hysterectomy was approved, technology has continued to evolve. Recent enhancements include wristed instruments and an improved method of smoke evacuation. “Additional advances expected in 2016 will add even more wristed instruments and further expand our capabilities,” said Dr. Estape.

PATIENT SELECTION FOR SINGLE-SITE SURGERY

The robotic single-site approach is an excellent option for many women who have a benign condition requiring hysterectomy. However, it is not currently indicated for those with cancer, an enlarged uterus or a large ovarian mass. “In addition, the single-site port can be difficult to use in patients with a BMI greater than 35; for these women, robotic surgery through multiple small incisions may be a better alternative,” said Dr. Estape.

Most women experience minimal pain and a quick recovery after robotic single-site hysterectomy. Patients typically spend only one night in the hospital, and they are usually able to resume driving and other normal activities within 7 to 10 days. “These results are comparable to those seen with multi-port robotic or laparoscopic hysterectomy,” said Dr. Estape. “The major difference is that women end up with no visible scar whatsoever.”
Raising the Bar for Vaginal Fistula Repairs

Vaginal fistulas—abnormal connections between the vagina and another organ, such as the bladder, colon, rectum or ureter—can be a devastating problem for women. Urine, stool or gas may leak into the vagina, causing not only troublesome physical symptoms, but also deep emotional distress and serious strain on intimate relationships.

Repairing fistulas can be challenging. However, surgeons at Baptist Health South Florida’s Center for Robotic Surgery are achieving excellent results with these exacting surgeries. “Using the latest robotic techniques, we are able to repair vaginal fistulas through a minimally invasive approach and get women back to their normal lives sooner,” said gynecologic oncology surgeon John Diaz, M.D. “That can have a huge impact on their quality of life.”

Most vaginal fistulas measure 1 cm or smaller. “We are working in a microscopic area, so it helps to have the microscopic tools of robotic surgery at our disposal,” said Dr. Estape.

For ureterovaginal fistulas, the shift in surgical technique has been even more profound. Traditionally, this type of fistula has been treated by excising a piece of ureter and reimplanting the remaining ureter at a new site in the bladder. This diverted the flow of urine, which increased the risk of urine reflux.

Using robotic technology, however, it is often possible to repair the affected area of the ureter, obviating the need for reimplantation. “It’s the most anatomically correct method of repairing this type of fistula,” said Dr. Estape.

A NEW PARADIGM IN FISTULA TREATMENT

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ROBOTIC PRECISION FOR DELICATE SURGERIES

Robotic surgery compares favorably to other fistula repair techniques:

- **Open surgery.** When vaginal fistulas are repaired through conventional transabdominal surgery, patients typically stay in the hospital for 5 to 7 days and require 4 to 6 weeks of recovery time. By comparison, robotic surgery patients stay in the hospital for 1 to 3 days and require 2 to 4 weeks for recovery. They also have less need for narcotic pain relievers.

- **Vaginal surgery.** In the past, vesicovaginal fistulas were often repaired transvaginally. However, limited space and poor visibility were major hindrances to this approach. “Robotic technology enhances visualization and improves maneuverability, allowing us to work with great precision,” said Dr. Diaz.

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