

## **Minimally Invasive Surgery**

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Minimally invasive tools and techniques have revolutionized surgical procedures. Among them, spinal, abdominal, orthopedic, and gynecological surgeries have been vastly improved. While the field is still new, Greater Binghamton is fortunate to have a full array of options available.

The Minimally Invasive Surgical Suites at Wilson Regional Medical Center, which opened in February 2004, were built with high tech enhancements, specifically to accommodate the new procedures. Computers with touch screens allow the surgical team to control the environment, communicate with other departments, such as Pathology, and even to carry on live videoconferences with professionals outside the room. Unlike traditional operating rooms, the new surgical suites have no wires or cables along the floor. Everything is connected and suspended from a boom system in the ceiling.

Laparoscopic surgery, pioneered in the 1970's for gynecological use, was at that time a tremendous step forward in female reproductive treatment. Now, micro-laparoscopes have been developed and its application includes procedures such as hysterectomies, removal of ovarian cysts, and delicate bladder repair. Dr. Dhruv Agneshwar, OB/GYN Associates of the Southern Tier, uses minimally invasive laparoscopic surgery as an alternative to traditional abdominal hysterectomies.

"Laparoscopic hysterectomies have revolutionized women's healthcare. The advantages include shorter hospital stays, minimal scarring, and a shorter recovery time. The surgery is performed through three 1/2" abdominal incisions, and most women are able to go home either the evening of surgery or the next morning. Return to normal activities is generally three to four weeks versus traditional abdominal hysterectomies recovery time of six to eight weeks", states Agneshwar.

Beyond gynecology, micro-laparoscopy can also be used for hernia repairs and gall bladder surgery. In many cases the surgery can be done on an outpatient basis and recovery time is minimal. There are cosmetic benefits, too. Patients are left with virtually no scarring.

Advances in medical imaging technology have had a tremendous impact on many other surgical techniques, as well. Telescope-like instruments called endoscopes are connected to video cameras smaller than a dime and inserted through tiny incisions. Surgeons are then able to use the 3-D image to guide them, without opening the area up for view.

"Using stealth image guidance, surgeons are able to perform less of an operation with greater results", said Dr. Khalid A. Sethi, neurosurgeon at Southern NY Neurosurgical Group, P.C.

Not long ago back surgery meant a very long recovery, sometimes as long as a year, as well as a great deal of risk and pain. Doctors needed incisions long enough to see the area they were working on and to allow them to cut through layers of muscle in order to reach the spine. Hospital stays averaged a week. Pain would last for months. Now that same surgery can be accomplished with an incision a fraction of the size and without detaching the muscle. The result is substantially less trauma to tissue, leading to less pain, a shorter hospital stay and dramatically reduced recovery time.

While there has been an emphasis on using minimally invasive techniques for several years, it is advances in the design of surgical tools that has led to the most impressive enhancements. Ultra-small video cameras, 3-D imaging, and micro-laparoscopes are all reducing the need for wide exposures and open surgeries. Instruments such as the harmonic scalpel, which separates tissue by vibrating at a speed of 50,000 cycles per second, reduce trauma and speed healing.

Dr. Khalid Sethi, who is also Clinical Assistant Professor of Neurosurgery at the SUNY Clinical Campus in Binghamton, was chosen as one of just ten surgeons involved in the design of a new surgical instrument being manufactured by Johnson and Johnson for use in minimally invasive surgery of the spine.

"These tools will provide improved access while preserving normal anatomic planes. They provide for more efficient, improved surgical care of our patients", says Sethi.

Another development in the advancement of minimally invasive surgery is the recent recommendation of the FDA Advisory Panel to approve the first artificial disc for lumbar spine (back) surgery. The unanimous decision was announced on June 2, 2004 by DePuy Spine, Inc. a division of Johnson & Johnson. They presented results from a two-year, 15 center randomized U.S. clinical study. Patients reported that they maintained or improved their range of motion, experienced pain relief sooner, and had a higher degree of satisfaction with the procedure than patients who received lumbar spinal fusion surgery.

"This is the biggest step forward in spine surgery in decades, exclaimed Dr. Saeed A. Bajwa, neurosurgeon at Southern NY Neurosurgical Group, P.C. "It will change the way people with disc problems live. With this replacement disc, we can rebuild the spine to function normally."

The medical situations where patients benefit from advances in minimally invasive surgery are growing rapidly. We are very fortunate to have the latest technological advancements available in the greater Binghamton community.