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Robotic Technology in General Surgery Procedures – Including Innovative Single-Incision Cholecystectomy

Since their introduction some 30 years ago, laparoscopic techniques have become the standard for a number of general surgery procedures – enabling patients to enjoy less scarring, shorter hospital stays and faster recoveries. Today, Jefferson surgeons are using the latest robotic technology to perform many laparoscopic procedures, including adrenalectomy, cholecystectomy (gallbladder removal), Heller myotomy, liver resection, thyromectomy, repair of hiatal hernia, and distal pancreatectomy for tumors in the tail of pancreas.

At this time, six surgeons in the Department of Surgery are using the robot, which is manufactured by da Vinci®. They include Karen Chojnacki, MD, FACS, Associate Professor and Residency Program Director; Cataldo Doria, MD, PhD, FACS, Nicoletti Family Professor of Transplant Surgery and Director, Division of Transplantation Surgery; Nathaniel R. Evans, MD, FACS, FCPP, Assistant Professor, and Director, Minimally Invasive Thoracic Surgery Program; Francesco Palazzo, MD, FACS, Assistant Professor and interim Vice Chair, Department of Surgery; Michael J. Pucci, MD, Assistant Professor; and Ernest (Gary) Rosato, MD, FACS, Professor and Director, Division of General Surgery.

At Jefferson, the robot was first used for general surgery procedures in 2007 – to date over 115 robotic general surgery procedures have been performed. In early September 2013, Dr. Palazzo completed the first general surgery robotic procedure – a cholecystectomy – at Methodist Hospital where he is the interim Chief of Surgery.

SingleSite® Surgery

Jefferson is among the first hospitals in Philadelphia to use da Vinci® SingleSite® Surgery – which allows surgeons to perform a cholecystectomy with a single, two-centimeter incision in the patient’s belly button. As Dr. Chojnacki explains, the da Vinci system delivers a magnified, three-dimensional and high-definition view and includes instruments suitable for single-site surgery. Dr. Chojnacki notes that the single-site instruments are not yet as sophisticated as those she and her colleagues use with the robot during traditional laparoscopic procedures. “When using the robot with multiple incisions, the wristed instruments actually offer a higher degree of freedom than the human wrist. At present, the single-site instruments have only two degrees of freedom, but we expect the wristed instruments to be available in the future.”

Results for single-incision cholecystectomy have been excellent. Among the potential benefits: a low rate of major complications and a low conversion rate to open surgery. While the small “keyhole” scars of multi-incision surgery are considered a breakthrough, single-incision surgery through the navel can virtually eliminate surgical scarring.

To date, the Food and Drug Administration (FDA) has approved da Vinci® SingleSite® Surgery only for gallbladder removal, benign hysterectomy, and removal of the fallopian tubes and ovaries (salpingo-oophorectomy). But Dr. Chojnacki believes there is tremendous potential for single-incision surgery: “As the technology improves, there will clearly be opportunities to use this technique for gastrectomies (stomach resection), liver resection, bile duct procedures and pancreactectomy,” she says. “The possibilities are virtually limitless.”

Meet Our Surgical Interns

The Department has welcomed an impressive new group of categorical interns, selected from over one thousand applicants to our program. These doctors, who recently matched with Jefferson, started on June 20, 2013. Just a few months into their Jefferson surgical residency, we have all noticed their dedication to patient care, their energy and their excitement in joining the Jefferson community.

Front row: Katerina Dukleska, MD, University of Medicine and Dentistry of New Jersey; Jessica Latona, MD, University of Medicine and Dentistry of New Jersey; Anisha Kashetrapal, MD, Florida International University, Allison Aka, MD, Loma Linda University.

Back row: Brock Hewitt, MD, Texas Tech University and Andrew Brown, MD, Jefferson Medical College.

We are also pleased to welcome back the following Jefferson Medical College 2013 graduates as preliminary interns in general surgery: Harold Hsu, MD and Wei Phin Tan, MD.