Minimally Invasive Surgery Week

MINIMALLY INVASIVE SURGERY WEEK 2013
ANNUAL MEETING & ENDO EXPO
HYATT REGENCY RESTON
RESTON, VA (WASHINGTON DC)

RAMSES BREAKOUT SESSION:

ROBOTIC ASSITED MICROSURGERY - A MULTISPECIALTY APPROACH

In order of presentation

Thursday 10:30am-11:30am

New Tools in Robotic Microsurgery

Jamin Brahmbhatt, MD

The increased application of the surgical robotic platform for microsurgery has led to the development of new adjunctive surgical instrumentation. In microsurgery, the robotic platform can provide high definition 12-15x digital magnification, broader range of motion, fine instrument handling with decreased tremor, reduced surgeon fatigue, and improved surgical productivity. This presentation will highlight novel adjunctive tools that provide enhanced optical magnification, micro Doppler sensing of vessels down to a 1mm size, vein mapping capabilities, hydro-dissection, micro ablation technology (with minimal thermal spread – C02 laser technology) and confocal microscopy to provide imaging at a cellular level. All these instruments have been adapted for the robotic console and enhance the robotic assisted microsurgery experience. Microsurgical outcomes from the use of these tools in the management of patients with infertility and chronic groin and testicular pain will be reviewed.

A Structured Assessment for Robotic Microsurgical Training

Taiba Alrasheed, MD

Background:

Robotic surgery as a field has expanded rapidly over the past two decades and is being used widely among the surgical sub-specialties. Its applications in plastic surgery have emerged gradually over the last few years. One of those promising applications is robotic assisted microvascular anastomosis. The purpose of this study was to develop a validated assessment instrument, and then assess the learning curve for robotic-assisted microvascular anastomoses. The authors hypothesized that the subjects would demonstrate measurable improvement across multiple domains of performance as a result of robotic practice.

Methods:

In part 1, an assessment instrument called SARMS (structured assessment of robotic microsurgical skills) which combines the previously validated SAMS (Structured Assesment of Microsurgical Skills) with validated skill domains in robotic surgery was tested. Four blinded expert evaluaters graded 6 recorded videos and inter-rater reliability was determined. In part 2, a cohort of five microsurgery fellows and five faculty members each participant performed five robotic-assisted microanastomotic sessions. All 50 sessions were subjected to blind evaluation using SARMS.Primary outcomes were changes in time required to complete an anastomosis for each participant over the 5 sessions, and trends in SARMS scores for each skill area for each participant over the 5 sessions.

Result:

Inter-rater reliability for the SARMS instrument was excellent for all skill areas rated among the four expert, blinded evaluators, demonstrated by Cronback alpha scores greater than 0.9 in each category. All skill areas and overall performance improved significantly for each participant over the five robotic-assisted microanastomosis sessions, and operative time decreased over the study for all participants. The results showed an initial steep technical skill acquisition followed by more gradual improvement, and a steady decrease in operative times that ranged between 1.2 hours and 9 minutes.

Conclusion:

The Structured Assessment of Robotic Microsurgery Skills is a valid instrument for assessing microsurgical skill, with good inter-rater reliability. Subjects at all levels of training from very little microvascular experience to microsurgery experts gained proficiency over the course of 5 sessions.

Robotic Microsurgical Training

Ahmet Gudeloglu, MD

Robotic microsurgery represents a newly emerging surgical field, with minimal data currently available on operative outcomes and training modalities. Given the integration of both robotic and microsurgical platforms, acquisition of surgical skills requires a novel skillset with its accompanying learning curve. As with robotic-assisted prostatectomy, achieving competence and eventual mastery in robotic microsurgery likely requires a minimum number of cases, with suboptimal outcomes expected during the learning period. Based on limited data, when compared to traditional microsurgery, robotic assisted techniques may be associated with an increased initial learning curve, although the number of cases required for technique mastery remains unknown. Several training methods are available to assist surgeons in learning robotic microsurgery skills, including didactics, laboratory simulation (animal models, synthetic tubing, human vas segments), robotic dry dock training (suture manipulation and practice), and simulators. The requisite learning curve may further be reduced through direct fellowship or mini-fellowship training, presence of a mentor during the initial series of cases, or through attending weekend or sponsored hands-on courses. Although not currently required, initial and maintenance certifications for use of the robot will likely become increasingly relevant in an outcomes-based model of medical care.