

Robot improves suture proficiency more rapidly for surgeons inexperienced in laparoscopic techniques

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New research published in the April issue of the *Journal of the American College of Surgeons* suggests that, among surgeons inexperienced in laparoscopic techniques, closing incisions using robotic-assisted laparoscopic surgery (RALS) requires less time to learn and results in improved outcomes compared with suturing done via traditional, "open" surgery or with freehand laparoscopy.

Laparoscopic suturing - a minimally invasive operation in which suturing is performed using an instrument that is inserted through small incisions in the abdomen - is a technically demanding skill that traditionally has required a significant amount of time to master. In some cases, proficiency may not be achieved in a reasonable amount of time because of the infrequency of cases that require its use. With RALS, the robot's full range of motion and three-dimensional, enhanced visualization helps surgeons to maneuver complex anatomy and gives them more precision during delicate operations.

"Our findings show that, over a relatively short time, even inexperienced surgeons can perform RALS with efficiency and results comparable to open surgery," said Hiep Nguyen, MD, FAAP, Director of Robotic Surgery and Research, Children's Hospital Boston. "RALS is allowing us to perform suturing more quickly and safely, and we hope that ultimately this will allow for patients to recover faster and with reduced pain."



Researchers evaluated the learning curve associated with a pyeloplasty an operation that removes a blockage at the connection of the kidney with the ureter - using an open surgical procedure, freehand laparoscopic surgery and RALS. Using 57 swine models, the operative time was measured for pyeloplasties performed by three non-urologic surgeons who did not have any experience in freehand laparoscopy or RALS and two experienced urologic surgeons, one of whom had no experience in laparoscopic techniques and the other of whom had very limited experience. Each surgeon performed at random five freehand laparoscopies and four to five RALS. After gaining more experience by completing the five freehand laparoscopies and five RALS, the urologic surgeon who had started the study with limited technical knowledge performed an additional nine freehand laparoscopies, nine RALS and four open pyeloplasties. The study also evaluated the quality of the suture (for example, water tightness and patency) immediately after the operation and two weeks after the operation. The degree of inflammation was assessed 15 days after the procedure by measuring the amount of collagen III deposited on the ureteral wall. Only those sutures performed by the surgeon with limited laparoscopic experience and the last four sutures in each group for the other two surgeons were assessed to control for variability.

Study results showed that RALS had a shorter procedural time and a flatter learning curve compared with freehand laparoscopy (p 0.01) and 22.4 \pm 4.1 minutes with open surgery (p0.10 compared with <u>open surgery</u>).

Measurements for water tightness of the suture and patency of the unblocked connection between the kidney and the ureter were comparable to those in the open operation group. However, with experience, both the RALS and freehand laparoscopy procedural times and the measurements for water tightness and patency of the suture approached those of the open surgical procedure group. Histologic



evaluation demonstrated that there was significantly less collagen III deposited on the ureteral walls of the RALS group compared with the freehand laparoscopy and open operation groups (p = 0.01).

Source: Weber Shandwick Worldwide (<u>news</u> : <u>web</u>)

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