Robotic Colorectal Surgery in the Emergent Setting: Is It Safe? A Review of Large National Database

Karleigh R. Curfman MD, Ian F. Jones MD, Christopher Neighorn, Laila Rashidi MD

- *Introduction*

  As the field of robotic colorectal surgery continues with improved recovery protocols, we have begun to implement robotic surgery as an option for emergent procedures. All operating room staff members are required to undergo robotic training, making emergent colorectal surgery a feasible option in our institution.

- *Methods*

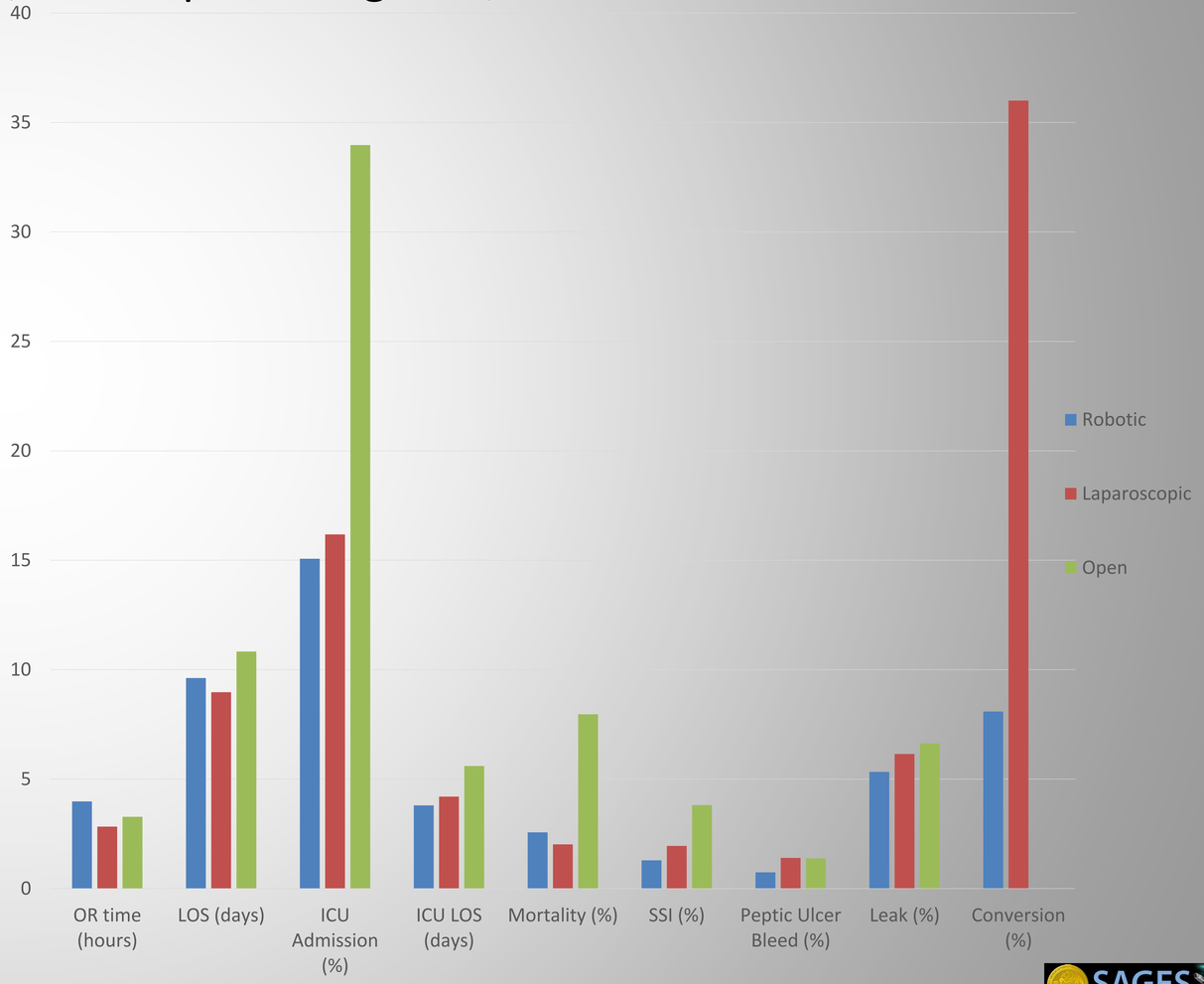
  A retrospective review of the Intuitive National Database identified over 22,000 emergent colorectal surgeries; 544 were performed via robotic surgery (RS), 3,856 laparoscopic surgery (LS), and 17,849 open surgeries (OS). A statistical comparison of data collected from emergent RS, LS, and OS was performed that analyzed operating room time, length of stay, intensive care admissions, operative conversions, infection rates, costs, and several other variables.

- *Results*

  RS was found to be associated with increased operating time overall (RS 239 min v LS 170 min v OS 167 min). Comparing emergent RS to OS, there was a decrease in: overall length of stay (LOS) (RS-9.62 v OS-10.83 days), intensive care unit (ICU) admission rates (RS-15.07% v OS-33.97%), ICU LOS (RS 3.8 v OS-5.6 days), mortality (RS-2.57% v OS-7.96%), surgical site infection (SSI) (RS 1.29% v OS-3.81%), peptic ulcer bleed, (RS-0.74% v OS-1.38%), anastomotic leak (RS 5.33% v OS-6.63), and overall cost (RS $24,785 v OS-$29,547). Comparing emergent colorectal RS to LS, there were many similar results, however RS was associated with a decrease in: ICU admission rates (RS 15.07% v LS-16.18%), ICU LOS (RS 3.8 v LS-4.2 days), SSIs (RS 1.29% v LS-1.95%), peptic ulcer bleed (RS-0.74% v LS 1.40%), and anastomotic leak (RS 5.33% v LS-6.15%). Additionally, there was a drastic difference in conversion rates to open surgery (RS 8.09% v LS-36%)

- *Discussion*

  Upon review of the data, we found that emergent colorectal surgery is still overwhelmingly performed in an open fashion. Despite this, analyzed data found that when compared to both OS and LS, RS saw a decrease in: ICU admission, ICU LOS, SSI, peptic ulcer bleed, and leak rates. Comparing to OS alone, RS additionally saw improvement in total LOS, mortality, SSI, and cost. There is significantly less conversion to OS in emergent RS compared to LS. From this data, we feel RS a viable option for emergent colorectal surgery in adequately trained surgeons, support staff, and facilities.



MultiCare

SAGES