

Obese Appendectomy Patients Have Fewer Complications With Minimally Invasive Operations

Obese patients who need to have their appendixes removed fare better after a minimally invasive surgical procedure, as opposed to an open operation, according to a new study published in the July issue of the *Journal of the American College of Surgeons*.

While the traditional open operation (appendectomy) and minimally invasive procedure (laparoscopic appendectomy) are known to have similar outcomes for people of normal weight, surgeons at the University of Southern California's Keck School of Medicine found that obese patients had fewer complications 30 days after a minimally invasive laparoscopic operation, in which surgeons make one to three small incisions in the abdomen and remove the appendix through one of the small openings. The obese patients had longer hospital stays and higher rates of infectious complications if they underwent the open procedure, whereby a surgeon removes the appendix through a 2-to-4-inch incision in the right side of the abdomen.

"There are early studies that suggest the laparoscopic approach may be less risky in obese patients, but there's not much recent information available to strongly prove it," said lead study author Rodney J. Mason, MBBCh, FACS, associate professor of surgery at Keck School of Medicine. More than 35 percent of U.S. adults and 17 percent of youth are obese, according to the U.S. Centers for Disease Control and Prevention. "We expect to see more and more obese people with medical conditions that require general surgical intervention," Dr. Mason said. "We need to know what approach works best for these patients."

Dr. Mason and colleagues did two analyses in the American College of Surgeons National Surgical Quality Improvement Program database of patients who had appendectomy procedures between 2005 and 2009. Approximately 13,330 patients in the database were considered obese, based on a body mass index (BMI) of 30 or higher.

In the first analysis, Mason and his team of surgeons compared how all the obese patients in the database fared after having either an open or laparoscopic appendectomy. Results showed that patients who had the open procedure were significantly more likely to have complications, including wound infections, pneumonia, heart attacks, and septic shock. For example, eight percent of the open appendectomy patients had non-wound related complications like heart attacks, compared with four percent of laparoscopy patients. Additionally, open appendectomy patients stayed in the hospital a mean of 2.3 days longer than patients who had the laparoscopic appendectomy. Overall, the laparoscopic procedure was associated with a 57 percent reduction in morbidity compared with

the open procedure in obese patients.

The second analysis matched 1,114 of the laparoscopic appendectomy patients with an open operation patient group who had the same demographics and co-morbid conditions. Results again showed that complications were more likely for patients who had open appendectomies. They spent more than a day longer in the hospital, and their procedures took longer than the time required for patients who had the laparoscopic procedure, which was associated with a 53 percent reduction in the risk of morbidity. Also, the more patients weighed, the worse their outcomes were with open procedures. In contrast, all the patients who underwent the laparoscopic procedure had similar outcomes, regardless of how obese they were.

Despite the noted improved outcomes for the laparoscopic surgical approach in patients with complicated appendicitis, over 40 percent of these patients in the database had undergone an open operation. With national expenditures already estimated at about \$147 billion for obesity-related conditions, the study's results have implications for healthcare costs, particularly at hospitals that say open procedures cost less because they do not require the expensive equipment needed for laparoscopy.

"We've shown a shorter length of stay. There's the cost savings right there," Dr. Mason said. "Also if you can prevent a patient's wound infection, which stops him or her from having to come see the doctor four times after a procedure, reducing that complication will reduce costs. And if someone doesn't get pneumonia after an operation, that result will be cost-effective as well." Dr. Mason noted that because laparoscopic appendectomy is still relatively new, especially for obese patients, some surgeons and hospitals default to the tried-and-true open procedure, but that approach is changing. "It depends on the surgeons' training and whether they were trained to perform laparoscopy or not," he explained. "Many surgeons are more inclined to perform laparoscopic procedures because that's how they were trained."

Moreover, the move toward laparoscopic appendectomy is to some extent patient driven, Dr. Mason pointed out. "Most of my patients seem to prefer laparoscopic operations nowadays," he concluded.

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