

Database reveals surgical techniques with better outcomes for gastric sleeve gastrectomy patients

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By analyzing information included in the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) database, the largest bariatric-specific nationwide registry, researchers found that laparoscopic sleeve gastrectomy is a safe procedure with a low morbidity rate. But to achieve even better outcomes, common surgical techniques used in this procedure should be examined more closely. Study results are published in the September issue of the *Annals of Surgery*.

"The MBSAQIP registry is a powerful tool that allows us to look at process measures on a national level so that we can improve the quality of care in bariatric surgery," said first author Elizabeth R. Berger, MD, a general surgery resident at Loyola University Chicago Stritch School of Medicine, Illinois, and an American College of Surgeons Clinical Research Scholar at the time this study was conducted. "This resource allows us to do very highly powered studies that we were not able to do before."

Laparoscopic sleeve gastrectomy is a common bariatric procedure, accounting for 42 percent of these weight loss operations. Growing in popularity, the procedure helps obese patients lose up to 70 percent of their excess body weight during the 12 months following surgery.

While there are a number of studies showing that sleeve gastrectomy is

safe and effective, very few look at specific surgical techniques used in this procedure in relation to complications. During bariatric operations, various surgical techniques—including the use of a staple-line reinforcement, the bougie size (a tube used to measure where the stomach is divided), and the distance from the pylorus where stapling is initiated—are used to optimize the procedure and achieve better outcomes. But questions remain over the best surgical techniques to use to improve upon the already low complication rates, and to make the procedure even more effective with regard to weight loss.

This issue is important because leaks and bleeding are major postoperative complications that remain a constant concern for bariatric surgeons. Although leaks at the staple line used to divide the stomach and bleeding events requiring a transfusion are rare—occurring in less than 1 percent of the operations—these events can require hospital readmission and a reoperation to fix the problem.

Using data from the MBSAQIP registry, Dr. Berger and colleagues looked at the largest-ever cohort of patients who had undergone laparoscopic sleeve gastrectomy. They compared different techniques used in the procedure on 189,477 cases performed by 1,634 surgeons at 720 centers between 2012 and 2014. In particular, they evaluated staple-line reinforcement (a layer of material that is sandwiched within the staples), oversewing (meaning the surgeon oversees the staple line to make sure it doesn't bleed or leak) versus stapling alone, as well as bougie size, and stapling distance from the pylorus. The aim of the study was to assess the impact of these techniques on 30-day complication rates, and one-year weight loss.

The results showed that 80 percent of surgeons use staple-line reinforcement, however, staple-line reinforcement was associated with higher leak rates (0.96 percent versus 0.65 percent). The use of staple-line reinforcement tended to have lower bleed rates (0.75 percent versus

1 percent), but this effect was not statistically significant after taking into account surgeon and patient factors. Not only is staple-line reinforcement associated with higher leak rates, but it also significantly increases the cost of the operation by over \$650 per case.

Larger bougie sizes were associated with decreased leak rates, which surgeons would expect, however, larger bougie sizes were surprisingly associated with greater weight loss at one year. Increased distance from the pylorus was also associated with increased [weight loss](#)—again a finding many find to be surprising.

"It is paramount that as professionals, we remain introspective about the work we do and strive to always improve for our patients. While the devil is in the details, this study elucidates some things we can potentially do to get even better results," said senior study author, Matthew M. Hutter, MD, MPH, FACS, from the Massachusetts General Hospital, Boston.

"The most important takeaway is the fact that staple-line reinforcement is not necessarily better for bleeding and leaking, and it might not always be necessary. As surgeons, we should examine our individual work flow, looking at bleed and leak rates, and decide whether staple-line reinforcement is being appropriately used, because it's a very costly part of the procedure," Dr. Berger said. "I think this study is important because it gets at the issue of evaluating process measures in surgery and how very important that issue is."

The study authors conclude: "Surgeons should consider risks, benefits, and costs of these [surgical techniques](#) when performing a laparoscopic sleeve gastrectomy and selectively utilize those that, in their hands, minimize morbidity while maximizing clinical effectiveness."

More information: Elizabeth R. Berger et al. The Impact of Different

Surgical Techniques on Outcomes in Laparoscopic Sleeve
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