A novel intrathoracic esophagogastric anastomotic technique: Potential benefit for patients undergoing a robotic-assisted minimally invasive esophagectomy

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Central Message

The modified side-to-side technique described appears to have advantages over hand-sewn or circular stapled approaches, which may be particularly advantageous in the setting of robotic surgery.

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Clinically significant anastomotic leaks occur in 10% to 15% of patients after esophagectomy with esophagogastronomy, depending on the location of the anastomosis and the operative technique used. It has been shown that the occurrence of a leak is associated with a significantly longer length of stay and a 2-fold greater risk of perioperative mortality.¹ An anastomotic leak also has been shown to have a negative impact on overall patient survival and is associated with a significant impact on quality of life. As a result of the fibrosis that occurs during healing, studies have shown that anastomotic leaks are associated with subsequent strictures, with up to 50% of patients needing at least 1 dilation. How best to minimize the rate of anastomotic leak after esophagectomy remains the subject of considerable debate.

A linear stapled anastomotic technique proposed initially by Collard and colleagues² and modified by Orringer and colleagues³ has been shown to result in a significant reduction in the rate of anastomotic complications when performed in the neck. This technique has gained widespread acceptance as part of transhiatal or McKeown operations with a cervical esophagogastronomy. The advantages, if any, of a linear stapled anastomotic technique in the chest is less well documented. A recent meta-analysis of 3 randomized controlled trials and 12 comparative series has demonstrated a benefit to the linear stapled technique. Overall, there was a 50% reduction in the risk of anastomotic leak and a 40% reduction in the risk of stricture formation.⁴ However, the benefits of the linear stapled approach in this analysis appeared to be limited to anastomoses performed in the neck.

The report by Kesler and colleagues⁵ in this issue of the *Journal* describes a modified linear stapled anastomotic technique that is suitable for an intrathoracic anastomosis. In this retrospective analysis of their initial 6-year experience with 287 patients, they report an impressively low 2.9% leak rate and a similarly low rate (5%) of anastomotic strictures requiring dilation. The report includes a step-by-

step description of the operative technique accompanied by 7 quality illustrations that detail the key steps of the procedure. Also included is an easy-to-follow video demonstrating the authors' technique.

In the era of minimally invasive surgery, this technique, which was performed only in the open surgery setting, might seem at first glance to be of limited value. However, the technique described seems readily adaptable to the minimally invasive esophagectomy approach, particularly when performed with the assistance of the surgical robot. The robotic linear stapler could be docked in the left hand working port or a hand-held stapler could be passed through the assistant port in a standard robotic esophagectomy setup.⁶ Closure of the resultant defect could then be accomplished in a hand-sewn fashion facilitated by the robot.

Previous publications describing variations of the linear stapled technique for an intrathoracic anastomosis are limited in sample size compared with the 287 patients included in this report. The authors of these previous reports have typically placed the anastomosis on either the anterior or posterior gastric wall, which can potentially result in a strip of relatively ischemic tissue between the linear staple line of the anastomosis and the staple line of the gastric conduit. The authors' approach eliminates this potential problem by superimposing the 2 linear staple lines. Future

studies should be done incorporating this anastomotic technique in the minimally invasive esophagectomy (robotic) setting.

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