Comparing Outcomes After Sleeve Gastrectomy Utilizing an Anatomical Based Approach. Does the Stapling Technique Matter?

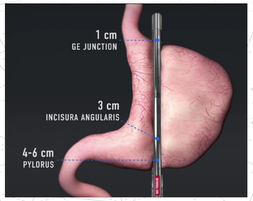
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Introduction

The sleeve gastrectomy remains the most common bariatric procedure performed for weight loss[1]. However, the surgical technique remains highly variable. An anatomical approach to the stapling whereby the stapler is placed 4 to 6 cm from the pylorus, 3 cm from the incisura, and 1 cm from the angle has been described with the Standard Clamp device and the Titan SGS stapler, a novel single-fire 230 mm stapler, to improve reproducibility of sleeve size and shape. The Standard Clamp is placed across the stomach at the described anatomical landmarks and a standard multi-fire stapler is placed parallel to the clamp to divide the stomach. The single fire 230 mm stapler utilizes a closed staple height of 1.2 to 2.2 mm along the jaw to account for variations in gastric thickness from the fundus to the antrum.

The purpose of this study is to compare whether the single continuous staple line with closed staple heights to account for the variability in gastric tissue thickness had a significant difference on outcomes.

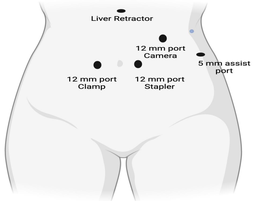




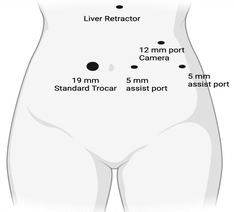


Methods

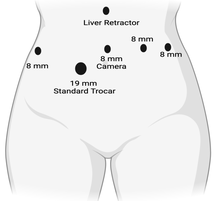
At our institution between 12/2019 and 7/31/2023, a total of 107 patients underwent sleeve gastrectomy utilizing the Standard clamp device and multi-fire stapler. The staple loads used were of medium/thick staple height with reinforcement. A total of 166 patients underwent sleeve gastrectomy with the Titan SGS single fire 230 mm stapler. A 38 Fr bougie was used to calibrate the sleeves. All specimens were removed from the 19 mm port site used for the single fire stapler or 12 mm port site to the right of the umbilicus. The fascia was closed with interrupted 0 Vicryl sutures. The outcomes analyzed included operative time, length of stay, post-operative nausea, rate of leak, bleeding complications, incisional hernia rate, de novo GERD, and excess weight loss at 12 months for those that returned for their annual visit.



Laparoscopic Clamp/Multi-fire Stapler



Laparoscopic Single Fire 230 mm Stapler



Robotic Single Fire 230 mm Stapler

Demographics

	Titan N=166	Standard Clamp N=107
Male/Female	**27/139**	**19/88**
Mean Age	**42**	**39**
STD	*11.5*	*10.3*
Mean BMI	**47**	**47**
STD	*8.2*	*8.4*

Outcomes

	Titan N=166	Standard Clamp N=107
Mean OR Time	**42min (Lap) 57min (Robotic)**	**60min (Lap)**
STD	*11.5 min (Lap) 14 min (Robotic)*	*12min (Lap)*
Leak	**0**	**0**
Transfusion	**0**	**1**
Reoperation	**0**	**0**
30 Day Readmission	**0**	**1**
Incisional Hernia	**0**	**0**
De Novo GERD	**1**	**2**

Results

Data showed no significant difference in length of stay, postoperative nausea, leak rate, bleeding complications, incisional hernia, or de novo GERD. Two patients in the clamp group were converted to gastric bypass at > 1 year post op for weight regain and GERD, but neither were in the de novo GERD group. One patient in the SGS single fire stapler group required conversion to gastric bypass at > 1 year postop for management of a twice recurrent hiatal hernia and GERD.

Operative times were shorter in the laparoscopic versus robotic single fire stapler cases. All laparoscopic cases were performed by a single attending while robotic cases were performed by both attending surgeons and fellows. There was a significant difference in operative times between the laparoscopic groups (p value = 1.04x10-7).

At one year post op %EBWL was 48% ± 19.7% (N=38) in the clamp group compared to 52% ± 13.6% (N= 75) in the single fire stapler group (p value = 0.215).

Conclusion

- This data supports that the single-fire stapler is safe and effective at sleeve gastrectomy creation.
- Use of the single fire stapler decreases operative time
- There may be a lower rate of de novo GERD using an anatomical approach compared to published data of up to a 20% de novo GERD rate using a free hand staple technique.

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