

ROBOTIC-ASSISTED SLEEVE GASTRECTOMY: EXAMINING THE ROLE FOR STAPLE LINE REINFORCEMENT



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Background

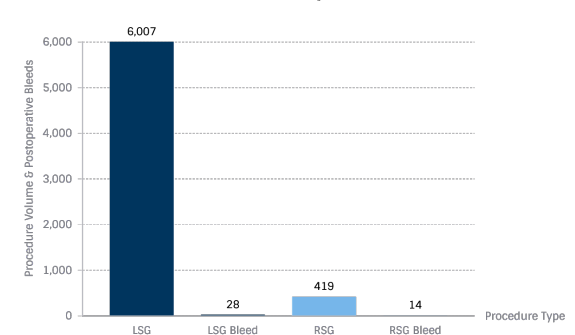
- The use of staple line reinforcement (SLR) during laparoscopic sleeve gastrectomy (SG) has been associated with a decreased incidence of post-operative bleeding complications.
- As more bariatric surgeries are transitioning to the robotic platform, the use of SLR has become less standardized as these reinforcements are not indicated while using the supplied stapler on this platform.
- We compared post-operative bleeding events between robotic and laparoscopic SG via a large national database, theorizing robotic procedures would be associated with an increased risk.

Table 1. Patient Demographics

	Laparoscopic SG	Robotic SG
30-44 years	978 (15.1%)	92 (1.4%)
45-64 years	3,422 (53%)	248 (3.8%)
65+ years	1,635 (25.3%)	82 (1.3%)
Female	4,415 (73.3%)	318 (4.9%)
Male	1,620 (25.1%)	104 (1.6%)
White	3726 (57.7%)	222 (3.4%)
Black	907 (14%)	61 (0.9%)
Hispanic	86 (1.3%)	*
Native American	18 (0.03%)	*
Asian	*	*
Other	57 (0.01%)	*
Unknown	1235 (19.1%)	130 (2%)
30 day Bleeds	28 (0.4%)	*

*Unknown number < 15

Laparoscopic vs. Robotic Sleeve Gastrectomy Bleeds



Methods

- Humana® insurance claims (22 million covered lives) from 2007 through 2017 were queried.
- Only patients undergoing elective primary SG with laparoscopic or robotic approaches were included.
- Patient Safety Indicator 09 (PSI-09) coding for post-operative hemorrhage and hematoma were analyzed with IRB approval.
- Chi-square analyses were used to calculate bleeding likelihood for robotic versus laparoscopic SG using R statistical software (version 3.42, 2017, R Project, Vienna, Austria).
- A multivariable regression model is currently being finalized.

Results

- Of the total 6,457 patients undergoing SG, 6035 were laparoscopic (93.4%) and 422 were robotic (6.6%).
- 4,733 patients (73.3%) were female, 1,724 (27.7%) were male.
- The majority of patients were white (57.7%).
- 53% more patients undergoing robotic SG developed a bleeding complication within 30 days post-operatively.
- This was not statistically significant (OR 1.53, 95% CI: 0.47-5.07, p = 0.73).

Conclusion

- The robotic approach for SG did not show a statistically significant increased risk of post-operative bleeding events.
- This can likely be explained by differences in technique seen during the evolution of the robotic SG. Initial forays into robotic assisted SG used an assistant port with laparoscopic stapler, and thus likely some element of SLR.
- After the introduction of the robotic stapler, SLR was not indicated and many abandoned this.
- Further investigation into the methods of SLR during robotic assisted SG are needed to tease out the significance of these findings and what, if any, SLR should be employed to decrease post-operative bleeding complications when this new approach is employed.