Robotic Sleeve Gastrectomy and Staple Line Leak and Bleeding: A Two Technique Comparison

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Background: In robot-assisted sleeve gastrectomy (RSG), staple line leaks and bleeding events can negatively impact postoperative outcomes, increase hospital costs, and worsen patient morbidity. While staple line reinforcement can mitigate these issues, there is no standard practice regarding operative technique.

Objective: Compare RSG outcomes between staple line oversew (SLO) with running absorbable 3-0 V-loc suture and staple line buttress (SLB) with polydioxanone staple line reinforcement (Echelon Endopath™)

Methods: A prospective comparative study over 32 months at a single institution, comparing SLO and SLB techniques in RSG. Patients with concomitant procedures other than hiatal hernia repair were excluded.

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	Oversew (n = 445)	Buttress (n = 73)
Age (years)	41 ± 11	37 ± 8
BMI	44 ± 10	46 ± 7
Operative Time (min)	51 ± 27	60 ± 18
LOS (days)	1.5 ± 0.6	1.4 ± 0.5
Staple Line Leaks	0	0
Stable Line Bleeds	5 (1.1%)	0 (0%)
Reoperations for Bleeding	2 (0.4%)	0 (0%)
Post Operative Morbidity	13 (3.0%)	2 (2.6%)
90 Day Readmission	14 (3.2%)	2 (2.6%)

All p-values between cohorts > 0.05

Results: 518 patients analyzed; 445 in the SLO group and 73 in the SLB group. No significant differences in patient characteristics including ASA score, operative times, or length of stay. No staple line leaks in either group. 1.1% staple line bleed in SLO group, no cases in SLB. Postoperative morbidity and 90-day readmission rates were similar.

Conclusions: No staple line leaks encountered in this cohort. Both SLO and SLB techniques resulted in equivalent outcomes, but the operative cost of SLB is significantly higher making SLO a cost-effective alternative for staple line reinforcement.