

Assessing the role of intraoperative upper endoscopy and intraoperative staple line leak test during laparoscopic sleeve gastrectomy in patients 17 and younger

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BACKGROUND

The routine use of intraoperative upper endoscopy (IOE) and intraoperative staple line leak test (IOLT) during sleeve gastrectomy (SG) is not a universal requirement but has long been considered a useful adjunct by many surgeons to inspect for leaks and bleeding. Most studies that have been published focus mainly on the role of these tools in the adult population. We aimed to determine if IOE and IOLT led to a decrease in postoperative complications following sleeve gastrectomy in the pediatric population.

METHODS

In this retrospective observational cohort study using the 2020 – 2023 MBSAQIP database, we identified pediatric patients who are 17 years and under and compared the outcomes in those who received IOE and/or IOLT with those who did not during primary laparoscopic sleeve gastrectomy.

Primary outcome was 30-day postoperative staple line leak (PSL). Secondary outcomes were procedure duration, as well as rates of other 30-day postoperative complications, which included gastrointestinal (GI) tract bleed, sepsis septic shock, organ space surgical site infection, reoperation, and readmission.

RESULTS

In the MBSAQIP database, a total of 1375 pediatrics patients underwent laparoscopic sleeve gastrectomy between 2020 and 2023. Of these, 21.75% were robotic assisted. The majority of these patients were between the ages 13 and 17 (96.65%).

Those who underwent an IOLT consisted of 55.7%, while 15.6% underwent an IOE. The operative length was 84.41±32.69 minutes vs. 72.27±35.46 minutes (P-value <0.0001) in those who underwent IOE vs. those who did not. For those who underwent an IOLT, the operative length was 79.71±35.08 minutes vs. 66.98±28.18 minutes (P-value <0.0001) in those who did not undergo IOLT.

	IOE (n=214)	No IOE (n=1161)	OR (95% CI)	P- Value
Staple line leak	0 (0.0%)	2 (0.17%)	N/A	0.54
Organ space surgical site infection	0 (0.0%)	3 (0.26%)	N/A	0.54
GI tract bleed	1 (0.47%)	3 (0.26%)	1.81 (0.19-17.50)	0.60
Sepsis	0 (0.0%)	0 (0.0%)	N/A	N/A
Septic Shock	0 (0.0%)	1 (0.09%)	N/A	0.67
Reoperation in 30 days	1 (0.47%)	2 (0.17%)	2.72 (0.25-30.14)	0.40
Readmission in 30 days	1 (0.47%)	31 (2.67%)	0.17 (0.02-1.26)	0.05

Table 1. Postoperative Adverse Events Occurrence Rates in Patients Who Underwent IOE Compared with Patients Who Did Not

	IOLT (n=747)	No IOLT (n=595)	OR (95% CI)	P- Value
Staple line leak	1 (0.13%)	1 (0.17%)	0.97 (0.82-1.15)	0.73
Organ space surgical site infection	1 (0.13%)	1 (0.17%)	0.90 (0.79-1.03)	0.12
GI tract bleed	1 (0.13%)	3 (0.50%)	0.26 (0.03-2.54)	0.22
Sepsis	0 (0.0%)	0 (0.0%)	N/A	N/A
Septic Shock	0 (0.0%)	1 (0.17%)	N/A	0.26
Reoperation in 30 days	2 (0.27%)	1 (0.17%)	1.59 (0.14-17.63)	0.70
Readmission in 30 days	9 (1.20%)	23 (3.87%)	0.30 (0.14-0.66)	0.0015

Table 2. Postoperative Adverse Events Occurrence Rates in Patients Who Underwent IOLT Compared with Patients Who Did Not

The overall adverse events following a laparoscopic sleeve gastrectomy was low, with PSL occurring in 2 (0.15%) patients, GI tract bleed occurring in 0.29% of patients, and reoperation in 0.22%. A chi-squared analysis did not find a statistically significant difference in PSL between the IOE and no IOE groups nor the IOLT and no IOLT groups (Tables 1 and 2).

However, a readmission within 30 days of the operation was found to be more likely statistically in patients who did not undergo IOLT on univariate analysis (3.87% vs. 1.20%, P-value 0.0015) (Table 2).

CONCLUSIONS

Despite the widespread practice of IOE and IOLT during SG, recent studies have shown that both practices may not be so beneficial in preventing PSL in the adult population^{1, 2}. However, they have been found to be protective in preventing other complications such as postoperative stenosis and GI tract bleed^{2, 3}.

In this study of pediatric patients undergoing SG, both IOE and IOLT significantly increased operative time, with the IOLT cohort having shorter operative times than the IOE cohort. While undergoing IOE was not associated with a statistically significant decrease in any of the postoperative adverse outcome listed in this study, patients who underwent IOLT had a significantly less chance of readmission within 30 days of surgery.

Overall, the rates of complications following SG is low, regardless of IOLT or IOE status. The roles of IOLT and IOE during SG in the pediatric population needs further investigation.

REFERENCES

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