



# 2020 Annual Meeting

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## 26. ENDOSTAPLER VS. ENDOLOOP CLOSURE OF THE APPENDICEAL STUMP IN LAPAROSCOPIC APPENDECTOMY: WHICH HAS BETTER OUTCOMES?

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**Background:** Laparoscopic appendectomy is one of the most common emergency general surgical procedures performed in the United States and has emerged as the standard operation for acute appendicitis. Endostaplers have been the traditionally used to transect the appendices base and mesoappendix. Using an endoloop is an alternate method that can be utilized for closure of the appendiceal stump – typically in conjunction with an energy source to transect the mesoappendix (ultrasonic energy or electrocautery) We compared outcome data of patients following laparoscopic appendectomy using either the endostapler or endoloop to ascertain if either method resulted in a difference in the length of procedure, hospital length of surgery, clinical outcomes or hospital charges.

**Methods:** All patient > 18 years who underwent laparoscopic appendectomy for acute appendicitis at a single tertiary institution between January 1, 2015 and December 31, 2018 were identified. Demographic data, surgical procedure length, hospital length of stay, readmission rates, complications and cost data were compared between both groups. Complications examined included postoperative ileus, superficial surgical site infections, intra-abdominal abscesses. Statistical analysis was performed using Mann-Whitney U Test and Chi-square testing as appropriate.

**Results:** Over the 4-year period, 500 patients were identified for the study. The endostapler was utilized in 277 patients and Endoloop in 223. There were no differences in age, gender or body mass index between both groups. (Table 1). No differences were noted in procedure length, readmission rates, complication rates (including intra-abdominal abscess) or hospital charges. There was a slightly shorter length of stay in the endoloop closure group (28.8 hours) vs endostapler (31.4 hours),  $p= 0.002$

**Conclusion:** The technique of appendiceal stump closure during laparoscopic appendectomy did not lead to any difference in procedure length, readmission rates, complications or hospital charges. There was a statistically significant shorter length of stay that resulted from the use of the endoloop, but this was not of clinical significance or relevance.

Neither technique of appendiceal stump closure demonstrated a unique advantage, and either method may be utilized depending on individual surgeon's preference. These findings may have more relevance in lower resource environments that do may not have ready access to surgical staplers

Table 1: Endostapler vs. Endoloop in Laparoscopic Appendectomy

	Endostapler Closure	Endoloop Closure	Statistical Test	p-value
Mean Age (years)	37.69	38.19	Mann-Whitney U Test	0.439
Male (%)	53.8%	54.3%	Chi-Square Test	0.917
BMI (mean)	30.20	29.61	Mann-Whitney U Test	0.313
Average Procedure Length (mins)	47.80	49.29	Mann-Whitney U Test	0.292
LOS (days)	1.31	1.20	Mann-Whitney U Test	0.002*
Charges (\$)	38,513.34	38,617.42	Mann-Whitney U Test	0.094
Readmission rate (30-day)	9.8%	13.5%	Chi-Square Test	0.200
Complications	8.3%	8.5%	Chi-Square Test	0.931
Intra-abdominal abscess	4.0%	4.5%	Chi-Square Test	0.776

\*Statistically significant