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VALIDATION OF AN ENDOSCOPIC ANASTOMOTIC GRADING SCORE AS AN INTRAOPERATIVE METHOD FOR ASSESSING STAPLED RECTAL ANASTOMOSES.

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Purpose/Background: Anastomotic leak is the dreaded postoperative complication in patients undergoing rectal anastomosis. An endoscopic grading score of the fresh perianastomotic mucosa has been developed and used at our institution to assess anastomotic integrity and to estimate the risk of anastomotic leak. The objective of this study is to further validate the UCI endoscopic anastomotic score and determine its impact in anastomotic failure after routine implementation at our institution.

Methods/Interventions: As a follow-up study after the prior prospective application of the UCI endoscopic grading score during 2011 to 2014, patients undergoing stapled rectal anastomoses by six colorectal surgeons at a single academic institution from 2015 to 2018 were retrospectively reviewed. Patients were stratified into three tiers based on flexible endoscopic score (Grade 1: circumferentially normal mucosa, Grade 2: ischemia/congestion < 30% of circumference, Grade 3: ischemia/congestion > 30% of circumference or on both sides of the staple line). Demographics and clinical outcomes in these patients were analyzed. Patients from the index study (2011 – 2014) were also included in statistical analysis.

Results/Outcome(s): A total of 318 patients underwent a stapled colorectal anastomosis with endoscopic anastomotic evaluation at our institution from 2011 to 2018. The levels of the colorectal anastomosis were measured to be < 5 cm (23.3%), 5-10 cm (29.6%), or > 10 cm (47.2%). Based on endoscopic mucosal evaluation, Grade 1 anastomosis was observed in 299 patients (94%), Grade 2 anastomosis in 14 patients (4.4%), and Grade 3 anastomosis in 5 patients (1.6%). All Grade 3 anastomosis were immediately revised intraoperatively with re-classification as a Grade 1 anastomosis. Anastomotic leak rate for the entire patient series from 2011 to 2018 was 6.9% (22 / 318). A Grade 2 anastomosis was associated with higher anastomotic leak rate compared to a Grade 1 anastomosis (35.7% vs. 5.7%, $p < 0.05$). None of the five Grade 3 revisions resulted in an anastomotic leak. Anastomotic leak rate in the follow-up study years 2015 – 2018 was significantly lower compared to the anastomotic leak rate in the index study years 2011 – 2014 (4.2% vs. 12.2%, $p < 0.05$).

Conclusions/Discussion: This study further validates the anastomotic grading score and suggests that its systematic implementation can result in a significant reduction in anastomotic leaks. Further studies and randomized trials are warranted to test this grading system at a national level.

Table.

	Grade I N = 304*	Grade II N = 14	p value
Operative Approach			
Laparoscopic/robotic	268 (88.2%)	12 (85.7%)	0.78
Open	36 (11.8%)	2 (14.3%)	0.78
Drain Use	152 (50.0%)	11 (78.6%)	0.04
Diverting Ileostomy	106 (34.9%)	9 (64.3%)	0.03
Anastomotic Level			
< 5 cm	68 (22.4%)	6 (42.9%)	0.07
5 – 10 cm	92 (30.2%)	2 (14.2%)	0.20
> 10 cm	144 (47.4%)	6 (42.9%)	0.74

* Grade 3 anastomosis (n=5) was converted to Grade 1 anastomosis. 60% of Grade 3 anastomosis were < 5 cm.