Bariatric surgery revisions versus emergencies at a high-volume referral center: experience and perspective from a rural community hospital

Rodolfo J. Oviedo, MD, FACS, FASMBS[1, 2, 3], Tapan Nayak, PhD[4], Jichong Chai, PhD[4], Zhuoxin Long, BS[4]

[1] Houston Methodist Department of Surgery, [2] Houston Methodist Academic Institute, [3] Texas A&M University College of Medicine

[4] George Washington University, Department of Statistics

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INTRODUCTION:

Bariatric surgery revisions and emergencies are associated with higher morbidity and mortality compared to primary bariatric surgery. However, outcomes are not frequently reported in the literature by rural community hospital accredited programs.

METHODS:

A retrospective chart review with IRB approval was conducted on 53 bariatric surgery revisions at a rural community hospital accredited program and compared to 61 emergencies performed by a single fellowship-trained metabolic and bariatric surgeon. The operations were performed from 2018 to 2020 at the surgeon's previous practice associated with this high-volume referral center in Winchester, VA, USA. Primary outcomes were 30-day morbidity and mortality. Secondary outcomes included intraoperative time, leaks, and intraabdominal abscess. A logistic regression analysis was conducted.

Table 2 –Secondary outcomes

Secondary outcomes:	Revision(N=53)		Emergency(N=61)		p-value
Intraoperative time (minutes) *	149.51(66.80)		89.44(45.24)		3.81E-07
EBL	83.21(199.43)		35.57(36.46)		0.09517
Length of stay (days)	4.84(7.39)		6.52(8.29)		0.2616
Post-op BMI (kg/m2)	31.91(7.96)		31.86(7.65)		0.9705
Change in BMI (BMI points) *	-4.86(5.78)		-2.63(6.07)		0.04923
	N	%	N	%	
Conversion to open	1	1.89	6	9.84	0.1199
Blood transfusion within 30 days	5	9.43	13	21.31	0.0828
Post op superficial SSI *	3	5.66	13	21.31	0.02815
Post op intra-abdominal hemorrhage/staple line bleeding	3	5.66	2	3.28	0.6622
Post op GI bleeding	1	1.89	1	1.64	1
Post op abdominal wall seroma *	1	1.89	18	29.51	6.70E-05
Post op abdominal wall hematoma	2	3.77	5	8.20	0.4468
Unexpected return to OR within 30 days	8	15.09	6	9.84	0.3936
Expected (staged) return to OR within 30 days	2	3.77	4	6.56	0.6839
Post-op SBO	3	5.66	5	8.20	0.7223
Post-op hollow viscus perforation	4	7.55	1	1.64	0.1817
Post-op endoscopy	16	30.19	13	21.31	0.2777
Anastomotic or staple line leak	1	1.89	1	1.64	1
Stricture requiring OR	2	3.77	1	1.64	1
Post op marginal ulcers	14	26.42	8	13.11	0.07269
Stricture requiring endoscopic balloon dilation *	8	15.09	0	0.00	0.00165
Post-op intraabdominal abscess	9	16.98	10	16.39	0.9331
Readmission within 30 days	10	18.87	10	16.39	0.729
ED visits within 30 days	15	28.30	17	27.87	0.9591
Infusion center visit for dehydration	5	9.43	4	6.56	0.7312
Post-op DVT/PE	1	1.89	2	3.28	1
C diff colitis	5	9.43	4	6.56	0.7312
Toxic megacolon	1	1.89	1	1.64	1
Post-op MI	2	3.77	1	1.64	0.5967
Post-op pneumonia	3	5.66	7	11.48	0.3342
Post-op AKI	6	11.32	14	22.95	0.1034
Subsequent surgery > 30 days	11	20.75	14	22.95	0.7774

Table 1 – Primary outcomes

Primary Outcomes	Revision(N=53)	Emergency(N=61)	p-value
30-day morbidity	19(35.85)	29(47.54)	0.2073
mortality	2(3.77)	1(1.64)	0.5967

Table 3 – Logistic regression analysis results

Covariate	Estimate	p-value
Revision	0.205	0.67138
Pre-op albumin < 3.5 g/dL	-1.489	0.00035***
Recent bariatric procedure within last 30 days	1.984	0.01052*
Prior revisional bariatric surgery	1.716	0.02212*
Prior DS	-2.541	0.01121*
Pre-op COPD	17.686	0.04554*
Open	16.607	0.07058.

(Significance codes: '***' 0.001, '**' 0.01, '*' 0.05, '.' 0.1)



RESULTS:

There were similar demographic risk factors in both cohorts. For revisions vs emergencies, the 30-day morbidity (35.8% vs 47.5%, p=0.2073) and mortality (3.8% vs 1.6%, p=0.5967) were not statistically significant. The mean follow-up was 5.1 and 6.2 months, respectively (p=0.1925). Statistically significant secondary outcomes for revisions vs emergencies included intraoperative time (149.5 vs 89.4 minutes, p<0.0001), superficial surgical site infection (SSI) (5.7% vs 21.3%, p=0.03), surgical site occurrence (SSO) (1.9% vs 29.5%, p<0.0001), and anastomotic stricture requiring endoscopic dilation (15.1% vs 0%, p<0.002). There were no differences for revisions vs emergencies in the rate of anastomotic leak (1.9% vs 1.6%, p=1) or intraabdominal abscess (17.0% vs 16.4%, p=0.9331). Logistic regression analysis showed the following predictive factors of higher morbidity: pre-operative albumin <3.5 g/dL (p=0.0003), recent bariatric procedure within the last 30 days (p=0.01), prior revisional bariatric surgery (p=0.02), prior duodenal switch (p=0.01), and pre-operative COPD (p=0.04).

CONCLUSION:

Bariatric surgery revisions and emergencies have similar morbidity and mortality in a high-volume rural community hospital. Revisions have a longer intraoperative time and higher anastomotic stricture incidence requiring endoscopic dilation, but lower incidence of SSI and SSO compared to emergencies. Factors associated with higher morbidity include prior revisional surgery, prior DS, pre-op COPD, abnormally low pre-op albumin, and recent bariatric procedure within the last 30 days.

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