Types and Management of Biliary Pathology During Cholecystectomy After Bariatric Surgery: A Single Institution Review

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Background

- The rapid weight loss and bile stasis associated with bariatric surgery portends an increased risk of gallstone formation that can lead to biliary issues.
- Choledocholithiasis is a particularly challenging problem in patients that have roux-en-y anatomy.
- This retrospective review aimed to examine the rates of biliary disease and management techniques at our institution.

Methods

- All patients who underwent bariatric surgery from 2012 to 2022 at our institution were abstracted.
- Patients that had their gallbladder removed after bariatric surgery were included.
- Demographic data including sex, age, body mass index prior bariatric surgery, type of bariatric surgery, time between bariatric surgery and cholecystectomy, and percent excess body weight loss at cholecystectomy were included.
- Specifics on the biliary procedures at time of cholecystectomy were tabulated including cholangiogram findings, need for endoscopic retrograde cholangiopancreatography or common bile duct exploration.
- Details about biliary procedures were compared between each surgery type.

Results

- **Of the 2357 total patients that previously underwent bariatric surgery at our institution, 195 (8.3%) subsequently underwent cholecystectomy after bariatric surgery.**
- The type of biliary pathology at the time of cholecystectomy included 12 patients (6.15%) with choledocholithiasis, three of which were RYGB patients and nine of which were SG patients; the type of biliary pathology between groups approached significance (p=.067)

Characteristics of Patients Undergoing Cholecystectomy after Bariatric Surgery

Type of Surgery	RYGB (±std)	SG (±std)	GB (±std)	
Average age (yrs)	43.77 (±11.06)	39.33 (±12.13)	36.67 (±14.47)	p = .012
Female (%)	86.0	88.9	33.3	p = .020
BMI at weight loss surgery (kg/m2)	44.59 (±6.19)	43.35 (±5.04)	50 (±5.70)	p = .135
Time since weight loss surgery (months)	18.80 (±21.90)	19.45 (±19.82)	14.19 (±9.38)	p = .682
BMI at cholecystectomy (kg/m2)	32.73 (±5.96)	33.331 (±6.63)	46.67 (±7.48)	p = .027
Percent eBWL at cholecystectomy (%)	51.71 (±18.48)	47.03 (±20.49)	13.00 (±8.88)	p = .007

*RYGB - roux en y gastric bypass; SG - sleeve gastrectomy; GB - gastric band; BMI - body mass index; eBWL - excess body weight loss

Biliary Pathology at Cholecystectomy after Bariatric Surgery

Total cholecystectomies	Total (%) 195	RYGB (%) 93 (47.69)	SG (%) 99 (50.77)	GB (%) 3 (1.54)
Cholelithiasis	156 (80)	81 (87.10)	72 (72.73)	3 (100)
Choledocholithiasis	12 (6.15)	3 (3.23)	9 (9.09)	0 (0)
Biliary dyskinesia	10 (5.13)	6 (6.45)	4 (4.04)	0 (0)
No cholangiogram	17 (8.72)	3 (3.22)	14 (14.14)	0 (0)

*RYGB - roux en y gastric bypass; SG - sleeve gastrectomy; GB - gastric band

Management of Choledocholithiasis in Bariatric Patients

	RYGB	SG
Total	**3**	**9**
Flushed	2	2
ERCP	0	5
CBDE	1	2

*RYGB - roux en y gastric bypass; SG- Sleeve gastrectomy; ERCP -endoscopic retrogradecholangiopanctreatography; CBDE - common bile duct exploration

Conclusions

The rate of choledocholithiasis after bariatric surgery is incredibly low, and in some cases has been successfully managed with avoidance of CBDE or ERCP via flushing the duct.