

# Is Routine Cholecystectomy Necessary at the Time of Roux-en-Y Gastric Bypass?

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**Background:** Morbid obesity is associated with an increased incidence of gallstones. Rapid weight loss, as occurs after Roux-en-Y gastric bypass (RYGBP) may also increase gallstone development. Standard surgical treatments for gallbladder disease and its complications might be more difficult following RYGBP. Controversy still exists whether prophylactic cholecystectomy is indicated at the time of RYGBP.

**Methods:** Retrospective analysis was performed on a database of 535 patients who underwent RYGBP for morbid obesity during a 5.5-year period. Patients were followed and medical records were reviewed. Ursodeoxycholic acid was not prescribed following surgery.

**Results:** 8% of patients had had cholecystectomy before the RYGBP. 75 of 492 patients (15%) were found to have gallstones at RYGBP, and cholecystectomy was performed at the same time. 3 of these patients had bile leaks but only 1 required further intervention (percutaneous transhepatic drainage for 3 weeks). Following RYGBP, 14 patients (3%) have required cholecystectomy for symptomatic cholelithiasis in the postoperative period. All were performed laparoscopically and without complication.

**Conclusions:** Symptomatic gallbladder disease after RYGBP has not been frequent. Prophylactic cholecystectomy for a normal gallbladder is not necessary at the time of RYGBP. Patients without biliary tract symptoms may not require routine preoperative sonogram. If an abnormal gallbladder or gallstones are found at the time of an RYGBP operation, concomitant cholecystectomy should be considered.

*Key words:* Morbid obesity, bariatric surgery, gastric bypass, gallstones

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## Introduction

There continues to be a controversy over whether routine prophylactic cholecystectomy should be performed during Roux-en-Y gastric bypass (RYGBP) surgery. Obese patients have an increased incidence of biliary tract disease.<sup>1</sup> Rapid weight loss, which occurs following RYGBP, further increases the risk of developing cholelithiasis.<sup>2,3</sup> Prophylactic treatment with ursodeoxycholic acid (Actigall<sup>®</sup>) for at least 6 months has been advocated by some investigators to prevent gallstone formation following bariatric surgery, but long-term compliance is difficult.<sup>4,5</sup> Others recommend that prophylactic cholecystectomy be performed at the time of RYGBP, given the high incidence of gallbladder disease found at surgery and on pathologic evaluation.<sup>6-8</sup> A selective approach using intra-operative ultrasound and selective cholecystectomy followed by prophylactic ursodeoxycholic acid has been advocated by some,<sup>9</sup> but compliance with the ursodiol was only 41%. Laparoscopic cholecystectomy in obese patients typically enjoys a similar conversion rate, complication rate and length of stay as in non-obese patients<sup>10,11</sup> and can be performed after RYGBP surgery if clinically indicated. It does appear that combined laparoscopic RYGBP with cholecystectomy is safe and feasible without altering port placement; however, it does increase operative time and hospital length of stay.<sup>12</sup> The present study was designed to determine the prevalence of gallstones among patients, the incidence of the development of symptomatic gallstone disease, and the complications related to the timing of the surgical therapy for biliary tract disease following RYGBP.

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## Patients and Methods

A total of 535 consecutive patients with indications for bariatric surgery according to the National Institutes of Health criteria for Bariatric Surgery were evaluated.<sup>13</sup> An additional 47 patients were excluded from the study due to incomplete data. The medical records of these patients were analyzed to determine prior gallbladder disease, biliary tract symptoms and subsequent biliary surgery. All patients with a history of epigastric pain had a preoperative right upper quadrant abdominal ultrasound. Open RYGBP was performed over a 5.5-year period by an individual surgeon (IML) at a single institution. Any patients lost to follow-up were not included in the study.

Ursodeoxycholic acid was not prescribed to any patients throughout the study period. Patients found to have evidence of chronic cholecystitis or gallstones at the time of bariatric surgery had concomitant cholecystectomy. Those patients who were found to have gallstones from the work-up or epigastric or abdominal discomfort following RYGBP were subjected to laparoscopic cholecystectomy.

Data were subjected to univariate and multivariate analysis. Chi-square analysis was utilized and a *P*-value <0.05 was considered statistically significant.

## Results

A total of 8% of the patients in the present study had had cholecystectomy before the RYGBP surgery. During the RYGBP, 15% of the patients required cholecystectomy because of the presence of gallstones and/or inflammation of the gallbladder. Two of these patients had transient bile leaks postoperatively that were managed without further intervention. One additional patient developed a cystic duct bile leak after the combined surgery that required transhepatic percutaneous drainage for 3 weeks, and then recovered without problems.

Patients were followed for a mean of 2.5 years (range 14-81 months). In the postoperative period, 3% of the patients have required cholecystectomy. All had their gallbladder removed laparoscopically. One required a laparoscopic common bile duct exploration. The patients tolerated their cholecystectomy without any morbidity or mortality. The devel-

opment of symptomatic gallstones following gastric bypass surgery was not related to age, gender, excess weight lost or preoperative BMI.

## Discussion

Gallstone disease is prevalent in the morbidly obese patient.<sup>1</sup> The incidence increases with rapid weight loss.<sup>2</sup> However, routine prophylactic cholecystectomy concomitant with RYGBP for all patients exposes them to increased operative time, hospital length of stay and potential complication. Cholecystectomy during open RYGBP can usually be done through the same incision. With laparoscopic RYGBP, an additional port may be placed in order to facilitate a cholecystectomy.<sup>4</sup> The present study suggests that the vast majority of patients who come to bariatric surgery without gallbladder disease will not develop symptomatic cholelithiasis. Those patients who do develop biliary tract disease, do not appear to have increased risks for the development of complications should they require laparoscopic cholecystectomy at a future date, at a time when they have generally lost considerable weight.

Cholecystectomy following RYGBP surgery may present some technical challenges to the surgeon. Adhesions that occur following foregut surgery could make laparoscopic visualization of the anatomy more difficult. In addition, with RYGBP it is much less feasible or impossible to perform endoscopic pancreatic cholangiopancreatography (ERCP) if needed, following the creation of the long Roux limb.

For these reasons, we advocate a selective approach to patients undergoing RYGBP. Patients who have evidence of biliary tract disease should undergo concomitant cholecystectomy at the time of RYGBP, even if asymptomatic. Prophylactic cholecystectomy during RYGBP is not supported by the present study. Patients may choose whether they wish to take ursodiol for 6 months, but compliance with this has been variable because many find that the pills are too large, cost too much, have bad taste or that the gastrointestinal side-effects are unacceptable. The present study suggests that patients may be counseled that post-RYGBP their risk for requiring cholecystectomy is not high if they choose not to take ursodiol.

## Conclusion

Routine prophylactic cholecystectomy at the time of RYGBP appears to be unnecessary because risk of symptomatic gallstone disease requiring cholecystectomy is low and can be performed laparoscopically without appreciable increase in morbidity.

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