

**LAPAROSCOPIC COMPLETION CHOLECYSTECTOMY FOR POST CHOLECYSTECTOMY SYNDROME**

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**ABSTRACT:** Partial cholecystectomy is usually performed with the aim of preventing bile duct injury and/or vascular injuries in situations where there is difficulty in performing cholecystectomy. Occasionally, such patients can become symptomatic due to recurrence or persistence of disease in the gallbladder remnant and may require further treatment. A case series of various presentations and follow up of nine patients who had undergone open partial cholecystectomy for symptomatic gallstone disease in the past. Of the 9 patients, 8 were symptomatic, and each of them was found to have a remnant of the gallbladder. Gallbladder remnant was removed in all of them laparoscopically, with resolution of the symptoms. One patient remained asymptomatic and is on regular on follow-up. So, although partial cholecystectomy is an accepted, safe option in difficult cases, these patients must be counselled regarding the recurrence of symptoms, and must be kept on follow-up. If symptoms develop, completion of cholecystectomy laparoscopically is a feasible option.

**KEYWORDS:** Partial cholecystectomy, subtotal cholecystectomy, post cholecystectomy syndrome, GB remnant.

**INTRODUCTION:** Cholecystectomy, either laparoscopically or by the conventional 'open' method, is considered to be the "gold standard" operation for gallstones, which provides relief of symptoms in a large majority of cases. At times, patients continue to experience upper gastrointestinal symptoms even after cholecystectomy, the so-called "post cholecystectomy syndrome", which can be distressing. A wide range of biliary as well as extra-biliary disorders can cause the "postcholecystectomy syndrome", biliary strictures, retained stones in the common bile duct, or stones in a long cystic duct or in a remnant of the gallbladder are important treatable causes in patients having persistent symptoms after cholecystectomy.<sup>[1]</sup>

A gallbladder remnant is sometimes left behind at the time of the initial operation, usually where partial cholecystectomy has been performed in difficult Calot's triangle, where the anatomy may be distorted by recurrent episodes of inflammation, adhesions or bleeding. In such a situation, dissection in the Calot's triangle can lead to major complications such as common bile duct and/or vascular injury. In such cases, it is a cuff of the gallbladder may be left near the Hartmann's pouch, removing the rest of the gallbladder as described by Lerner,<sup>[2]</sup> or Bornman and Terblanche,<sup>[3]</sup> after removing all stones from the remaining cuff of the gallbladder. Other types of subtotal cholecystectomy have been described wherein the gallbladder was opened at the infundibulum, as close to the junction of the gallbladder and cystic duct as is safely possible, and the gallbladder flaps sutured after destroying the mucosa.<sup>[4,5]</sup> In these cases, there is always a stump of the gallbladder left behind that can cause problems, especially if care is not taken to destroy the mucosa and remove any calculi prior to its closure. It should also be kept in mind, especially in patients who have undergone

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laparoscopic cholecystectomy that a long cystic duct is normally left behind, since safety lies in staying away from the common bile duct and applying clips close to the gallbladder–cystic duct junction.

We present a short series of patients who presented to us with a variable presentation of gallbladder remnants.

**MATERIAL AND METHODS:** The records of 9 patients who presented to us with gallbladder remnant after having undergone cholecystectomy were reviewed and analysed with respect to the time period between initial cholecystectomy and presentation, symptomatology, clinical features, findings on investigation and further management. The details of these patients are given in Table 1.

Sl. No.	Age	Sex	Initial Procedure	Presentation after surgery (months)	Clinical Features After Surgery	USG	ERCP	MRCP	Second Procedure	Operating time
1	25	F	Partial OC	12	Acute Cholecystitis	Solitary Calculus	-	-	LC	140
2	30	F	Partial OC	18	Obstructive Jaundice	Multiple Calculi in Distal CBD, GB remnant with multiple calculi	CBD cleared with stenting	-	LC	140
3	35	F	Partial OC	6	Recurrent biliary colic	Multiple Calculi	-	-	LC	150
4	39	M	Partial OC	18	Recurrent biliary colic	Multiple Calculi	-	-	LC	155
5	46	F	Partial OC	24	Acute Pancreatitis	Multiple Calculi	-	-	LC	160
6	52	M	Partial OC	20	Acute Cholecystitis	Multiple Calculi	-	-	LC	180
7	57	F	Partial OC	36	Colicky Pain	No Calculus	-	GB Remnant	LC	180
8	60	F	Partial OC	4	Recurrent biliary colic	Multiple Calculi	-	-	LC	190
9	65	M	Partial OC	8	Asymptomatic	Multiple Calculi	-	-	Follow up	-

**Table 1**

OC=Open Cholecystectomy.

LC=Laparoscopic Cholecystectomy.

**RESULTS:** The timing of presentation in our series varied from 4 months to 36 months. The common presentation was with recurrent attacks of upper abdominal pain (in 3 patients), with acute cholecystitis (in 2 patients) and pancreatitis (in 1 patient). One patient presented with transient jaundice after about 18 months of partial cholecystectomy. Ultrasound done at that time revealed a gallbladder remnant with multiple calculi in distal CBD. Laparoscopic cholecystectomy of GB remnant was done later on. The operating time varied from 140 to 180 minutes. One patient presented with colicky pain with no USG documented calculus but MRCP revealed GB remnant. One patient remained asymptomatic despite multiple calculi in GB remnant and was put on long term follow up without further surgical intervention.

**DISCUSSION:** Partial cholecystectomy is often performed in cases where difficulty is encountered during surgery is an important cause of persistence of symptoms after surgery, especially if not performed correctly. However, it can present later either as (i) a long cystic duct stump, where the stump is longer than 1 cm, or (ii) as a gallbladder remnant, which is defined as “a wider part of the

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free end of the remnant cystic duct, giving the impression of a diminutive gallbladder.”<sup>1</sup> In practice, however, it is difficult to distinguish between these two conditions even on histological examination,<sup>6</sup> though they have been implicated as a cause of post-cholecystectomy symptoms in approximately 1%–25% of patients undergoing surgery for post-cholecystectomy symptoms.<sup>[7-9]</sup> It is not clear from the existing literature as to what is the natural history of these gallbladder remnants over a period of time, but there seems to be a trend towards surgical intervention in symptomatic patients. It could be concluded that the presence of a long cystic duct stump or a gallbladder remnant (With or without calculi) on investigation, in patients with persistent post-cholecystectomy symptoms definitely demands surgical intervention, especially when a stone is present.<sup>[1,9-12]</sup>

We could not come across any reports about the outcomes of conservative management of patients with postcholecystectomy remnant and persistent symptoms. One of our patients was managed with completion cholecystectomy after clearance of CBD calculi by ERCP.

The presentation of a gallbladder remnant can be variable not only in terms of clinical features, but also in relation to the time interval after cholecystectomy.<sup>1,10-14</sup> These patients can remain asymptomatic,<sup>1,13,14</sup> or they can present with acute symptoms (biliary colic, acute cholecystitis or acute pancreatitis) or chronic symptoms (persistent right upper quadrant discomfort or pain, food intolerance, nausea or jaundice).<sup>1,8-14</sup> Although there are no pathognomic symptoms, the persistence of symptoms after cholecystectomy should alert the clinician to the possibility of a gallbladder remnant, especially when coupled with radiation of pain to the shoulder, food intolerance, nausea or jaundice.<sup>1,15</sup> Similarly, the timing of presentation is also very variable, with patients presenting at any time between less than 1 year and up to 25 years after cholecystectomy.<sup>1,16</sup>

Ultrasound examination of the abdomen is usually the first line of investigation for patients who present with abdominal symptoms, but may not be able to pick up the remnant unless it is of a large size, or has calculi within it.<sup>10</sup> In such a situation, where there is a history of previous cholecystectomy along with persistence or re-appearance of symptoms, but negative findings on ultrasound, it may be prudent to use other modalities such as MRCP and endoscopic ultrasound (EUS) which would show the findings of a cystic lesion in the extrahepatic biliary tree, biliary sludge, common bile duct calculi and the status of the pancreas.<sup>1,10,11,16</sup> ERCP is recommended only in situations where some intervention is contemplated.<sup>1,10,16</sup> The treatment of patients with gallbladder remnants who are symptomatic is excision of the remnant — the so-called “re-cholecystectomy”, or “completion cholecystectomy”,<sup>1,10,11,14-17</sup>

This can be performed either laparoscopically,<sup>1,10,11,14,17</sup> or by open technique, We preferred the laparoscopic approach despite anticipating dense adhesions and distorted anatomy in the region. Multiple dense adhesions can make revision surgery difficult. However, if the surgeon is experienced in laparoscopy, this surgery can be performed laparoscopically; it is no longer a contraindication. Ultimately, laparoscopic completion cholecystectomy is a promising approach with faster recovery and less postoperative pain.

These cases underwent ‘recholecystectomy’ despite dense intra-abdominal adhesions as well as adhesions in the Calot’s triangle, obscuring the anatomy. To conclude, although all patients with gallbladder remnants or long cystic duct stump do not develop symptoms, patients who undergo partial cholecystectomy, especially when the gallbladder flaps have been sutured together, must be counselled about the development of symptoms and followed up regularly and completion laparoscopic cholecystectomy is a feasible treatment for the same even in a resource poor set up.

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