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The outcome of laparoscopic subtotal cholecystectomy in difficult cases – A case series

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ABSTRACT

INTRODUCTION: Laparoscopic subtotal cholecystectomy (LSC) is a widely used technique for managing cholelithiasis with severe cholecystitis. The increasing popularity its utilization is due to the good safety profile and acceptable results. This case series evaluates the short- and long-term results of Indonesian patients who underwent LSC with an objective to determine whether the procedure can be a standard approach for difficult cholecystectomy in our institution.

PRESENTATION OF CASE: Thirty-four Indonesian patients (26 men, 8 women) with the mean age of 54.6 years (median 54 years, range 30–84 years) who underwent LSC were retrospectively analyzed. Nineteen patients are suffering from type II diabetes mellitus and fourteen patients with suspected choledocholithiasis underwent ERCP prior to LSC. The major postoperative diagnosis was acute cholecystitis (16 patients), followed by gallbladder empyema (10 patients), chronic cholecystitis (5 patients), history of cholangitis (1 patient), Mirizzi's syndrome (1 patient) and stone retention post-ERCP (1 patient).

DISCUSSION: The mean operating time was 158 minutes (median 150 minutes, range 60–240 minutes), mean length of hospital stay of 4.6 days (median 3 days, range 2–33 days) and drain usage for 3.6 days (median 3.0 days, range 1–19 days). Postoperatively there was one case of bilioenteric fistula, one case of stone retention and two cases of prolonged upper gastrointestinal symptoms. There is no case of biliary leakage, peritonitis or wound infection.

CONCLUSION: The outcome of LSC in this case series is comparable with other publications showing a general favorability of LSC. Further studies are needed to elucidate the clinical benefits of several LSC technical points such as stump closure, posterior wall diathermy and drain usage. Based on this preliminary finding, LSC can be applied as a standard procedure for difficult cases in our institution.

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1. Introduction

Laparoscopic cholecystectomy (LC) is the gold standard treatment for symptomatic cholelithiasis. The procedure is associated with less operative complications and shorter hospital stay compared to conventional cholecystectomy [1,2]. In the early years of LC, acute cholecystitis and concurrent liver cirrhosis are considered as relative contraindications. Inflamed gallbladder and extended fibrosis around the hepatocystic triangle increases the chances of vascular and bile duct injury. Such condition usually prompts conversion to open cholecystectomy to avoid debilitat-

ing complications [3–5]. With increasing expertise and advances in laparoscopic technology, acutely inflamed gallbladder is now routinely operated laparoscopically. Laparoscopic subtotal cholecystectomy (LSC) is widely used procedure that can be utilized for severe cholecystitis. Numerous publications reported its feasibility, safety, and acceptable results [6–12]. Compared to open cholecystectomy, LSC were associated with less postoperative pain, shorter hospital stay and smaller risk of incisional hernia [6,7]. This case series evaluates the short- and long-term results of Indonesian patients who underwent LSC with an objective to determine whether the procedure can be a standard approach for difficult cholecystectomy in our institution. This work is reported in accordance with the PROCESS guideline [13].

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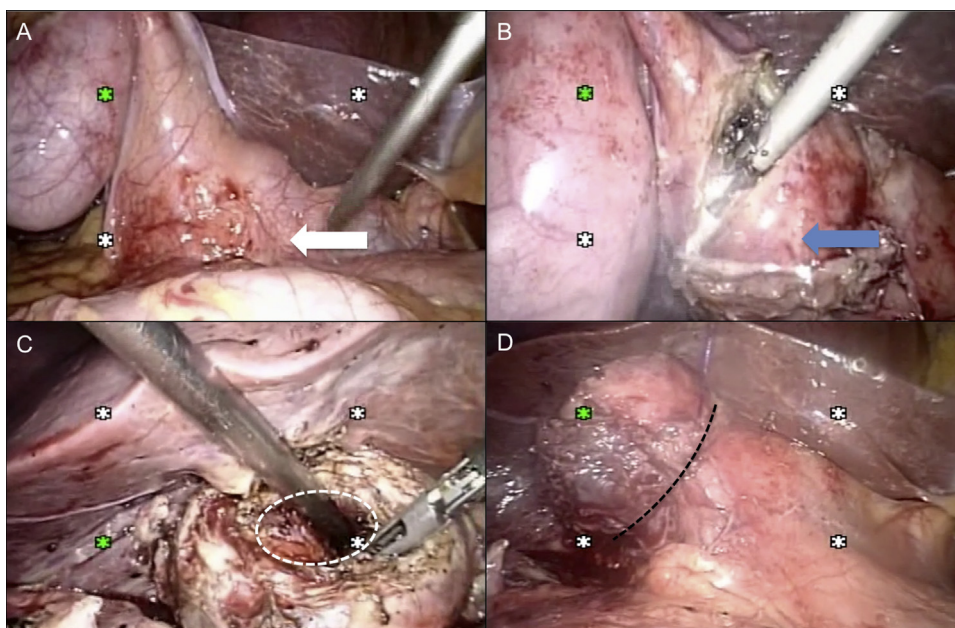


Fig. 1. Laparoscopic subtotal cholecystectomy operative technique. (A) Significant omental adhesions surrounding the hepatocystic triangle (white arrow). (B) Dissection of gallbladder distal to the Hartmann's pouch (blue arrow). (C) Gallstones extracted from the lumen of remnant gallbladder (traced with white-dotted line) followed by cauterization of mucosal surface. (D) Ligation (traced with black dotted line) of remnant gallbladder stump distal from the cystic duct and common bile duct.

2. Presentation of case

We conducted a retrospective study involving all patients who underwent LSC from January 2011 to December 2014 at the Cipto Mangunkusumo Hospital (academic), Medistra Hospital (private), and Metropolitan Medical Centre (private) in Jakarta. In total, there are 548 cases of LSC within the selected timeline. We identified 37 difficult cases where LSC was initially attempted. Open conversion was performed in one patient with histopathologically confirmed gallbladder malignancy. Two patients who were unable to be contacted were excluded from this report. Thirty-four patients described in this case series all suffered from symptomatic cholelithiasis with anatomical difficulties. Laparoscopic subtotal cholecystectomy was the first alternative approach considered in all cases. The decision to perform LSC was made intraoperatively by two board-certified digestive surgeons. No operating time limit was set for when LSC was performed, rather it was decided based on the severity of inflammatory adhesions and when further efforts of obtaining the critical view of safety (CVS) were considered too risky.

The operative technique starts with the dissection of the gallbladder peritoneal surface distal (anterior) to the Hartmann's pouch (Fig. 1). Gallbladder contents were evacuated manually, suctioned and irrigated. With better manipulation of the flaccid gallbladder, the excision of both anterior and hepatic gallbladder surface (posterior) was extended to the fundus. The posterior wall is left *in situ* in some cases with severe inflammation. Efforts were made to separate the proximal posterior wall from the liver towards the cystic duct to create an adequate circumferential stump to be ligated with Endoloop® PDSII (Ethicon). If this step was not attainable, the opening was either sutured in interrupted fashion using 2/0 Vicryl® (Ethicon) or left open if the stump is “dry”. Attention is given during stump closure to avoid inadvertent impingement of the main biliary tree. The remnant gallbladder mucosal surface is cauterized with diathermy along with any remaining posterior wall before closure. The operation is finalized by inserting one 18 Fr silicone drain into the subhepatic space for postoperative monitoring.

Perioperative outcomes were acquired from medical records that include operation duration, length of hospital stay, days of drain usage, bile leakage, bile peritonitis, and wound infection. All patients were instructed to return for outpatient control within 4 weeks after hospital discharge to undergo evaluation for possible stone retention. One general surgery resident queried long-term outcome at least three month postoperatively for persisting gastrointestinal symptoms such as dyspepsia, bloating, jaundice and upper abdominal pain.

A total of 34 patients (26 men, 8 women) who underwent LSC were identified with the mean age of 54.6 years (median 54 years, range 30–84 years). Nineteen patients are suffering from type II diabetes mellitus and endoscopic retrograde cholangio-pancreatography (ERCP) was performed preoperatively in fourteen patients with suspected choledocholithiasis. The major postoperative diagnosis was acute cholecystitis (16 patients), followed by gallbladder empyema (10 patients), chronic cholecystitis (5 patients), cholecystolithiasis with history of cholangitis (1 patient), Mirizzi's syndrome (1 patient), and stone retention post-ERCP (1 patient). On average LSC was completed in 158 minutes (median 150 minutes, range 60–240 minutes), with mean length of hospital stay of 4.6 days (median 3 days, range 2–33 days) and drain usage for 3.6 days (median 3.0 days, range 1–19 days). No case of biliary leakage, peritonitis or wound infection was reported.

Three months post LSC two patients suffered from prolonged dyspepsia, bloating, nausea and upper abdominal pain without ultrasonographic evidence of stone retention. Both patients were treated conservatively and their symptoms resolved gradually over the next three months. Free intraperitoneal air with significant drain production was found in one non-diabetic 48-year-old female 3 days postoperatively. Bilioenteric fistula resulted from chronic cholecystitis was determined to be the etiology of this case. She was treated conservatively with broad-spectrum antibiotic and discharged after 33 days of hospitalization and 19 days of drain use without long-term adverse outcome.

There was one case of asymptomatic stone retention discovered ultrasonographically during outpatient control within a month post

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