ABSTRACT

Background: Acute episodes of gallstone-related diseases have traditionally been managed conservatively. In the event of gallstones obstructing the common bile duct, patients had endoscopic extraction of calculi with interval cholecystectomy after 4 weeks to 6 weeks when acute inflammatory changes have subsided. This placed the patient at risk of recurrent cholecystitis, pancreatitis, or other complications of cholelithiasis.

Methods: Patients presenting with acute gallstone-related diseases were investigated and underwent laparoscopic cholecystectomy during the same admission according to a predetermined treatment protocol.

Results: All patients (119) treated according to the study protocol had good results, with no 30-day mortality and no biliary tract injuries. One patient had bleeding from the cystic artery, and 6 patients required conversion to open cholecystectomy.

Conclusion: Growing expertise in laparoscopic cholecystectomy has made it possible for surgeons to perform safe cholecystectomy in the presence of acute gallstone-related disease. Our experience of managing gallstone disease with prompt cholecystectomy during the index admission shows that this approach provides better, safer, and more cost-effective patient care.

Key Words: Gallstones, Acute disease, Laparoscopic cholecystectomy.

INTRODUCTION

Gallstones are a major source of morbidity. In addition to acute cholecystitis, jaundice from choledocholithiasis, cholangitis and gallstone pancreatitis can all occur. It has been traditional practice to deal initially with acute obstruction of the bile ducts with gallstones and wait for a variable period of 4 weeks to 6 weeks before performing definitive surgery. Various studies have identified that deferring cholecystectomy may result in recurrent disease often with progression to complications. We report our experience in managing gallstone-related conditions definitively at the first admission by tackling the obstructing gallstone and the gallbladder. We believe this aggressive approach has been a definite benefit to the patients and to the running of our District General Hospital.

METHODS

Patients needing emergency admission with signs and symptoms suggestive of gallstone-related diseases, underwent blood investigations, with complete blood counts (CBC), urea, creatinine, electrolytes, liver function tests including bilirubin, aspartate transaminase (AST), alkaline phosphatase (ALP), and serum amylase levels. All patients underwent ultrasonography (US) of the abdomen to confirm the diagnosis, and to look for dilatation of the common bile duct (CBD). Patients with suspected CBD stones based on elevated liver enzymes or dilated CBD on US, were further investigated by magnetic resonance cholangiopancreatography (MRCP) or endoscopic retrograde cholangiopancreatography (ERCP).

Patients were started on supportive management with analgesia, intravenous fluid therapy and if required, antibiotics. Patients were treated for their gallstone-related conditions as outlined in Table 1.

Patients were observed postoperatively for relief of symptoms. Our team treated all patients, and data were collected prospectively.

RESULTS

The protocols (Table 1) were applied to 119 patients who presented to our hospital with acute gallstone-related dis-
ease over the last 4 years. The male to female ratio was 1:2.7 as expected with the higher incidence of gallstone disease in women. The median age of patients was 54 years (range, 17 to 92). Ultrasonographic evidence revealed cholecystitis in 64 patients (53.8%). Ten patients (8.4%) had CBD stones. The CBD was dilated in 18 patients (15.1%) with no clear indication of duct stones on ultrasonography. Ten patients (8.4%) had gallstone pancreatitis. The median time to laparoscopic cholecystectomy (LC) was 3 days (range, 1 to 27). All patients with acute cholecystitis were operated on within 96 hours. Surgery was delayed in patients with pancreatitis or CBD stones but was performed during the same admission as soon as patients were ready for LC.

Patients did well with LC with no 30-day mortality and an overall morbidity (30-day morbidity) of 4.20% (5 patients). The median time to discharge after LC was 2 days (mean days, 3.1; range, 1 to 15). There was only 1 readmission for missed CBD calculus, which was removed at ERCP. No bile duct injuries or biliary leaks occurred. Bleeding from the cystic artery was encountered in 1 patient during the primary procedure. We had to convert to open surgery in 6 patients (5.04%). All conversions were due to extensive adhesions and frozen Calot’s triangle. Apart from 1 patient who developed postoperative lung infection and one who had an exacerbation of atrial fibrillation, none of the patients had any postoperative complications and experienced an uneventful recovery. These patients were discharged after 1 follow-up visit.

**DISCUSSION**

The conservative approach to management of symptomatic gallstone disease has many shortcomings. Principal among these are the duration for which the patient has to live with the disease and the ever-present danger of disease progression and complications, recurrence of attacks in the interval period with the need for repeated readmissions, and prolonged suffering. Mild gallstone pancreatitis without complications should have definitive management of lithiasis (cholecystectomy and bile duct clearance if necessary), ideally within 2 weeks and no longer than 4 weeks.

Repeated attacks of cholecystitis make future surgery difficult by causing adhesions between the gallbladder and adjoining viscera and omentum. Intense dense fibrosis in the region of Calot’s triangle increases the rate of conversion to open cholecystectomy and results in a higher incidence of iatrogenic injury to the biliary tree and local vascular structures.

Various authors over the years have commented on the ease of dissection through an acutely inflamed Calot’s triangle and gallbladder. The edema fluid facilitates sep-
Arteriation of tissue planes in the first 48 to 72 hours of acute inflammation before fibrin formation begins.2–4,7–11 This understanding coupled with the ability of the laparoscopic surgeon to attempt cholecystectomy without a large incision and without the obligation of committing oneself to completion in the event of technical difficulties, prompted many laparoscopic surgeons to undertake cholecystectomies in patients with acute attacks of cholecystitis. We extended this concept to include management of all gallstone-related disease because the main concern has been the safety of performing cholecystectomy during active disease.

In our series, we performed LC during the index admission. Our procedure-related morbidity was lower than that quoted in the literature and meta-analyses for interval LC.2–4,7–11,13,14 Our conversion rate of 5% was comparable if not lower than that reported in studies for interval LC.2,11,12,14

Various studies have reported that 20% to 28% of patients awaiting cholecystectomy after an acute episode of gallstone-related disease require readmission due to recurrent disease and symptoms.1,2,4,6 Reports exist of disease progression and complications developing in the interval period. No definitive measure is available of low-grade persistent symptoms related to gallstones in the interval period, which patients endure without making a formal complaint. No increased morbidity occurred in elderly patients.13

The protocol of performing LC and CBD exploration if necessary at the index admission offers a definitive solution to the patient's gallstone-related problems.14,15 There is almost no need for readmissions for gallstone-related problems, and patients need fewer outpatient visits.15 There is an immense psychological benefit to the patient who is spared the proverbial “Damocles Sword” of potential exacerbation of the disease. This benefits the National Health Service in the long run with fewer admissions and outpatient appointments.15

**CONCLUSION**

LC with endoscopic clearance of the CBD where indicated, during the index admission of an acute episode of gallstone-related disease provides efficacious patient care. It is safe and cost-effective. In the hands of an experienced team, no increase occurs in morbidity or mortality. Conversion rates to open surgery remain comparable to those with interval LC.

We believe our protocol results in reduced morbidity and mortality for patients and at the same time saves the National Health Service resources by preventing prolonged illness and readmissions for the same problem. It also prevents buildup of scheduled cases on the National Health Service waiting lists. Given the relative commonness of this condition, the overall benefit can be significant.

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