

Management of Gallstone Pancreatitis: Effects of Deviation from Clinical Guidelines

Kevin Sargen, Andrew N Kingsnorth

Department of Surgery, Plymouth Postgraduate Medical School, Derriford Hospital. Plymouth. United Kingdom

ABSTRACT

Context Recently published management guidelines for acute pancreatitis provide a standard against which practice can be measured. Specifically it is recommended all patients with gallstone induced pancreatitis have definitive clearance of gallstones within four weeks.

Objective To determine if practice in our institution followed these guidelines and to analyse the effects of delayed clearance of gallstones.

Methods Seventy-six consecutive patients with gallstone pancreatitis presenting within a 15 month period were prospectively studied to compare management with national guidelines and to determine rates of recurrent biliary-pancreatic disease due to delay in clearance of gallstones.

Results Only 5 of 76 patients (6.6%) had operative removal of gallstones within four weeks of their episode of acute pancreatitis. Only 34 of 76 patients (44.7%) had their gallstones removed during the follow up period (minimum 8 months). Fourteen of 76 patients (18.4%) had unplanned readmissions to hospital with biliary-pancreatic disease, necessitating a total of 135 days in hospital.

Conclusions It is clear from this study that guidelines for the management of gallstone acute pancreatitis are not being met, resulting in high rates of readmission with related disease.

INTRODUCTION

Acute pancreatitis is a common disease with considerable morbidity and mortality [1, 2, 3]. Epidemiological data on the disease is sparse and inconsistent, but there is general agreement that the incidence in industrialised countries is approximately 10-20 per 10⁵ population [2, 3]. Acute pancreatitis has a varied aetiology, gallstone disease and alcohol predominating amongst identifiable causes. In the UK the reported incidence of gallstone pancreatitis has been variable. Studies report that biliary stone disease accounts for 30 to 50% of cases of acute pancreatitis [2, 4, 5, 6].

Although the number of patients with gallstones developing acute pancreatitis is small [7], it is clear that even stones less than 5 mm in diameter increase the risk of presenting with acute pancreatitis four fold [8]. Furthermore it is recognised that the risk of acute pancreatitis in patients with biliary stone disease is reduced to that of the normal population following removal of the gallbladder and its stones [7].

Recognised management of acute gallstone pancreatitis is to ensure that any choledocholithiasis is diagnosed and cleared, with definitive eradication of gallstones by cholecystectomy. Endoscopic retrograde cholangio-pancreatography (ERCP) can be used to diagnose and clear

choledocholithiasis, but eradication of gallstones is by cholecystectomy (laparoscopic or open) in patients who are fit for surgery. Choledocholithiasis can be excluded or confirmed and treated at the same time as cholecystectomy if surgical exploration of the bile duct is undertaken.

Recent years have seen the publication of national disease management guidelines produced by sub-specialist groups and endorsed by other interested national organisations. The management of acute pancreatitis is the topic of one recent publication [9]. Within the document several key recommendations are made relating to gallstone pancreatitis. One of these is the recommendation that all patients with mild acute pancreatitis due to cholelithiasis should have definitive eradication of gallstones by cholecystectomy (with bile duct clearance if required) ideally within two and no longer than four weeks following their episode of acute pancreatitis, to prevent recurrence of disease.

Recently published evidence suggests that delay in the definitive treatment of gallstones causing pancreatitis is commonplace in the UK. A prospective audit of the management of 186 patients (including 62 with gallstone pancreatitis) presenting over one year in the South of England showed that only 33% had treatment of cholelithiasis within the suggested four weeks [10].

However it is not clear to what extent such delay affects rates of recurrent biliary-pancreatic disease in this group of patients.

This survey was undertaken to determine how current practice within an acute surgical unit in the UK measured up to the national guidelines and to examine rates of recurrent biliary-pancreatic disease should there be any delay in eradication of gallstones.

PATIENTS AND METHODS

Seventy-six consecutive patients admitted within a 15-month period with an episode of gallstone pancreatitis were identified and prospectively studied. They were followed up for a mean of 19.4 months (minimum of 8 and

maximum 25 months) to identify episodes of recurrence of biliary-pancreatic disease requiring hospital admission. The follow up period ended in June 1998.

Mean age at presentation was 59.6 years (range 18-93 years).

The criteria for diagnosis of acute pancreatitis were: a clinical history consistent with the disease, appropriate radiological evidence, and a serum amylase level greater than 660 U/L (Hitachi 911, Hitachi Corporation, Japan; normal range less than 220 U/L). Aetiology of acute pancreatitis was classified as being due to gallstones in the presence of appropriate radiological or ERCP findings.

The progress of individuals with regard to development of complications was monitored during their disease episode, enabling patients to be classified as having mild disease or severe local or systemic disease according to criteria defined by the Atlanta convention [11].

The first admission of a patient with proven gallstone pancreatitis was classified as the index admission. Length of index admission (days), time in weeks from admission to endoscopic intervention (ERCP and sphincterotomy), or definitive operative clearance of gallstones (cholecystectomy) were recorded. The occurrence of episodes of readmission with pancreatic or biliary disease were also recorded.

STATISTICS

Data were analysed using simple descriptive statistics.

ETHICS

This was an observational study. All patients were managed in accordance with normal clinical practice. No informed consent was obtained.

RESULTS

The mean length of hospital stay on the initial (index) admission was 9 days (range 1-57 days). Fifteen patients (19.7%) were classified

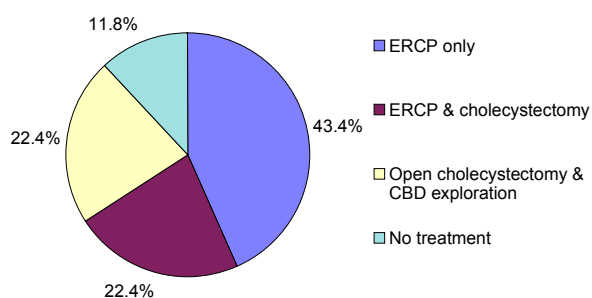


Figure 1. Management of gallstone pancreatitis (n=76).

ERCP only (n=33, 43.4%). 82.0% of patients who had an ERCP underwent this procedure during their admission with acute pancreatitis.

ERCP and laparoscopic cholecystectomy (n=17, 22.4%). Average time to definitive clearance of gallstones 14.2 weeks (range 4-33 weeks).

Open cholecystectomy and CBD exploration (n=17, 22.4%). Average time to definitive clearance of gallstones 13.4 weeks (range 3-30 weeks).

No treatment (n=9, 11.8%). This group had no treatment of cholelithiasis/choledocholithiasis. This includes 2 patients who died during their acute disease episode.

as having severe disease according to the Atlanta convention classification [11].

Sixty-seven of 76 patients (88.2%) had either ERCP, ERCP followed by laparoscopic cholecystectomy or open cholecystectomy and common bile duct (CBD) exploration. Thirty-three of the 76 patients (43.4%) who had an ERCP and sphincterotomy did not have definitive clearance of stones during the follow up time period.

Only a small proportion of patients (9 patients, 11.8%), had no treatment at all of choledocholithiasis. This group consisted of 4 patients with severe disease and 5 with mild disease and included 2 patients who died from their acute disease at 3 and 16 days. Three of the patients were considered too obese for safe surgery and 2 had chronic respiratory disease. The 2 other patients who had no treatment of cholelithiasis were discharged from hospital with no plans for such treatment, and no arrangements were made for treatment at subsequent follow up by the clinicians concerned.

The management of chole(docho)lithiasis in the study patients with acute pancreatitis is summarised in Figure 1.

Endoscopic Retrograde Cholangio-Pancreatography

Fifty of 76 patients (65.8%) had an ERCP. Forty-one patients (53.9%) had an ERCP during their initial (index) admission. Two of these patients did not have a sphincterotomy due to technical difficulties. The other 9 (11.8%) patients had an ERCP after their episode of acute pancreatitis, taking place an average of 9.2 weeks following the initial illness (range 1-21 weeks).

Thirty-three of the 76 patients (43.4%) who had an ERCP and sphincterotomy did not have definitive clearance of stones during the follow up time period. Only 3 were considered too unfit for surgery, due to obesity (2), and chronic cardiac disease (1) but this still leaves 30 of 76 (39.5%) who did not have gallstones cleared.

Cholecystectomy following ERCP

Cholecystectomy was performed in only 17 of 76 patients (22.4%) following ERCP during the follow up period of this study. All these were done laparoscopically. One patient had definitive eradication of stones by laparoscopic cholecystectomy during their initial admission episode (length of stay: 2 weeks). In the others, average time from initial disease episode to cholecystectomy in this group of patients who had had ERCP was 14.2 weeks (range 4-33 weeks). Patients waited an average 10.6 weeks (range 3-24 weeks) following their ERCP for eradication of gallstones by cholecystectomy.

Open Cholecystectomy and CBD Exploration

Seventeen of 76 patients (22.4%) underwent open cholecystectomy with CBD exploration. This group waited an average of 13.4 weeks (range 3-30 weeks) from their initial disease episode to operation. Only one of these 17 patients had surgery during the index admission with acute pancreatitis. The other 16 were readmitted for their surgery.

Severity of disease did not affect the waiting times for clearance of gallstones, either following ERCP or during open cholecystectomy with CBD exploration.

Application of Guidelines (Definitive Clearance of Gallstones within 4 Weeks)

The 76 patients can be subdivided into groups according to actual application of the guidelines and whether guidelines could have been applied.

Group 1. Guidelines applied - Only 5 (6.6%) of 76 patients had definitive clearance of gallstones within 4 weeks from admission with their episode of gallstone pancreatitis.

Group 2. Suitable for application of guidelines, but gallstones cleared more than 4 weeks from admission - A further 29 of 76 patients (38.2%) had their gallstones removed during the follow up period (minimum 8 months).

Group 3. Suitable for application of guidelines, but gallstones not cleared - Thirty-two patients (42.1%) did not have definitive clearance of gallstones during the follow up period of this study. Thirty of these had an ERCP and 2 had no treatment at all of choledocholithiasis.

Group 4. Considered too unfit for surgery - Ten patients (13.2%). Three of these patients had an ERCP and sphincterotomy. The group includes 2 who died, 5 morbidly obese patients, one with chronic cardiac disease, and 2 with chronic respiratory disease.

Unplanned Readmission with Biliary-Pancreatic Disease

Fourteen of 76 patients (18.4%) were readmitted as emergencies with biliary-pancreatic disease after discharge from hospital after their episode of gallstone pancreatitis. All but one of the readmissions was in the group with mild acute pancreatitis. Seven patients (9.2%) were readmitted to hospital with acute pancreatitis within 2 to 22 weeks following their index admission (mean 8.9 weeks). One of these was readmitted twice, once with acute pancreatitis, and once

with acute cholecystitis over the course of 13 weeks. Five of these patients had had a previous ERCP. Four other patients were readmitted with biliary colic (5.3%), within a mean time of 3 weeks (range 2-4 weeks). Three other patients were also admitted with acute cholecystitis (3.9%), within a mean time of 6 weeks (4-9 weeks).

These unplanned readmissions necessitated a total of 135 days in hospital (mean 9.6 days, range 3-29 days).

Planned Readmissions

Nine patients were readmitted for ERCP, 16 were readmitted for laparoscopic cholecystectomy, and 16 were readmitted for open cholecystectomy plus/minus CBD exploration.

DISCUSSION

It is clear from this study that within the institution and time period studied national guidelines for the management of gallstone acute pancreatitis were not being met. This resulted in an emergency (unplanned) readmission rate due to biliary-pancreatic disease of almost 1 in 5 (18.4%).

A large proportion of patients studied (43.4%), although undergoing diagnostic and therapeutic ERCP, did not have definitive clearance of gallstones within the study follow up period, contrary to the published national guidelines. There is a significant amount of evidence to support the view that therapeutic ERCP alone is not acceptable management of gallstone pancreatitis, and clearance of gallstones is essential in reducing biliary-pancreatic complication rates [12].

The reasons for the low rate of definitive gallstone clearance in our study population are not clear. Fitness for operative intervention is an essential pre-requisite for the operative clearance of gallstones. Appropriate fitness of essential organ function is less common in an elderly population. However, this group of patients (n=33) was relatively young, with a mean age of 61.4 years. Three of the patients were considered

too obese for safe surgery, and of the others only 2 had sufficient level of general unfitnes to score chronic health points on the Apache II scoring system. It can be concluded that the majority of the patients within this subgroup were fit for surgery, and their cases were not managed according to UK national guidelines.

This low rate of gallstone clearance within four weeks has been noted previously in another UK study of disease management [10]. Rates in our study population are considerably lower (6.6% vs. 33%), which must influence the prevalence of recurrent biliary-pancreatic disease. However rates of recurrent disease were not reported in the other study population.

Delay in the operative clearance of gallstones in patients with gallstone induced acute pancreatitis has also been the subject of a recent report from an institution in North America [13]. The authors report that since the advent of ERCP and laparoscopic cholecystectomy the interval between the episode of acute pancreatitis and cholecystectomy has increased in their institution from an average of 9.8 days to an average of 37.1 days. The incidence of episodes of recurrent biliary-pancreatic disease were 4 times higher (24%) in the group waiting longer, findings broadly in agreement with the ones in this study.

Recurrent episodes of biliary-pancreatic disease occurring after an episode of gallstone induced pancreatitis have important cost implications. In this study unplanned readmission in 18.4% of patients resulted in an extra 135 days in hospital, meaning a significant emergency bed usage, a drain upon hospital resources.

The existence of guidelines, supported by subspecialist interest groups, provides a standard by which management of patients may be judged.

In summary we have demonstrated a failure of compliance with national disease management guidelines for gallstone induced acute pancreatitis in one particular institution. This failure may be due to unacceptably long surgical waiting lists for benign disease.

Resultant recurrent biliary-pancreatic disease necessitating unplanned hospital admission is not uncommon, posing a threat to patient health and important cost considerations to the admitting hospital.

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Key words Cholecystectomy; Cholelithiasis; Pancreatitis; Practice Guidelines

Abbreviations CBD: common bile duct; ERCP: endoscopic retrograde cholangio-pancreatography

Correspondence

Andrew N Kingsnorth
Department of Surgery
Plymouth Postgraduate Medical School
Derriford Hospital
Plymouth PL6 8DH
United Kingdom
Phone: +44-1742.763017
Fax: +44-1742.763017
E-mail: andrew.kingsnorth@phnt.swest.nhs.uk

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