

# Cholangiography and endoscopic sphincterotomy in the management of severe acute gallstone pancreatitis discovered at diagnostic laparotomy

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## Summary

Seven patients with gallstone pancreatitis discovered at diagnostic laparotomy did not undergo definitive biliary surgery because it was considered hazardous in the presence of severe acute pancreatitis. The procedures carried out at operation in these cases included cholecystectomy and T-tube drainage (2 patients) cholecystostomy drainage (3 patients), and closure of the abdomen without drainage (2 patients). Direct cholangiography was carried out postoperatively in all cases. The biliary drain was used for this purpose in 5 patients, and endoscopic retrograde cholangiopancreatography was performed in 2. All patients were found to have calculi in the common bile duct and were successfully managed by endoscopic sphincterotomy (ES) without complications or mortality. ES therefore appears to be a safe and effective method of avoiding difficult and hazardous biliary surgery in the presence of severe acute pancreatitis.

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Endoscopic sphincterotomy (ES) has proved to be an effective and safe alternative to surgery for the management of choledocholithiasis.<sup>1</sup> Indications for the procedure have widened to include the management of severe acute pancreatitis caused by gallstones.<sup>2,3</sup> A diagnosis of acute pancreatitis associated with gallstones can usually be made on the basis of careful clinical, radiographic and biochemical evaluation. The role of endoscopic retrograde cholangiopancreatography (ERCP) and ES in this situation is reviewed separately.<sup>4</sup>

Occasionally, however, diagnostic laparotomy is required to exclude other intra-abdominal emergencies such as mesenteric infarction. Cases of acute gallstone pancreatitis discovered at such a diagnostic laparotomy are reviewed in this report. The procedures carried out at the time of laparotomy did not reflect any departmental policy, but rather the judgement of individual surgeons. This report focuses particularly on management postoperatively and after referral. An endoscopic approach based on two cornerstones was adopted: firstly, accurate biliary tract assessment by means of direct cholangiography, including ERCP if necessary; and secondly, the management of persistent common bile duct (CBD) calculi by ES.

## Patients and methods

During the 12-year period 1976-1988, 10 patients with gallstone pancreatitis discovered at diagnostic laparotomy were managed in the Department of Surgery at the Provincial Hospital, Port

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Elizabeth. Five patients were referred to the Department after surgery. Three patients were excluded from the study; 1 had a strong background of alcoholism in addition to gallstones, and 2 underwent definitive biliary surgery during the laparotomy. The report focuses on the remaining 7 patients, who did not undergo definitive biliary surgery. They were all women, ranging in age from 35 to 85 years (mean 64 years). The illness was moderately severe in 5 cases and life-threatening in 2.

The procedure carried out at laparotomy depended mainly on the severity and extent of the pancreatitis and on the judgement of the surgeon concerned, and included cholecystectomy and T-tube drainage, cholecystostomy, or closure of the abdomen without biliary drainage. Cholangiography was performed postoperatively via the biliary drain if available, or by ERCP. Patients in whom calculi in the CBD were demonstrated were managed by ES.

A standard ES technique, as described elsewhere,<sup>4</sup> was used. No attempt at endoscopic removal of calculi was made. Patients with the gallbladder *in situ* at the time of ES were managed expectantly if they were elderly and unfit, but were advised to undergo elective cholecystectomy if they were young and relatively fit.

Follow-up was maintained as far as possible by personal interview or by contact through the referring physician until December 1988. Cholangiography was performed after ES in patients with a biliary drain still present, but ERCP was only carried out if specifically indicated.

## Results

The 7 patients who did not undergo definitive biliary surgery underwent cholangiography postoperatively either via a T-tube (2 patients), via a cholecystostomy tube (3 patients), or by ERCP (2 patients). CBD calculi were demonstrated in all 7 patients, and ES was successfully carried out in these cases without complications or mortality. The procedure was followed by a rapid symptomatic response, particularly striking in 2 severely ill patients.

After ES cholangiography was repeated in 4 of the 7 cases. The methods included ERCP (2 patients), T-tube cholangiography (1 patient), and operative cholangiography during elective cholecystectomy (1 patient). No residual CBD stones were detected.

The gallbladder was still present at the time of ES in 4 patients. Elective cholecystectomy was performed in 1 patient, while an expectant attitude was adopted in 3 elderly, unfit patients.

Five patients were followed up for a mean period of 6 years. None experienced recurrent pancreatobiliary symptoms. Two patients died of other causes, after 3 and 8 years respectively, and 2 were lost to follow-up soon after ES.

## Discussion

When acute pancreatitis associated with gallstones is found at diagnostic laparotomy for an acute abdomen, the choice of

surgical procedure is controversial. The surgical strategy will depend on the general condition of the patient, the severity of the pancreatitis and the judgement and experience of the surgeon. The severity of the pancreatitis is usually the main factor determining the course of action. While the operative findings provide a good overall clue to severity, severity is difficult to measure, and additional early prognostic signs have been proposed that permit a simple, reproducible classification into 'mild' and 'severe' cases.<sup>5,6</sup> In this series of cases, however, individual surgeons based their surgical approach mainly on the findings at operation.

There is general agreement that in mild pancreatitis definitive surgery can be carried out safely, provided the patient's general condition permits it.<sup>5,6</sup> Cholecystectomy and operative cholangiography should be carried out, and the CBD should be explored if indicated. Good quality cholangiograms are important if unnecessary CBD exploration is to be avoided.

The main controversy surrounds the course of action to be taken when severe extensive pancreatitis and gallstones are discovered at diagnostic laparotomy. Some will proceed with definitive surgery involving cholecystectomy and CBD exploration, with duodenotomy and sphincterotomy if indicated.<sup>7,8</sup> Because many have found that urgent definitive biliary surgery in the presence of severe pancreatitis is accompanied by increased morbidity and mortality,<sup>5,6</sup> this approach has not gained general acceptance. Ranson<sup>5</sup> suggests that in patients with severe pancreatitis early surgery should be limited to cholecystostomy, although immediate surgical treatment may be required for specific complications of pancreatitis such as abscesses. The general preference is to allow symptoms and signs of pancreatitis to settle before contemplating removal of the gallstones. After operation two approaches to the definitive correction of cholelithiasis may be followed, viz. surgical or endoscopic.

Surgery for the definitive correction of cholelithiasis is usually delayed until evidence of acute pancreatitis has resolved,<sup>5</sup> and involves the standard procedures: cholecystectomy (if the gallbladder is still *in situ*), operative cholangiography, and exploration of the CBD if indicated.

An endoscopic approach to the correction of the cholelithiasis may be adopted postoperatively if a skilled endoscopist is available. In this series accurate biliary tract assessment by direct cholangiography was carried out as a first step. Ex-

perience suggests that this can be done safely and with little disturbance to the patient via a biliary drain (cholecystostomy, or choledochostomy) or by ERCP. Furthermore, calculi detected in the CBD can be managed safely and effectively by ES. Follow-up studies in this small series suggest that the incidence of recurrent pancreatobiliary problems following ES is low, even in patients in whom the gallbladder has remained *in situ*. Consequently the need for further biliary surgery is reduced to a minimum, which is a great advantage to elderly and unfit patients.

In conclusion, experience with this small series suggests that gallstone pancreatitis that cannot be managed safely at laparotomy by performing definitive biliary surgery can be treated safely and effectively by cholangiography and ES carried out postoperatively. The relative merits of the endoscopic versus the delayed surgical approach in this setting can, however, only be determined by a prospective randomised study. In the meantime the approach to management should be based on the expertise available.

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