

# The Management of Acute Cholecystitis \*

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THE controversial subject of medical versus early surgical management of acute cholecystitis has received renewed attention in the recent literature. Well known and highly respected proponents have argued convincingly for each method and their divergent conclusions leave some of us in a rather perplexed state. This has prompted the present study of acute cholecystitis at the Rhode Island Hospital, a teaching, non-university institution serving a large community. Surgeons at this hospital generally subscribe to the school of early operative management of these cases.

During the five year period from June 1949 to June 1954, 2,128 patients with diseases of the gallbladder were admitted to the hospital. Of this number, 578 patients were signed out with a diagnosis of acute cholecystitis. These records have been individually perused. The criteria for inclusion of cases in this series were as follows:

In cases treated surgically, a history of sudden upper abdominal pain, accompanied by right upper quadrant tenderness and spasm plus a pathologic diagnosis of acute cholecystitis were sought. In some instances however, acutely inflamed, distended gallbladders were described by the operating surgeon and despite a microscopic diagnosis of chronic cholecystitis, these cases have been included. In patients who were not operated upon, a history of sudden upper abdominal pain, right upper quadrant tenderness and spasm were likewise sought. In addition, fever, leukocytosis, a palpable gallbladder, or x-ray evidence

of stones or a non-functioning gallbladder were required. 347 cases fulfilled these criteria. 231 were females and 116 were males, roughly a two to one ratio.

## MEDICAL THERAPY

Forty-eight patients were treated medically with four fatalities. However we feel these figures do not represent a true evaluation of medical therapy for many reasons. One patient came to the hospital in extremis and died only a few minutes after admission before any therapy could be instituted. Another patient was misdiagnosed as pyelonephritis and therefore received inappropriate treatment. A gangrenous gallbladder was found at post-mortem examination. Last but not least, many of the cases treated medically with recovery were excluded from the series. Most of these patients undoubtedly were suffering from acute cholecystitis but did not present sufficient diagnostic criteria for inclusion. It might be added that none of the excluded cases died.

## SURGICAL THERAPY

Two hundred ninety-nine cases were treated surgically. These include private and ward patients operated on by members of the active surgical, and the resident, staff. The important findings of the study are listed in various tables which are in the main self explanatory. The vast majority of the patients were given several hours of pre-operative preparation including appropriate intravenous fluids, the institution of naso-gastric suction, and antibiotics. Most were operated on within 24 hours of

\* Submitted for publication December, 1955.

admission to the hospital. There were 13 postoperative, and one anaesthetic, deaths, an overall mortality of 4.7 per cent.

As shown in Table I, 240 patients were below the age of 70 years and in this group there were three deaths. The three patients

TABLE I. *Mortality Rates*

	Cases	Deaths	Mortality
Patients under 70 yrs. of age	240	3	1.3%
Patients over 70 yrs. of age	59	11	18.6%
Totals	299	14	4.7%

who died were in their sixth decade. One had pre-existing hypertensive cardiovascular disease and died of a cerebrovascular accident. Another had chronic rheumatic heart disease, auricular fibrillation, and cardiac failure. She died suddenly two hours after operation during an episode of acute vascular collapse. The third patient died of bile peritonitis nine days after operation. At postmortem examination, the cystic duct stump was found to have "blown out" due to the presence of an unsuspected calculus impacted at the ampulla of Vater.

Of the 59 patients in this series above the age of 70 years there were ten postoperative, and one anaesthetic, deaths, a mortality rate of nearly 19 per cent. Causes of death in this group are listed in Table II.

TABLE II. *Causes of Death in Patients over 70 years*

Cause of Death	No. of Cases
Renal failure	3
Overwhelming sepsis secondary to acute cholecystitis	2
Acute pulmonary edema	2
Pulmonary embolus	2
Aspiration asphyxia	1
Anaesthesia	1

The anaesthetic death occurred as a result of sensitivity to spinal anaesthesia in a 70 year old patient. No operation was performed and the patient died shortly after being returned to his bed.

The mortality for individual procedures in patients below and over the age of 70 years is presented in Table III.

TABLE III. *Mortality of Individual Procedures*

	No. Cases	Deaths	Mortality
Patients under 70 yrs.			
Cholecystectomy	178	2	1%
Cholecystectomy and Choledochostomy	50	1	2%
Cholecystostomy	11	0	0
Patients over 70 yrs.			
Cholecystectomy	36	4	11%
Cholecystectomy and Choledochostomy	10	3	30%
Cholecystostomy	13	3	23%

Choledochostomy was carried out on 60 patients, roughly 20 per cent of the entire series. Stones were found in 33 or in slightly over half the common ducts opened. As noted in Table III the mortality rate in patients under 70 years subjected to choledochostomy was 2 per cent. This is not significantly higher than the 1 per cent mortality associated with cholecystectomy in this group and indicates there is little or no additional hazard associated with the procedure.

In the group over 70 years on the other hand, the 30 per cent mortality associated with choledochostomy is significantly higher than the 11 per cent death rate following cholecystectomy alone. These figures, although based on small numbers of cases, indicate that opening the common duct in these acutely ill, elderly patients is not a procedure to be lightly regarded.

The mortality rate following simple cholecystostomy is higher than that for cholecystectomy in the elderly group. However, it must be borne in mind that most of the former patients were desperately ill, poor risk patients operated upon under local anaesthesia. In the operating surgeon's mind it was doubtful that any of them would have tolerated a more extensive operation.

TABLE IV. *Summary of Postoperative Complications*

Postoperative Complications	No. of Cases
Postoperative atelectasis (Of no serious consequence. Responded to conservative measures in all cases)	6
Retained common duct stone (Three were small and passed spontaneously as demonstrated by post operative cholangiograms)	6
Thrombo-phlebitis (One had a pulmonary embolus. All responded well to anticoagulants)	6
Wound disruption (All recovered following secondary suture)	3
Subhepatic abscess and biliary fistula (Fistula closed spontaneously after evacuation of the abscess)	1
Subphrenic abscess (Responded well to incision and drainage)	1
Inflammatory obstruction of common duct (Cured following lysis of adhesions about duct six months after the initial operation)	1
Wound infection (Uneventful recovery after evacuation of pus)	1

In the 285 surviving patients there were 25 complications or a morbidity rate of slightly less than 9 per cent. Here again the vast majority occurred in elderly patients.

#### DISCUSSION

In our opinion the above survey indicates that early surgical intervention for acute cholecystitis in patients under the age of 70 years is a safe, effective method of terminating the disease. These patients practically never refuse operation as they may do after an acute attack subsides. In general complications are rare, the period of hospitalization short, and the mortality rate in the neighborhood of one per cent. Patients over the age of 70 years on the other hand have run a serious risk when subjected to early operative management at this institution. Complications have been

frequent and the mortality rate has been nearly 20 per cent. Unless our sad experience with this geriatric group of patients is unique, there may be considerable room for improvement here. Perhaps, as many authorities feel,<sup>2</sup> a virulent infection superimposed on long standing biliary tract disease in an elderly patient with a variety of degenerative diseases naturally predisposes to a high incidence of morbidity and mortality, but early operation still offers the patient his best chance of survival.<sup>3</sup> On the other hand, if the claims of the champions of initial medical therapy for these cases prove true, and the majority of them can be safely tided over the acute phase of the disease on a conservative regimen,<sup>1</sup> elective operation is certainly a safer procedure. At the Rhode Island Hospital the mortality following elective cholecystectomy in patients over 70 years is less than one-fifth that described above. A well controlled study of patients in this age group might prove to be a valuable undertaking.

#### SUMMARY

A five year survey of acute cholecystitis treated by a large number of visiting and resident surgeons at the Rhode Island Hospital is presented. This benign disease carries a significant morbidity and mortality rate in elderly patients given the benefits of early operative management. The question as to whether or not this represents the ideal form of treatment for these patients is raised.

#### BIBLIOGRAPHY

1. Doubilet, H., G. Reed, and J. H. Mulholland: Delayed Operative Management of Acute Cholecystitis. *J. A. M. A.*, 155: 1570, 1954.
2. Glenn, F.: The Surgical Treatment of Acute Cholecystitis. *S. G. O.*, 90: 643, 1950.
3. Glenn, F. and D. Hays.: The Age Factor in the Mortality of Patients Undergoing Surgery of the Biliary Tract. *S. G. O.*, 100: 11, 1955.