

Endoscopic Retrograde Cholangiopancreatography in the Elderly

Chareonsil B, M.D.

ABSTRACT

Background: Biliary tract diseases in the elderly are common and representing particular both diagnostic and therapeutic problems. Endoscopic retrograde cholangiopancreatography (ERCP) is effective for the diagnosis and treatment of hepatobiliary and pancreatic diseases.

Objective: To study the presentations of obstructive biliary disease, and the treatment outcome in elderly patients who undergoing ERCP.

Methods: A retrospective analysis of the presenting symptoms, complete blood counts, liver function tests, abdominal ultrasounds, ERCP results, and outcomes were assessed in 140 patients, aged 75 years and older at Sawanpracharak Hospital, Nakhonsawan province.

Results: ERCP was successful in 121 patients (86%); 68 had common bile duct (CBD) stones, 34 had malignant biliary obstruction, and 19 had other findings. In comparison the presenting symptoms of CBD stones and malignant biliary tract obstruction, we found that atypical symptoms (abdominal pain and non-specific symptoms) were presented more commonly in CBD stones (45% VS 12%, $p < 0.05$), whereas painless jaundice was more common in malignant biliary tract obstruction (47% VS 21%, $p < 0.05$). Charcot's triad as a presentation was not different between both groups (18% VS 21%, $p > 0.05$). Ultrasonography and ERCP findings were in agreement for only 45%. Endoscopic clearance of CBD stones was achieved in 52% and endoscopic palliation of malignant obstruction was successful in 59%. ERCP-related complications without mortality occurred in 3 patients.

Conclusions: In elderly patients with CBD stones often presented with atypical symptoms. In malignant disease such as cholangiocarcinoma patients presented with painless jaundice. We found that ERCP is safe and effective for the management of biliary tract obstruction in both benign and malignant diseases.

Key words : Obstructive biliary disease, Endoscopic retrograde cholangiopancreatography

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INTRODUCTION

With increasing number of population that reaching old age, diseases affecting biliary tract occur commonly, and account for one third of all abdominal operations and nearly two thirds of cholecystectomy were performed for urgent or emergency condition⁽¹⁾. The mortality rate of emergency operations in the elderly is 3-10 times higher than elective setting for elderly. Endoscopic retrograde cholangiopancreatography is a well established procedure to evaluate and manage patients with anatomic evidence of biliary tract obstruction. Atypical presentations of cholelithiasis in elderly patients have been noted⁽²⁾ but the prevalence of such presentations has not been documented in Thais. Ultrasonography is the initial screening test to identify the cause of patients with suspected biliary tract obstruction, however ultrasonographic and ERCP findings are not totally in agreement (range of agreement 45-84%)^(3,4).

The present study was aimed to assess the accuracy of ultrasonography in the presentations of patients who underwent ERCP, and to evaluate the efficiency and safety of ERCP for the diagnosis and treatment of biliary tract obstructions in elderly patients (aged 75 years and more).

METHODS

Details of all patients who were 75 years of age and older that underwent ERCP at the Surgical Endos-

copy Unit, Sawanpracharak hospital, Nakhonsawan province, including the presenting symptoms and signs, hemoglobin level, leukocyte counts, liver function tests, abdominal ultrasonography findings, the success rate of ERCP, immediate complications, and post-procedure outcomes. Informations were gathered from the ERCP database and review from hospital notes. All patients were sprayed with 10% lidocaine for topical pharyngeal anesthesia and intravenous pethidine (25 mg) was given for conscious sedation. Intravenous buscopan (hyoscine *N*-butylbromide) was used to control duodenal movement as necessary. Patients were divided into three groups according to their ERCP finding; group I = CBD stones, group II = malignancy biliary tract obstruction and group III = other findings. Statistical comparison of presenting and associated symptoms was assessed with the chi-squared-test. Laboratory results were assessed with Student's *t*-test. The differences were reported as significant when $p < 0.05$.

RESULTS

During 1998 til 2007, one hundred and forty elderly patients underwent ERCP by one surgeon. There were 73 men and 67 women, aged 75-95 years (mean 90 years); 63 patients were over 80 years. Seven patients were un-cooperative, elective CBD cannulation was failed in 12 patients, and 19 of the remaining 121 patients had diagnoses other than CBD stones or malignancy biliary obstructions.

Table 1. Presentations of patient with CBD stones and malignant biliary tract obstruction.

Presentations	CBD stones (N = 68)	Malignancy (N = 34)	<i>p</i> -value
Presenting symptoms			
Painless jaundice*	14 (21%)	16 (47%)	0.01
Pain and jaundice	7 (10%)	6 (18%)	0.15
Charcot's triad	12 (18%)	7 (21%)	0.36
Abdominal pain only*	20 (29%)	3 (9%)	0.01
Non-specific symptoms*	11 (16%)	1 (3%)	0.03
Asymptomatic	4 (6%)	1 (3%)	0.26
Associated symptoms			
Dark-colored urine*	36 (53%)	27 (79%)	0.01
Pale-colored stool	10 (15%)	8 (24%)	0.27
Pruritus	16 (24%)	9 (26%)	0.87
Weight loss*	16 (24%)	16 (47%)	0.02

*Statistically significance

Table 2. Blood results in patients with CBD stones and malignant biliary tract obstruction.

Test	CBD stones (N = 68)	Malignant (N = 34)	<i>p</i> -value
	Mean \pm SD	Mean \pm SD	
Hemoglobin level (g/dl)	10.1 \pm 3.17	10.9 \pm 1.76	0.08
Leukocyte count ($\times 10^9/l$)	10.2 \pm 6.22	10.3 \pm 4.17	0.48
ALT (U/ml)*	66 \pm 73	113 \pm 125	0.01
ALP (U/ml)*	409 \pm 395	704 \pm 662	0.01
TB (mg/dl)*	5.4 \pm 7.3	15.9 \pm 12.2	0.01
DB (mg/dl)*	3.9 \pm 5.9	11.1 \pm 8.5	0.01

ALT = alanine aminotransferase, ALP = alkaline phosphatase, TB = total bilirubin, DB = direct bilirubin

*statistically significant

Presentations of patient who had CBD obstruction from stone and cancer are shown in Table 1. Atypical symptoms (abdominal pain and non-specific symptom) occurred more frequently in the CBD stones group (29% VS 9%, $p = 0.01$ and 16% VS 3%, $p = 0.03$, respectively). Painless jaundice presented more commonly in the malignancy group (46% VS 21%, $p = 0.01$).

Charcot's triad was found in 12 patients with CBD stones (18%) and 7 patients with malignancy biliary tract obstruction (20%). Five patients were asymptomatic. They presented with abnormal liver function tests, of these, 4 had CBD stones and 1 had pancreatic tumor. The associated symptoms including dark-colored urine and weight loss were found more frequently in the malignant group (79% VS 53%, $p = 0.01$ and 47% VS 24%, $p = 0.02$, respectively).

The results of the hemoglobin level, leukocyte counts, and liver function tests are shown in Table 2. The mean levels of serum aminotransferase, alkaline phosphatase and bilirubin were higher in patients who had cancers ($p = 0.01$).

A successful cannulation of common bile duct was achieved in 121 of 140 patients; the ERCP results are shown in Table 3. CBD stones was the most common diagnosis. Thirty-four (28%) patients had malignant tumor involving biliary tree. Of these, the most common cause was cholangiocarcinoma; 7 patients had Klatskin type tumor. The rest (non-CBD stone/malignant) group contained 19 patients; 2 were benign stricture, 5 were normal ERCP and 12 were unexplained dilated CBD.

The sensitivity and specificity of ultrasonography when compared with ERCP are shown in Table 4. Ultrasonography was able to detect 78% of bile duct obstruction, but only 35% of CBD stones. It failed to

Table 3. Endoscopic retrograde cholangiopancreatography (ERCP) diagnoses in the patients who were investigated for biliary tract disease.

ERCP diagnoses	Number (N = 121)
Common bile duct stone	68 (56%)
Cholangiocarcinoma	23 (19%)
Carcinoma of the pancreas	7 (6%)
Carcinoma of the ampulla	4 (3%)
Benign stricture of common bile duct	2 (2%)
Unexplained dilated CBD	12 (10%)
Normal	5 (4%)

detect dilated bile ducts in 7 cholangiocarcinomas, 1 carcinoma of the pancreas and 1 carcinoma of the ampulla. Sensitivity for detecting malignant biliary tract obstruction and pancreas was 32%. The overall agreement of ultrasonography in the 121 patients who had a successful ERCP was 45%.

CBD stones were successfully clear by sphincterotomy with stone extraction in 36 patients (52%). Mechanical lithotripsy was performed in five patients. Of the remaining ductal stones, 20 large stones (>2 cm) and 6 multiple stones, 16 were managed by open surgery, 10 were treated conservatively with a plastic stent and 6 were referred to other hospitals for endoscopic stone removal. In the malignancy group, 20 patients had a plastic stent (mostly 10Fr) inserted for palliation of jaundice. Pancreaticoduodenectomy (Whipple procedure) was performed in 3 patients (2 carcinoma of the ampulla and 1 carcinoma of the pancreas), and another five were treated with palliative surgical biliary bypass.

Three patients developed ERCP-related complications; cholangitis occurred in 2 patients and pancreatitis occurred in 1 patient. No patient died as a result

Table 4. Comparison between the results of ERCP and ultrasonography in patients who were investigated for biliary tract diseases.

Investigation / Results	No. detected by		Ultrasound	
	ERCP	Ultrasonography	Sensitivity	Specificity
Bile ducts				
Dilated	111	86 (6*)	78%	-
Not dilated	10	9 (19**)	-	90%
Common bile duct stones				
Present	43	20 (5*)	35%	-
Absent	78	59 (48**)	-	76%

*false-positive; **false-negative

of ERCP, although 5 patients died within 30 days after in produce from non ERCP related causes.

The mean follow-up for patients who had ductal stones was 22 weeks (4 weeks to 3 years). There were no recumbent symptoms that related to biliary tree, the mean survival was 33 weeks. In the malignancy group, 22 patients (65%) died during follow-up with a mean survival of 8.4 weeks (3 weeks to 2 years). Of these, there were a patients 26%) who survived longer than 6 months (2 had carcinoma of the ampulla).

DISCUSSION

Life expectancy is increasing in developed countries and 75 years of age is accepted as advanced age in those countries and many developing countries including Thailand. The presenting symptoms and natural history of the surgical diseases in the elderly may not be identical to that seen in younger group, this inturn leads to errors in diagnosis and possible delay in treatment⁽¹⁾. Sugiyama et al⁽⁵⁾ reported that 20% of CBD stones patients with aging 70-89 years were symptomatic and all who aged 90 years and older were asymptomatic.

The classic presentations of CBD stones are abdominal pain, jaundice and Charcot's triad occurred in only 28% of elderly patients. In addition nearly half of them presented with atypical symptoms. These support that the presentation of CBD stones is often atypical in the elderly. Painless jaundice was the most common presenting symptom in patients who had malignant biliary tract disease. Moreover, the mean serum bilirubin and alkaline phosphatase levels were higher in malignant group. Charcot's triad presented in 18% of CBD stones and 21% of malignancy group, this could result in a delay investigation and treatment.

Although, ultrasonography is not sensitive enough for accurate detection of biliary tract obstruction⁽³⁾ but it is accepted as the initial screening test for patients who extrahepatic biliary tract obstruction was suspected. The present study shows that ultrasonography had sensitivity of 78% for detection of dilated bile ducts and the accuracy for diagnoses of CBD stones and malignancy were only 5% and 32% respectively of note, the skill and experience of the operator was varied. Thus, the reliability of ultrasonography needs to be considered when deciding how reliable of ultrasonography is when compared with clinical presentation and blood tests⁶. Recently, other imaging methods including computed tomography CT) and magnetic resonance cholangiopancreatography (MRCP) are more sensitive than ultrasonography for the diagnosis of pancreato-biliary disease⁽⁷⁾ but more expense is need. In addition they are not always available in regional hospitals⁽⁷⁾.

The optimal treatment of CBD stones in the elderly is not clear⁽⁶⁾. Postoperative morbidity and mortality rates after biliary tract surgery increase with age. The mortality of common bile duct exploration in the elderly is 4-10% for elective procedures and rise to 20% in emergency operations, whereas morbidity and mortality from endoscopic sphincterotomy are only 5-10% and 0.5-1%, respectively⁽⁸⁾. In elderly, the success rate of endoscopic CBD stones clearance ranges from 59-98%, and endoscopic palliation of malignant obstruction is successful with 73-96% ranges^(3,6). The present study show that the success CBD cannulation was archived in 86%. Endoscopic clearance of ductal stones, and endoscopic palliation for malignant obstruction were successful in 52% and 58% of cases respectively. One-third of patients who had an unsuccessful ductal stones clearance was because of large stones,

low experience of mechanical lithotripsy in the early period, and all of them were performed under non-sedated endoscopy that could account to a poor cooperation. More than 30% of malignant biliary tract destruction had proximal lesions that yielded a low success rate for endoscopic palliation and they are died within two months which reflecting the advanced diseases. In contrast, patients with carcinoma of the ampulla were all alive after 6 months, of these, three were doing well at 18 months or more, the confirmed a the better prognosis of this condition.

In conclusion, the present study shows that atypical presentation of CBD stones is common in elderly patients. Ultrasonography is a good screening test for patients who biliary tract obstruction suspected but with a poor accuracy to identify causes. ERCP is a safe and effective procedure for the management of biliary tract obstruction in both benign and malignant biliary tract diseases. The ERCP that performed at Sawanpracharak hospital has a high diagnostic yield but its therapeutic use in advanced condition needs further development.

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