Acute Obstructive Cholangitis *

A Distinct Clinical Syndrome

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Introduction

ACUTE obstructive cholangitis presents a distinct clinical syndrome and requires urgent surgical decompression of the biliary tract. In the American literature for the past 30 years this characteristic syndrome and the need for early surgical intervention is seldom accurately defined. Cutler and Zollinger [1] indicated that acute suppurative cholangitis may require immediate operation. Grant [2] reported three cases. This report is to indicate the characteristic features of this syndrome, which we have designated acute obstructive cholangitis, and to demonstrate the dramatic results of emergency surgical decompression of the biliary tract.

Pathology

Acute obstructive cholangitis is characterized by complete obstruction of the common bile duct with the accumulation of purulent material under pressure. The obstruction is most commonly due to calculi in the common bile duct, although strictures, neoplasms, pancreatitis, and parasites may be the provoking agent.[2] The obstruction in our cases has been due only to calculi. The obstruction is functionally complete in all cases and leads to mental confusion, lethargy, and profound shock which typify the syndrome. The symptoms may occur in the course of recurrent cholangitis or in acute suppurative cholangitis, or occasionally as the first evidence of biliary tract disease. The bacterial flora is varied; coliform organisms, *A. aerogenes*, and *B. pyocyaneus* are the most common.[2, 3] Failure to respond to conservative management, i.e. massive antibiotics and usual supportive therapy, is characteristic and was noted in all cases.

Clinical Features

The following cases and summary of the pertinent findings in Table 1 and Figure 1 demonstrate the striking pattern of this syndrome.

Case A (#2699): A 73-year-old male was admitted to the Bronx Municipal Hospital Center on 7/25/55 complaining of right upper quadrant abdominal pain, nausea, chills, and vomiting, of 8 hours duration. The onset of right upper quadrant pain abruptly followed a breakfast of cooked cereal and cream. In the past there was a similar episode 15 days prior to admission, not accompanied by chills, which persisted for 24 hours. He had a cholecystostomy in 1943 for acute cholecystitis. In 1954, an abscess developed in the cholecystostomy incision, ruptured spontaneously and drained bile and purulent material. This was followed by an incisional hernia.

His temperature was 105°, pulse 80 per minute, and blood pressure 90/50. He was pale and lethargic, acutely ill and complaining of abdominal pain. There was no icterus. Positive findings included bilateral basilar rales, normal heart, right upper quadrant subcostal abdominal scar with a central 3 cm. incisional hernia. The liver edge was palpable 3 cm. below the right costal margin and smooth throughout. There was direct and rebound tenderness throughout the right upper quadrant. Active bowel sounds were heard. There were no other pertinent physical findings.

Laboratory tests revealed white blood count of 34,500 and hematocrit of 44%. The urinalysis was negative. BUN was 16.5 mg.%. Blood culture grew *E. coli*, which was sensitive to tetracycline.

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TABLE 1. *A Summary of Pertinent Symptoms, Signs, Laboratory Data and Clinical Course of Cases Presented*

Case # Sex Age	Symptoms and Signs	Past History	Laboratory Data	Operative Findings	Culture from Common Bile Duct	Postop. Course	Autopsy Findings
A Male 72	Fever, chills, nausea, vomiting, lethargy. RUQ tenderness, jaundice, shock	Cholecystostomy 12 years ago. Rupture of "abdominal abscess" with drainage of biliary material, 1 year ago	WBC 34,500. Hb. 14.0. Icterus index 35. BUN 16. Blood culture—*E. coli*	None No surgery performed	None	Expired	Acute obstructive cholangitis. Septicemia
#1 Female 54	Progressive weakness, fever and chills. Jaundice. RUQ mass with tenderness. Mental confusion, shock	Diabetes mellitus. Recurrent episodes of RUQ pain for past 2 years	Hb. 10.1. WBC 16,100. Bilirubin 1.83. Direct .72. Ceph. floc. 2+	Gallbladder contained 130 cc. of "white bile." Purulent material under pressure in CBD with 2 large stones	*E. coli* *A. aerogenes*	Uncomplicated	
#2 Female 69	Semicomatose. Fever and chills. Jaundice. RUQ guarding and tenderness, shock	Recent onset of RUQ, distress after meals	Hct 44%. WBC 12,300. Serum barbiturate 0. Blood sugar 200. Spinal tap neg. Alkaline phosphatase 5.4. Bilirubin 11. Direct 9	Frank pus under pressure in CBD with stones in CBD and gall bladder	*B. pyocyaneus*	Uncomplicated	
#3 Male 62	Fever and chills. Jaundice. RUQ tenderness. Mental confusion. Lethargy and disorientation and shock	Episode of jaundice 7 years ago. Recent mental changes	Hb. 17.0. WBC 22,600. Alk. phos. 13.4. Bile in urine, no urobilinogen	Purulent material under pressure in CBD with solitary stone	*E. coli*	Expired 22 days postop.	Necrosis of liver with abscess. Myocardial infarct. Bile. Nephrosis
#4 Female 80	Fever and chills. Jaundice. RUQ tenderness. Enlarged liver. Lethargy. Shock	Cholecystectomy 3 years ago. Light stool and dark urine 8 days PTA	Hb. 13.2. WBC 22,750. Bilirubin 32.2	250–300 cc. of purulent bile under pressure with single non-faceted stone in CBD	*B. pyocyaneus* *E. coli*	Uncomplicated	

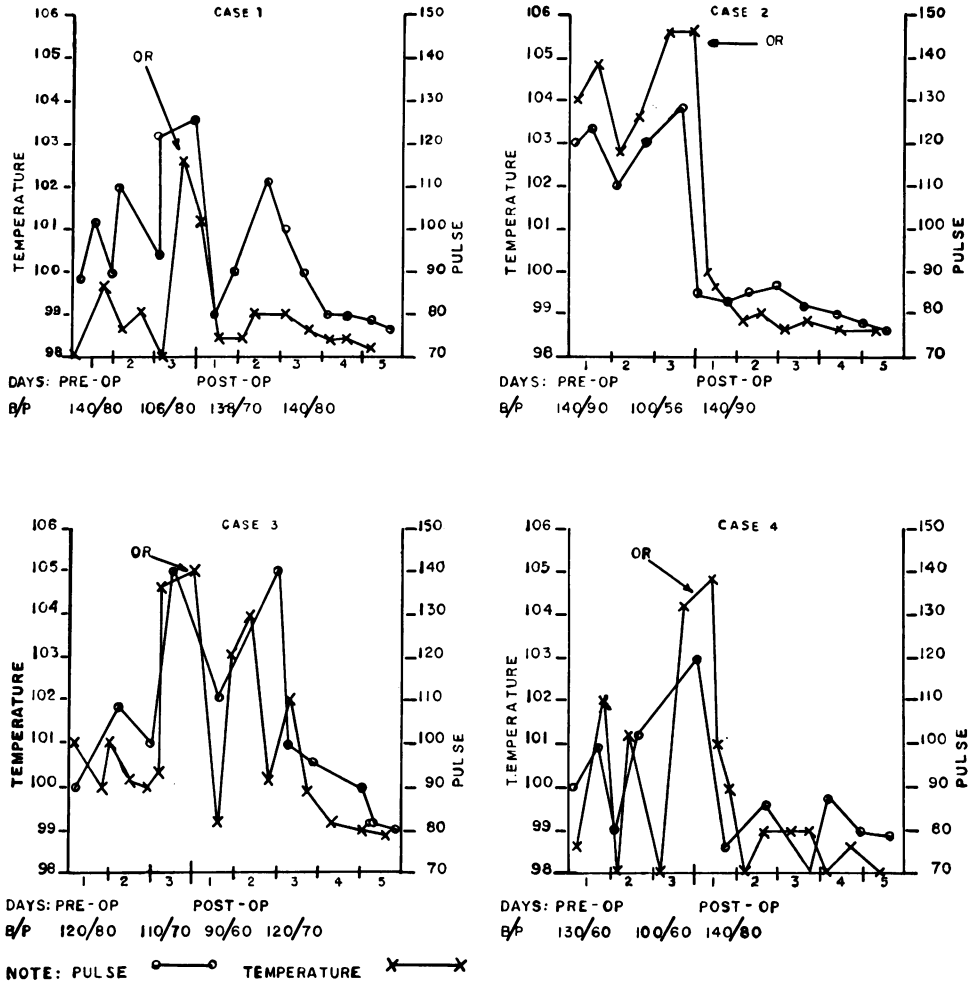

FIG. 1. Illustrates the temperature, pulse and blood pressure findings in the surgically managed cases.

Course in hospital: The temperature ranged from 101° to 104° with chills. Clinical icterus was noted the day following admission. Massive doses of tetracycline failed to control the septic course. Thirty-six hours after admission, the patient went into profound hypotension which responded to vasopressors. His condition became worse on the second day. Surgical consultation concurred with the clinical diagnosis of acute cholangitis, but it was believed that the patient's condition was too precarious to undertake surgical intervention. He expired at 5:00 p.m. on the second hospital day. Post-mortem examination revealed acute obstructive cholangitis secondary to choledocholithiasis, and *E. coli* septicemia.

Comment

The above case and several others with similar courses convinced us that attempts to improve conditions so that surgical intervention could be undertaken with less risk, were futile. The patients died in shock.

Therefore, emergency surgical decompression of the biliary tract was proposed, even in the moribund patient. The results were gratifying. The following case reports are illustrative:

A. Case 1 (※81712): This 54-year-old female diabetic was admitted to the medical service on

4/8/58, with progressive weight loss, weakness, uncontrolled diabetes mellitus, and jaundice of undetermined etiology. There was a history of recurrent episodes of right upper quadrant abdominal pain for the past two years.

Physical examination revealed generalized icterus, a temperature of 99.8°, pulse 100 per minute, and blood pressure 140/80. The liver was palpable 3 cm. below the right costal margin, and was tender.

Laboratory findings included: hemoglobin 10.1 Gm.%, white blood count 16,100, bilirubin 1.83 mg.%, and 2-plus cephalin flocculation.

Course in hospital: The patient remained afebrile and asymptomatic until 4/19/58, when the temperature rose to 102.6°, and this was followed by shaking chills. A right upper quadrant mass was palpable. The patient became lethargic and mentally confused. She was transferred to the surgical service, and after hydration, operation was undertaken. The gall bladder was found to be acutely inflamed and contained approximately 135 cc. of mucopurulent material. The cystic duct was occluded. The common bile duct was 1.5 inches in diameter, and contained purulent material under pressure. Two large and several smaller stones were found totally obstructing the duct at the intraduodenal portion of the choledochus. At the time of decompression of the common duct, the patient's blood pressure rose to preoperative levels, and when the patient reacted from anesthesia she was alert and with a clear sensorium. Culture of the common duct aspirate yielded *E. coli* and *A. aerogenes*. The postoperative course was uneventful.

B. Case 2 (※77908): This 69-year-old female was admitted to the medical service of the Bronx Municipal Hospital Center on 2/25/58, semicomatose for three hours. There was a history from the family of recent onset of epigastric and right upper quadrant pain following meals, and a recent darkening of the urine. Icterus was noted five days prior to admission.

Physical findings included: temperature 104°, pulse 110 per minute, and blood pressure 140/90. The patient responded to painful stimuli. There was no evidence of trauma. Icterus was noted. There was a palpable enlarged smooth non-tender liver, with the edge 3 cm. below the right costal margin, and right upper quadrant tenderness to deep palpation was noted.

Laboratory investigations revealed: white blood count 12,300, blood sugar 200 mg.%, alkaline phosphatase 5.4 units, and bilirubin 11 mg.% total with 9 mg.% direct. The serum barbiturate level was 0. A spinal tap was negative.

Course in hospital: On the second hospital day, the temperature rose to 105°, and lethargy became more pronounced. On the third hospital day, the patient was still less responsive, and blood pressure dropped to 100/56. She was transferred to the surgical service after vasopressors, intravenous cortisone, and massive antibiotics had failed to improve her status. Operation was undertaken under local anesthesia. A cholecystostomy was performed but the cystic duct was occluded, and accordingly choledochotomy was performed. Frank pus under pressure was released. Immediately the state of shock lessened, and the blood pressure rose to 140/90. The patient's sensorium cleared so that general anesthesia was necessary to complete the operative procedure. Culture of the common duct aspirate yielded *B. pyocyaneus*. The offending solitary calculus was removed, and the postoperative course was uncomplicated.

C. Case 3 (※12341): This 62-year-old male was admitted to the Bronx Municipal Hospital Center on 3/14/56, with a history of fever, chills, jaundice, and recent mental changes. There was no history of fatty food intolerance. The chills, fever, and jaundice were noted ten days prior to admission, and the mental changes three days before admission. The patient had had an episode of painless jaundice seven years previously which had persisted for one week.

Physical examination revealed: temperature 101.4°, pulse 140 per minute, and blood pressure 110/80. The patient was acutely ill and lethargic. Icterus was noted. There was right upper quadrant tenderness to moderate abdominal palpation.

Laboratory findings included: hemoglobin 17 Gm.%, white blood count 22,600, alkaline phosphatase 13.4 units, and urine positive for bile and negative for urobilinogen.

Course in hospital: The patient was given broad-spectrum antibiotic therapy, and on the third hospital day his temperature rose to 102.4°. On the fourth day, he became coherent and appeared improved. However, on the sixth day, he again became lethargic and confused, his temperature rose to 104.6°, and the blood pressure fell to 90/60, where it remained in spite of vigorous supportive measures. On the seventh hospital day, a cholecystostomy was performed. The cystic duct was occluded and an enormously-dilated common duct was decompressed, with the finding of purulent material under pressure. Culture of this material revealed *E. coli*. A solitary impacted calculus was removed. The patient expired suddenly on the 22nd postoperative day. Autopsy revealed acute myocardial infarction, and multiple liver abscesses.

D. Case 4 (※16581): An 80-year-old woman was admitted on 5/4/56 to the Bronx Municipal Hospital Center, with history of jaundice, fever,

and chills for 8 days. She had had a cholecystectomy three years previously, and had complained of intermittent post-prandial right upper quadrant abdominal pain since that time.

Physical findings of significance included: temperature 100.4°, pulse 96 per minute, and blood pressure 130/60. The skin and sclerae were icteric. There was right upper quadrant tenderness to abdominal palpation.

Laboratory investigations revealed: hemoglobin 13.2 Gm.%, white blood count 22,750, and serum bilirubin 32.2 mg.%.

Course in hospital: In spite of broad-spectrum antibiotic therapy and intravenous fluids, the patient's temperature rose to 104.8° on the fifth hospital day. She became lethargic and disoriented, and the blood pressure fell to 100/60, where it remained despite vasopressors. Operation was performed under local anesthesia, and a dilated common duct was found which contained purulent material under pressure. A solitary nonfaceted calculus was removed, and the blood pressure rose on the operating table to 140/80. The postoperative course was unremarkable. Culture of the common duct contents yielded *E. coli.*

Discussion

The well-known clinical triad of chills and fever, jaundice, and right upper quadrant abdominal pain or tenderness indicative of cholangitis is seen in all of our cases.[4, 5] The addition of lethargy or mental confusion and shock to this triad represents acute obstructive cholangitis. The ideal management of obstructive cholangitis is early surgical decompression and if this could be achieved the syndrome would be rare. Some patients present themselves with this syndrome on admission, while others develop it in hospital while awaiting diagnostic procedures. Mental confusion and lethargy are ominous signs. Shock soon follows. It is at this point that operative intervention is imperative. Acute obstructive cholangitis produces overwhelming sepsis with mechanical obstruction of the common bile duct. Operative intervention is mandatory in spite of poor condition of the patient. Frequently the moribund appearance of the patient indicates that operation is most urgent.[6] Surgical decompression of the common bile duct results in dramatic improvement. This has been the only effective method of management of these patients.

The cause of mental confusion is probably hepatic insufficiency, combined with sepsis. Shock, however, seems to be directly related to the accumulation of purulent material under increasing pressure in the biliary tract. Decompression is invariably followed by prompt recovery.

There may be response to conservative management in incompletely obstructing cholangitis or recurrent cholangitis. But in acute obstructive cholangitis, with purulent material under pressure in the biliary tract, operative intervention is mandatory. The subsequent clinical course leaves no doubt as to the efficacy of surgical management.

Summary

1. Acute obstructive cholangitis is a distinct clinical syndrome due to complete obstruction of the common bile duct with sepsis.

2. The salient features of acute obstructive cholangitis are presented in illustrative cases.

3. Despite the moribund condition of these patients, response to emergency decompression of the common bile duct is dramatic.

4. Death ensues if operative intervention is delayed.

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