Mirizzi Syndrome Management

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Objective: The aim of this study was to assess the clinical presentation and management of Mirizzi syndrome. Study Design: Descriptive study. Patients and Methods: During 2 year at Ittefaq Hospital Lahore 10 patients came with Mirizzi syndrome by chance. All patients presented with upper abdominal pain, jaundice and palpable gallbladder. ERCP was inconclusive in 5 patients preoperatively. Rest of 5 patients underwent surgery and on table cholangiogram was performed. Results: All the patients undergone surgery after pre-operative work up. ERCP in 5 patients and peroperative cholangiogram in 5 patients was inconclusive. Nine patients had type-I Mirizzi syndrome and 1 patient had type-II Mirizzi syndrome. Simple cholecystectomy was performed in 9 patients but in 1 patient (type-II) after cholecystectomy T-tube was placed in common bile duct. Postoperatively T-tube was removed after T-tube cholangiogram. Conclusion: Mirizzi syndrome is a uncommon presentation of gallstone. Its diagnosis is confirmed on cholangiography and can be treated surgically safely.

Key Words: Gallstones, Obstructive jaundice, Gallstone impaction, Hartman's pouch.

Mirizzi syndrome is the unusual presentation of gallstones. Impaction of a large gallstone (or multiple small) in the Hartmann pouch or cystic duct results in the Mirizzi syndrome in 2 ways: 1. Chronic and/or acute inflammatory changes lead to contraction of the gallbladder, which then fuses and causes secondary stenosis of the CBD, or 2. Large impacted stones lead to cholecystocholedochal fistula formation secondary to direct pressure necrosis of the adjacent duct wall. Increasing, these phenomena are seen not as distinct and separate steps but as a part of continuum (Pemberton 1997, Hazzan 1999).

The presence of a long cystic duct in parallel with the CBD or a low insertion of the cystic duct into the common bile duct (CBD) also increases the likelihood of this syndrome. In 1994 Toscapo reported a low CBD insertion in as many as 18% of his patients who underwent surgical cholangiography.

The process of impaction of a calculus with inflammatory changes that leads to eventual erosion of the involved walls and fistula formation has led some authors to create a classification system for the Mirizzi syndrome. In 1982, McSherry et al proposed a stage classification based on the results of endoscopic retrograde cholangiopancreatography (ERCP) and percutaneous transhepatic cholangiography (PTC). Type I is simple external compression of the CBD, whereas type II involves the presence of a cholecystocholedochal fistula. In ensuring these, years 2 categories were further subclassified into the following groups to aid in the surgical treatment of patients.

Type I No fistula present.
Type IA Presence of the cystic duct.
Type IB Obliteration of the cystic duct.
Type II Defect smaller than 33% of the CBD diameter.
Type III Defect 33-66% of the CBD diameter.
Type IV Defect larger than 66% of the CBD diameter.

Patients and methods
This was a descriptive study at Ittefaq Hospital Lahore. During the last 2 years thirty patients with obstructive jaundice admitted in the Department of Surgery. These patients admitted either through out-patient department or through Accident and Emergency Department. These 30 patients presented with obstructive jaundice or acute cholecystitis. After workup it was found that 12 patients had obstructive jaundice due to cholecdocholothesis and 8 patients had malignant obstructive jaundice. While 10 patients no definite cause was found except USG determines distended gallbladder and impacted gallstones in the Hartman pouch. In these 10 patients ERCP done in 5 patients preoperatively but no stone or sticture was found in common bile duct. Rest of the 5 patients ERCP could not be done due to non-affordability of patients, so preoperative cholangiogram was planned in these patients. On these finding we made the provisional diagnosis of Mirizzi syndrome.

Results:
During the 2 years these patients with Mirizzi syndrome admitted by chance. Age ranges from 26 to 70 years with median age of 52.77 years. The main symptoms in these patients were upper abdominal pain, jaundice, fever off and on and vomiting. Physically examination reveals jaundice, tenderness in right hypochondrium and palpable gallbladder in all these patients.

Liver function tests done in these patients. Bilirubin ranges from 3 to 7.2mg/dl with mean (4.7mg/dl) while alkaline phosphatase ranges from 679 to 1418mg/dl (mean 163mg/dl). Ultrasonography determines distended gallbladder with multiple gallstones and 4 patients had mild dilatation of biliary changes but no stone detected in CBD. As ERCP was done in 5 patients and no significant finding detected in these patients on ERCP. After full preoperative work up we performed surgery in all these 10
patients. Peroperatively we found that gallbladder was
dissended and stones impacted at Hartman's pouch and
CBD was clear of stones but in one patient had
cholecystocholedochal fistula. We performed on table
cholangiogram in 5 patients and no stone or sticture was
detected in common bile duct and free flow of contrast in
the duodenum. We performed cholecystectomy in 9
patients and in 1 patient we placed T tube in CBD after
cholecystectomy. Postoperatively these patients remained
right and discharged home after T tube cholangiogram.

Discussion:

Mirizzi syndrome is a rare presentation of gallstones. Miss
Mirizzi syndrome in United States of America occurs
approximately 0.7–1.4% of all patients undergoing
cholecystectomy and in 0.1% of all patients with gallstone
disease (Hassan, 1999) Mirizzi syndrome is more common
in the elderly but any patient with cholelithiasis is at risk
(Coenesas 1989).

Mirizzi syndrome has no consistent or unique clinical
features that distinguish it from other more common forms
of obstructive jaundice. Symptoms of recurrent
cholangitis, jaundice, right upper quadrant pain and
abnormal hepatic serum biochemical findings may or may
not be present (Strugnell, 1995). In one study of 17
patients in whom Mirizzi syndrome was found at surgery,
only 10 (59%) had presented with a recent history of
jaundice. Twelve (71%) of these patients had elevated
preoperative alkaline phosphatase levels.

Generally it is difficult to differentiation between
Mirizzi syndrome and obstructive jaundice with physical
examinations alone. Ultrasound is the first line diagnostic
examination. The diagnosis of Mirizzi syndrome can be
confirmed on cholangiography. Initially preoperative
cholangiography is indicated to determine that the cystic
duct present and to ensure that the CBD is free of calculi
(Baer, 1990).

Mirizzi syndrome type I (i.e compression without a
fistula) is generally treated as minimally as partial
cholecystectomy, which leaves the neck of gallbladder in
place and long standing inflammation and fibrosis leads to
occlusion of cystic duct (Baer, 1990).

Mirizzi syndrome type II-IV i.e., (fistula present)
require more complex intervention. Type-II generally
treated successfully with either cholecystectomy and
closure around a T tube or partial cholecystectomy with in
situ T tube placement (Penonton, 1997).

Other treatment options for larger defects (type III
and IV) treated with cholecystectomy and subsequent
sutting of the remaining gallbladder flaps around T tube is
one option (McShery 1982).

Others suggest biliary enteric bypass via roux-en-Y
choledochojejunostomy or a choledocho-duodenostomy to
reduce the mortality and morbidity and CBD stricture
(Baer, 1990).

In this study we treated 10 patients with Mirizzi
syndrome 9 patients has type I and 1 patient type-II
Mirizzi syndrome. All the patients have raised alkaline
phosphate and bilirubin. We performed cholecysctomy in
type-I Mirizzi syndrome. One patient had type-II Mirizzi
syndrome. We performed cholecysctectomy and T-tube
placed in the common bile duct because there is small
cholecystocholedochal fistula. Peroperatively we again
assessed the common bile duct and in 5 patients on table
cholangiogram was done but no stone was detected in the
common bile duct but only external compression to
common bile duct. All the patient recovered. Another
study by Chan at Singapore also treated 18 patients with
Mirizzi syndrome. In this 11 patients had type-I and 7
patients had type-II Mirizzi syndrome. In type-II 4 fistulas
were closed surgically the other 3 had biliary bypass
procedures.

Conclusion

Mirizzi syndrome is unusual presentation of gallstones. Its
diagnosis preoperatively is difficult but confirmed
peroperatively. Type I is successfully treated with
cholecystectomy but type II – IV is treated with
cholecystectomy and t tube placement or biliocentric bypass.

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