

Original Research Article

Etiology, age and sex distribution, investigations and treatment of gallstone pancreatitis

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	International Archives of Integrated Medicine, Vol. 3, Issue 1, January, 2016. Copy right © 2016, IAIM, All Rights Reserved. Available online at http://iaimjournal.com/
	ISSN: 2394-0026 (P) ISSN: 2394-0034 (O)
	Received on: 21-12-2015 Accepted on: 31-12-2015 Source of support: Nil Conflict of interest: None declared.
How to cite this article: Naik N, Patel G, Parmar H. Etiology, age and sex distribution, investigations and treatment of gallstone pancreatitis. IAIM, 2016; 3(1): 46-50.	

Abstract

Background: Acute pancreatitis occurs in only 3-7% of patients with gallstones. But gallstones were implicated in about 27% cases of acute pancreatitis reported in a decade prior to 1980. The relative risk of developing acute pancreatitis varies from country to country, and within a given country it is influenced by socio-economic, ethnic, and cultural factors. The present study evaluated the incidence of the disease, age-sex distribution, clinical manifestations methods, and management of gallstone pancreatitis.

Aim and objectives: To diagnose a case of gallstone pancreatitis by various investigations like blood investigations, USG or by CT scan, age-sex distribution, to observe the varied clinical presentations of biliary pancreatitis with regards to symptoms and signs, to study the management protocol of gallstone pancreatitis.

Material and methods: 50 cases of gallstone pancreatitis were studied during the period from May 2012 to July 2014, from all surgical units at our institute. **Inclusion criteria:** All patients admitted in surgical wards in a given particular unit who have diagnosed as having gallstone pancreatitis.

Exclusion criteria: Patients having pancreatitis other than biliary cause. This study included all the age groups and both the sex.

Results: In our study, most (34%) of male patients at the age group of 50-70 years, biliary pancreatitis was more predominant. Most (34%) of female patients at the age group of 40-60 years had biliary pancreatitis. In our study, most (92%) of the patient's serum amylase was 3 fold above normal value, alkaline phosphatase was raised in 88% of patients, 68% of them had increased AST, and 22% of them had had elevated serum bilirubin levels. Normal value of serum amylase ranges from 40 to 140

U/L, Alkaline phosphatase from 45 to 115 U/L and AST from 8 to 48 U/L. In our study, out of 50 patients, 28 patients underwent laparoscopic cholecystectomy and 8 patients underwent open cholecystectomy during same admission. In 9 patients endoscopic retrograde cholangiopancreatography (ERCP) plus endoscopic sphincterotomy (ES) was done and remaining patients managed conservatively.

Conclusion: Gallstone pancreatitis represents the most severe form of disease. The diagnosis is based in history and physical examination, an elevation of serum amylase 3 fold above the normal level, and ultrasound and CT scans. Endoscopic retrograde cholangiopancreatography is one of the tools in less certain cases of the absence of an agent that can abort progression of the disease; therapy should consist of adequate resuscitation, nutritional support, and careful monitoring to detect early complications.

Key words

Gall stone pancreatitis, Laboratory investigations, CT scan, ERCP.

Introduction

The first description of the association between gallstones and acute pancreatitis is attributed to Barnard or Prince who reported impaction of a gallstone in a common channel just distal to the entry of the pancreatic duct. Later at the beginning of the 20th century, Opie made the association between gallstones and acute pancreatitis. Since then, a wealth of information has been accumulated regarding this association, and biliary pancreatitis has become a well-established clinical entity. Acute pancreatitis occurs in only 3-7% of patients with gallstones. But gallstones were implicated in about 27% cases of acute pancreatitis reported in a decade prior to 1980. The relative risk of developing acute pancreatitis varies from country to country, and within a given country it is influenced by socio-economic, ethnic, and cultural factors. The age and sex distribution of gallstone pancreatitis generally parallels that of all patients with gallstones, and in contrast to alcoholic pancreatitis, females and older patients predominate [1]. Overall mortality rates for acute gallstones pancreatitis is about 8-13% but recent study in Edinburgh that this has fallen to 3% [2]. The great strides made in the field of imaging technology, especially in ERCP has contributed a great deal in the overall diagnosis and management of biliary pancreatitis [3]. The present study evaluated the incidence of the disease, age-sex distribution, clinical

manifestations methods, and management of gallstone pancreatitis.

Aim and objectives

To diagnose a case of gallstone pancreatitis by various investigations like blood investigations, USG or by CT scan, age-sex distribution, to observe the varied clinical presentations of biliary pancreatitis with regards to symptoms and signs, to study the management protocol of gallstone pancreatitis.

Material and methods

50 cases of gallstone pancreatitis were studied during the period of three years.

Inclusion criteria

All patients admitted in surgical wards in a given particular unit who have diagnosed as having gallstone pancreatitis.

Exclusion criteria

Patients having pancreatitis other than biliary cause were excluded.

This study included all the age groups and both the sex. When evaluating a patient suspected of having biliary pancreatitis, four sequential steps have been followed.

- Establishing the diagnosis of pancreatitis, excluding other abdominal conditions that have similar clinical features

- Identify the presence of biliary tract disease, excluding other possible etiologies of the acute pancreatitis;
- Assess the severity of the disease; and
- Detect any complications.

By performing various investigations like blood routine, blood urea, serum creatinine serum amylase, serum calcium, Liver function tests. Radiological investigations like erect abdomen, USG abdomen, CT scan the diagnosis was confirmed. The treatment plan was focused on adequate initial resuscitation and supportive care, early detection of complications, and definitive treatment of the associated biliary disease and those patients in whom symptomology improves within 48-72 hours, they were taken up for surgery either laparoscopic or open cholecystectomy. ERCP + ES for both diagnosing and therapeutic purpose if the symptoms worsen within 48-72 hours and postoperative complications are noted in all the patients. Data like duration of stay in the

hospital, conservative management, surgical procedures and its results, complications if any and the follow up were carefully recorded.

Results

In our study, most (34%) of male patients at the age group of 50-70 years, biliary pancreatitis was more predominant. Most (34%) of female patients at the age group of 40-60 years had biliary pancreatitis (**Table – 1**). In our study, 100 % of the patients had epigastria tenderness, 34% of them had no bowel sounds, 4% of them had ascites and none of them had mass per abdomen (**Table – 2**).

In our study, most (92%) of the patient's serum amylase was 3 fold above normal value, alkaline phosphatase was raised in 88% of patients, 68% of them had increased AST, and 22% of them had had elevated serum bilirubin levels (**Table – 3**). Normal value of serum amylase ranges from 40 to 140 U/L, Alkaline phosphatase from 45 to 115 U/L and AST from 8 to 48 U/L.

Table – 1: Age vs. sex distribution.

Age group (Years)	Male	Female	Percentage of male	Percentage of female
10-20	0	0	0 %	0 %
20-30	0	3	0 %	6 %
30-40	2	6	4 %	12 %
40-50	5	7	10 %	14 %
50-60	6	10	12 %	20 %
60-70	11	0	22 %	0 %

Table – 2: Distribution of patients with signs.

	Present study (N=50)		Manandhar, et al. [4] (N=45)	
	No of patients	Percentage (%)	No of patients	Percentage (%)
Epigastria Tenderness	50	100%	25	55.5%
Absent bowel Sound	17	34%	13	28.8%
Tachycardia	15	30%	15	33.3%
Ascites	2	4%	1	4.5%
Mass in Abdomen	0	0%	0	0%

Table – 3: Laboratory investigations.

Investigations	Elevated	Percentage (%)
Serum Amylase (>3 fold)	46	92%
Alkaline phosphatase (>3 fold)	44	88%
AST (>3 fold)	34	68%
Serum bilirubin (>2 mg/dl)	11	22%

In our study, out of 50 patients, 28 patients underwent laparoscopic cholecystectomy and 8 patients underwent open cholecystectomy during same admission. In 9 patients, ERCP plus ES was done and remaining patients managed conservatively (**Table – 4**). In manandhar, et al. study, of the 45 patients, 39 (86.7%) were treated with conservative management. Of remaining cases, 5 (11.1%) patients underwent index cholecystectomy in the same setting and 1 patient was treated with ERCP plus ES.

Discussion

The incidence of biliary pancreatitis in Manandhar, et al. [4] was 28% and in our study was 24%. Other causes of acute pancreatitis include alcohol, idiopathic, worm infestation, and others. Gallstone Pancreatitis accounted for about 24% of the cases of pancreatitis who presented us during study period. This disease was most common in the age group of 50-60 years [5]. Gallstone pancreatitis was common in females than males. The clinical features of abdominal pain, vomiting, distension, jaundice were the main symptoms in this study. Epigastric tenderness was the most common sign. An elevation of serum amylase, and abdominal ultrasound was most useful investigation in diagnosing biliary calculus, but in few patients pancreas was not visualized by USG, in these patients CT scan was helpful in diagnosis [6]. In our study, 100% of the patients presented with pain abdomen, 66% of them presented with nausea/vomiting, 30% of them presented with abdominal distension, 8% of them with fever and 22% of them with jaundice. In Manandhar, et al. study, the most common symptoms at presentation was abdominal pain, followed by vomiting, fever and jaundice. 24 patients had a

history of being diagnosed to have gallstone by ultrasonography. In our study, the youngest was 28 years old and the eldest was 69 years old. The highest incidence (30%) was noted in 50-60 years of age. In manandhar, et al., the most frequent group was 40-50 years which comprised 46.7% of the cases. In our study, we had female predominance of biliary pancreatitis i.e., most 52% of them were females when compared to 48% of the males where as in manandhar, et al. study, out of 45 cases 27 (60%) were male patients, with a male-to-female ratio of 1:1.5. Severity assessment of the patients was done using Ranson's score [7] where 39 (78%) and 11 (22%) patients, respectively identified to have mild and severe pancreatitis. USG of abdomen was done to all the 50 patients using ALT HDI 500 real time ultrasound machine by a senior radiologist. It diagnosed biliary pancreatitis in about 39 patients and remaining 11 patients missed because of excessive gas shadow. It diagnosed cholelithiasis in all 50 patients. CT scan was done to those 11 patients where the USG failed to diagnose biliary pancreatitis. The results were 100%. In our study of 50 patients of gallstone pancreatitis, 45 patients underwent some kind of intervention of which 22 (44%) patients had an uneventful recovery without any complications and 26 (52%) patients developed some form of complications but recovered successfully. Common form of complications includes wound infections, fever, minor chest infections, pleural effusion, ileus, wound hematoma [8]. In our study of 50 patients of gallstone pancreatitis, mortality was seen in only 2 patients in conservatively treated group where as only in 1 patients in Manandhar et al study. Both patients were died because of multi organ failure [9].

Table – 4: Different modality of management in biliary pancreatitis.

Procedure	Present study (N=50)		Manandhar, et al. [4] (N=45)	
	No of patients	Percentage (%)	No of patients	Percentage (%)
Laparoscopic Cholecystectomy	28	56%	5	11.1%
Open Cholecystectomy	8	16%		
ERCP + ES	9	18%	1	2.2%
Conservative management	5	10%	39	86.7%

Conclusion

Although acute cholecystitis is the most common presentation of gallstones, gallstone pancreatitis represents the most severe form of disease [10]. The clinical diagnosis of biliary pancreatitis is difficult to make and often missed. The diagnosis is based in history and physical examination, an elevation of serum amylase 3 fold above the normal level, and ultrasound and CT scans. ERCP is one of the tools in less certain cases of the absence of an agent that can abort progression of the disease; therapy should consist of adequate resuscitation, nutritional support, and careful monitoring to detect early complications.

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