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ORIGINAL RESEARCH

Incidence of cholelithiasis in acute abdomen patients in emergency

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Abstract

Introduction- Acute Abdomen is used to applied to any condition that give rise to acute abdominal pain that may occur suddenly or gradually over period of several hours. It is a diagnostic challenge for the emergency physicians, as there are numerous causes. About 10% of patients with pain abdomen in the emergency setting has a severe or life threatening causes that requires surgery. Gallstone disease (GSD) represents a significant burden for healthcare systems worldwide and is one of the most common disorders among patients presenting to emergency rooms with abdominal discomfort.

Material and method- 100 patients admitted through General Surgery Emergency with acute abdomen to see the incidence of cholelithiasis were included. On the basis of investigations as clinical examination and radiological investigations in cases of acute abdomen diagnosis of cholelithiasis and various other diseases were made.

Results- Acute appendicitis (25%) was leading cause of acute abdomen. Second most common cause was cholelithiasis causing acute cholecystitis (13%), chronic cholecystitis (3%), empyema gall bladder (1%) and acute calculus pancreatitis (5%).The collected data was analyzed by calculating the mean of each variable and Pearson Chi square test was used for qualitative test. Mann Whitney U test was used for quantitative data

Conclusion- The incidence of gallstones is about 25% and it increases in the 4th and 5th decades of the life with maximum incidence in the 4th decade. Gallstones disease is more common in females. The commonest symptom was pain abdomen and the commonest sign was tenderness in the right hypochondrium. Ultrasonography was the investigation of the choice.

Introduction

Acute Abdomen is used to applied to any condition that give rise to acute abdominal pain that may occur suddenly or gradually over period of several hours.[1]Abdominal pain is one of the most common causes for patients to visit an emergency department (ED), which is about 5%–10% of all ED visits.[2]It is a diagnostic challenge for the emergency physicians, as there are numerous causes. About 10% of patients with pain abdomen in the ED setting has a severe or life threatening causes that requires surgery. The causes ranges from gastrointestinal, urological to gynaecological.[3]Despite extensive evaluation, a quarter of patients usually remained with a non-specific cause, but now with latest radiological imaging advances that number has decreased. The diagnosis associated with an acute abdomen vary according to age and gender.[4] Most common cause of acute abdomen in young adults is acute appendicitis, whereas biliary disease, bowel obstruction, intestinal ischemia, and diverticulitis are common

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causes in elderly. Surgeon managing a case of acute abdomen should know the various etiologies of acute abdomen. Hence, there is a need to enlist the different etiologies, leading to acute abdomen and the most common among them so that the decision regarding the management of such a case can be taken at the earliest. There are various non-surgical causes of an acute abdomen that can be divided into three categories: endocrine and metabolic, hematologic and toxins or drugs.[5] It is important for a surgeon to rule out these non surgical causes of acute abdomen when evaluating a patient with acute abdominal pain. Gallstone disease (GSD) represents a significant burden for healthcare systems worldwide and is one of the most common disorders among patients presenting to emergency rooms with abdominal discomfort.[6] One of the common diseases of gallbladder is cholecystitis for which people come to surgical department. Most common cause of cholecystitis is gallstones. The most common presentation of patients to ED is with specific episodes of right sub costal pain which may radiate to back and shoulder.[7]The prevalence of gall bladder stones varies widely all over the world. In India it is estimated to be around 4% whereas in western world it is 10%. The North Indians have 7 times higher prevalence of gall stones as compared to south Indians as shown in study restricted to rail road workers.[8] Approximately 3% of asymptomatic individuals become symptomatic per year (i.e., develop biliary colic). Once symptomatic, patients tend to have recurring bouts of biliary colic. Complicated gallstone disease develops in 3 to 5% of symptomatic patients per year. Over a 20-years period, about two thirds of asymptomatic patients with gallstones remain symptom free.[9] Diagnosis of gallstone disease is made by combining it with a proper history and physical examination and appropriate investigations which vary from surgeon to surgeon. Cholecystosonography was introduced in the mid 1970‘s. This technology has evolved during the last 20 years and has emerged as the preferred test for the evaluation of patients with suspected cholelithiasis or cholecystitis. In addition to identifying stones within the gallbladder or bile duct, abdominal ultrasonography provides important ancillary information regarding the anatomy of bile ducts, pancreas, and other
structures in the upper abdomen.[10] The newer technique of sonography includes the endoscopic ultrasonography. Because of increased incidence of gall stones due to dietary changes, lifestyle changes, there is a great need for a study which can provide the information regarding the incidence of the disease, so the aim of present study was to study the incidence of cholelithiasis in acute abdomen.

Material and method

This prospective study was conducted in the Department of General Surgery, Govt. Medical College & Rajindra Hospital, Patiala. 100 patients admitted through General Surgery Emergency with acute abdomen to see the incidence of cholelithiasis were taken. On the basis of investigations as clinical examination and radiological investigations in cases of acute abdomen diagnosis of cholelithiasis and various other diseases were made. These patients were subjected to the required investigations i.e. Hb, BT, CT, TLC, DLC, Urine C/E, FBS/RBS, RFT, LFT, HIV, HCV, HBsAg, E.C.G., Ultrasonography of abdomen, X-ray chest and X-ray abdomen erect (Ultrasonography) and clinical findings. Inclusion criteria includes patients with - General acute pain abdomen in emergency**,** Acute cholecystitis with cholelithiasis, Gall stone pancreatitis**,** Patients with cholelithiasis and choledocholithiasis. Patient with Perforation peritonitis, Intestinal obstruction, Blunt trauma abdomen, Sharp penetrating injury abdomen were excluded from the study.

Data analysis

The collected data was analysed by calculating the mean of each variable and Pearson Chi square test was used for qualitative test. Mann Whitney U test was used for quantitative data

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and getting the significance by p value in case of discrete variables. P value less than 0.05 is taken as significant.

Observation and Results

This study is the prospective study to find the incidence of cholelithiasis in acute abdomen patients in emergency. It included 100 patients of acute abdomen, admitted to department of surgery of Govt. Medical College and Rajindra Hospital Patiala through emergency

Cause Of Acute Abdomen	Patients	Percentage
Acute Appendicitis	20	20%
Appendicular Lump	4	4%
Appendix Perforation	1	1%
Acute Cholecystitis	13	13%
Chronic Cholecystitis	3	3%
Acute Calculus Pancreatitis	5	5%
Acute Acalculus Pancreatitis	7	7%
Pseudocyst Pancreas	3	3%
Nephrolithiasis	9	9%
Ureteric Calculus	1	1%
Liver Abcess	5	5%
UTI	1	1%
Retention Urine	2	2%
Acid Peptic Disease	6	6%
Liver Abcess	5	5%
Psoas Abcess	1	1%
Empyma GB	1	1%
Mesenteric LAP	4	4%
Ovarian Cyst	2	2%
Colitis	2	2%
Non-Specific	5	5%
Total	100	100%

Table 1: Etiological diagnosis of patients included in study.

Clinical Signs	Patients	Percentage
Tenderness RH	22	100%
Guarding	17	77.27%
Bowel Sounds	21	95.45%
Hypotension	3	13.64%
Temperature	20	90.91%
Dehydration	3	13.64%
Tachycardia	11	50%
Mass RH	1	4.55%

Table 2: Signs of Cholelithiasis

In this study 22 (100%) patients had tenderness in right hypochondrium. 17 (77.27%) patients had guarding, 5 patients had icterus and 1(4.55%) patient was having mass in right hypochondrium. Hypotension and dehydration was present in 3 (13.64%) patients each. Temperature was raised in 20 patients and tachycardia was present in 11 patients.

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USG Finding	Patients	Percentage
Stone in Gall Bladder	22	100%
Solitary Stone	4	18.18%
Multiple Stone	17	77.27%
Gall Stone with CBD Stone	1	4.55%
Dilated Bile Duct	2	9.09%
Gall Balder Wall Thickening	16	72.73%
Overdistended Gall Balder	1	4.55%
GB Perforation	1	4.55%

Table 3: Ultrasound Findings

Ultrasound abdomen was the main investigation performed. 17 patients (77.27%) had multiple stones and 4 patients (18.18%) had solitary stone. Bile duct was dilated in 2 patients (9.09%). Cholelithiasis with choledocholithiasis was present in 1(4.55%) patient. Gall bladder wall thickening was present in 16 patients (72.73%). Gall bladder perforation and empyema Gall bladder was present in 1 case (4.55%) each.

Complications of Cholelithiasis	Patients	Percentage
Acute Cholecystitis	13	40.91%
Chronic Cholecystitis	3	13.64%
Chronic Cholycystitis +Choledocholithiasis	1	4.55%
GB Perforation	1	4.55%
Acute Calculus Pancreatitis	4	18.18%
Total	22	100%

Table 4: Complications of cholelithiasis

Complications of cholelithiasis observed in our study were acute cholecystitis in 13 (40.91) patients. 3 patients (13.64%) patients were having chronic cholecystitis, 1 patient (4.55%) was having Cholelithiasis with choledocholithiasis, 1 patient (4.55%) presented with acute cholecystitis was having Gall bladder perforation, 1 patient presented with acute cholecystitis was having empyema gall bladder confirmed during surgery and 4 patients (18.18%) had acute calculus pancreatitis.

Discussion

In patients presenting with acute abdomen, there may be various pathologies like acute appendicitis, acute cholecystitis, acute pancreatitis, nephrolithiasis etc. Hence exact diagnosis is required for planning proper management. In this study out of the 100 patients who presented specifically with symptoms of acute abdomen had undergone various investigations and managed according to diagnosis were selected for the study.

In this study 100 cases of acute abdomen were admitted in Rajindra Hospital Patiala attached with Government Medical college Patiala for a period of January 2020 to July 2021 to study the incidence of cholelithiasis in acute abdomen patients in emergency. Acute appendicitis (25%) was leading cause of acute abdomen. Second most common cause was cholelithiasis causing acute cholecystitis (13%), chronic cholecystitis (3%), empyema gall bladder (1%) and acute calculus pancreatitis (5%). Other various causes of acute abdomen were acute acalculus pancreatitis (7%), nephrolithiasis (9%), liver abcess (5%), acid peptic disease (6%), mesenteric LAP (4%) etc. Similar findings were recorded by Dr. Viney et al in their study i.e. 25% cases of acute appendicitis, acute cholecystitis in 16.74% cases.[11] Similar findings were noted in study of Dr. P Rama Rao et al i.e. 23% cases of acute appendicitis, 17% acute

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cholecystitis and 11% acute pancreatitis.[12] In Ghalige et al study incidence of acute appendicitis was 27.9%, acute cholecystitis 18.2%,acute pancreatitis 8.1%, acute gastritis 4.0% psoas abcess 1.0% Colitis 3.0%, Mesenteric Lymhadenitis 3.0% and non specific abdominal pain 3.2%.[13]

Clinical Signs	Present study	Karl et al	Rachamalla RR et al
Tenderness in right hypochondrium	100%	96%	98.95%
Guarding	77.27%	NA	25.26%
Mass	4.55%	4%	15.79%

Tenderness in Right hypochondrium was present in all patients was similar to Karl Et al[14] and Rachamalla study.[15] Guarding was present in 77.27% patients.

All the patients underwent routine hematological and biochemical investigations. Leucocytosis was seen in 18 patients. Serum bilirubin was raised in 5 patients, their bilirubin level ranged from 1.4 to 7.8 mg %. Alkaline phosphatase was elevated in 10 patients (45.45%). Karl et al study[14] showed 20% cases having raised ALP.

Imaging finding	Number of cases	% of cases	Alok Sharma study	%
Stone in Gall Bladder	22	100%	57	98.3
Solitary Stone	4	18.18%	15	26.3
Multiple Stone	17	77.27%	42	73.7
Gall Stone with CBD Stone	1	4.55%	3	5.2
Dilated Bile Duct	2	9.09%	10	17.2
Gall Balder Wall Thickening	16	72.73%	3	5.2
Overdistended Gall Balder	1	4.55%	NA	00

Ultrasound imaging was done in all patients. All the cases revealed stone in gall bladder. Gall stones were present in 22 patients ad out of these 4 were solitary stones, 17 multiple stones, thickening of gallbladder was present in 16 patients, gall stone with CBD stone in 1 patient and dilated CBD in 2 patients. Similar findings were noted in Alok Sharma et al study[15] and Rachamalla RR et al study.[15]

Conclusion

This study concludes that the incidence of gallstones increases in the 4th and 5th decades of the life with maximum incidence in the 4th decade. Gallstones disease is more common in females. The commonest symptom was pain abdomen and the commonest sign was tenderness in the right hypochondrium. Ultrasonography was the investigation of the choice. It showed multiple gallstones and thickening of the gallbladder in the majority of cases. However, further studies needs to be done because of lifestyle modifications and increase in incidence of cholelithiasis.

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