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Cases of Acute Cholecystitis: A Clinical Study and Follow-Up

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ABSTRACT:

Background and Objective: One of the most typical causes of acute abdomen is acute cholecystitis, which is characterized by gallbladder inflammation and typically results from cystic duct obstruction. The was aimed to study socio-demographical and clinical profile of diagnosed cases of Acute Cholecystitis.

Methodology: The study was observational, prospective, and inferential study conducted among 60 adult patients (18 years and above) being referred to the Emergency department and Department of Surgery, Santosh Medical College and Hospital, Ghaziabad (Uttar Pradesh) presenting with Upper Abdominal Pain.

Result: About 95% of the patients have calculus cholecystitis. Mean age of the study participant was 43.5) years. Study showed that majority of them were females (76.7%). In the present study also, pain was reported by all patients accompanied with fever by 40% and nausea vomiting by 65% patients.

Conclusion: The prevalence of acute cholecystitis varies with age, sex and ethnic group. Ultrasonography remains the most important investigation of choice for the diagnosis of acute cholecystitis. The characteristic signs seen in ultrasound imaging include edema and thickening of the gallbladder wall, occasionally gas in the wall, and absence of visualization of the organ.

Keywords: Ultrasonography, cholecystitis, cystic duct obstruction.

INTRODUCTION:

The gallbladder, also biliary vesicle, is a small organ and acts as a container that stores the bile during the interprandial period. It has an ovoid shape and is located inside the gallbladder fossa on the visceral face of the liver, having a sagittal direction, slightly oblique antero-posterior and from the right to the left.

One of the diseases of the bladder is acute cholecystitis (AC), a pathological entity that is induced by the acute inflammation of the gallbladder. It is of particular interest to the patients

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that present gallstones, with a prevalence of 10 to 25% of the total surgical interventions regarding the gallbladder diseases, which affect a huge part of the world's population.

It is generally associated with the obstruction of the bile duct, however it can develop at a small percentage of patients without the formation of gallstones and the obstruction of the duct **[1]**. The frequency and severity of this disease is much higher at patients over 60, although it can occur at any age.

If the obstruction has other causes, then the diagnosis changes to non-lithiasic acute cholecystitis. A high risk for acalculous cholecystitis to develop is associated with a series of medical problems, such as burns, trauma, or acute surgical interventions **[2]**

Considering epidemiology, the acute cholecystitis represents 10% acute abdomen and females are commonly affected with a female to male ratio of 2:1.Calculous cholecystitis are more common than acalculous cholecystitis.**[3]**

Acute calculous cholecystitis (ACC) affects more than 20 million Americans annually**[7]**. More than 90% of cases of AC are due to cholelithiasis, while acalculous cholecystitis (AAC) occurs in 5%-15% of all cases of AC **[4]**. The usual symptoms among the affected patients are the pain in the right upper quadrant with fever and chills.

However, the diversity of clinical presentation and comorbidities of patients with Acute Cholecystitis makes it extremely difficult to standardize treatment. Therefore, the clinical decision-making may not always be clear, especially for elderly and critically ill patients with reduced physiologic reserve [5].

The approach, diagnostic evaluation and management of acute cholecystitis has come miles away from the older days of elective cholecystectomy to the present day hurricane management like emergency open cholecystectomy; minimally invasive cholecystectomy and laparoscopic cholecystectomy using space age tools like laser cautery.

Considering scarcity of studies documenting the clinical profile, treatment provision pattern and the postoperative outcomes among Indian population, the current study was conducted with the following purposes: To study the clinical profile of acute cholecystitis cases presenting to a tertiary care teaching hospital; and to describe the management and complications of acute cholecystitis presenting to a tertiary care teaching hospital.

METHODOLOGY:

The present study is an Observational and Prospective study conducted at Santosh Medical College and Hospital, Ghaziabad (Uttar Pradesh) over the period from from November 2018 to April 2020. The study was carried out among adult patients (18 years and above) being referred to the Emergency department and Department of Surgery, presenting with Upper Abdominal Pain.

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A total of 60 adult patients (18 years and above) were recruited in the study. In the present research, presenting complaint of upper abdominal pain was considered for admission. Patients with a diagnosis of Acute Cholecystitis were then recruited into the study.

However, to compensate for the patients lost to follow up, mortality and/or unresponsive cases, nearly 20 extra cases were added, rounding off the total sample size to a minimum of 60. Sample selection was done using convenience sampling method (first come first serve basis) for the study (November 2018 to April 2020).

Statistical analysis was performed using SPSS (Statistical Package for the Social Sciences) for Windows (version 24.0). Categorical variables were described as frequency (percentage), mean ± standard deviation was used for continuous parameters. Differences between two groups were compared by the Student T test.

For non-parametric variables, the data are presented as median (min-max). In this case, the nonparametric Mann–Whitney test was used for statistical comparisons. Categorical variables were compared between two or more groups using the Chi-square test. For all analyses, a two-tailed p-value of <0.05 was considered statistically significant.

RESULT:

The study was observational, prospective, and inferential study conducted among 60 adult patients (18 years and above) being referred to Department of Surgery, Santosh Medical College and Hospital, Ghaziabad (Uttar Pradesh) presenting with Upper Abdominal Pain. Patients with a diagnosis of Acute Cholecystitis and voluntarily participating were then recruited into the study.

The age wise distribution of acute cholecystitis patients showed that the age of study subjects was in the range of 22-65 years. The mean age of the study group was 43.47 $\pm$ 11.99 years, majority of them were females (76.7%) and 23.3% were males.

Table 1: Clinico-demographic details of study sample.

		Acute Cholecystitis Patients	
		N	**(%)**
Gender	Males	14	23.3
	Females	46	76.7
Age	Mean $\pm$ SD	43.47 $\pm$ 11.99	
Symptoms	Pain	60	100.0
	Fever	24	40.0
	Jaundice	0	0
	Bowel Habit		
	Constipation	45	75.0
	Loose stools	4	6.7
	Nausea and Vomiting	39	65.0

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As shown in Table 1, All patients recruited in the study sample were experiencing pain (100.0%). Nearly 40% of the subjects were having fever. None of the study subjects had any symptom of jaundice (0.0%).Only 18% had normal bowel movements, 75% experienced constipation, and nearly 7% experienced loose stools. A total of 65% subjects experienced nausea and vomiting among all the study participants.

Table 2: Clinical signs among the study subjects

		Frequency	Percent
Pain in Right Abdomen	Yes	60	100.0
Location of Pain	Epigastrium	17	28.3
	Rt. Hypochondrium	43	71.7
Rigidity	Yes	60	100.0
Palpable and/or Tender GB	No	60	100.0
Murphy's Sign	No	10	16.7
	Yes	50	83.3

Table 2 represents the presence of clinical signs among the study population. It was noticed that all patients presented with tenderness and rigidity in right upper abdominal quadrant (100.0%). However, none of the patients were seen to have a palpable and/or tender gall bladder (0.0%). A majority of study subjects (83.3%) had a positive Murphy's sign, and a majority of study subjects (71.7%) had pain in the right hypochondrium

Table 2: Clinical findings of the study population

Findings		**Frequency**	**Percent**
Ultrasonography	Pericholic cystic fluid	26	43.3
	Fluid in Morrison's pouch	20	33.3
	Peri GB edema	48	80.0
	Impacted stone in Hartman's pouch	5	8.3
GB wall thickness	Normal	22	36.7
	4 mm	16	26.7
	5 mm	16	26.7
	6 mm	6	10.0
Number and size of GB calculi	Single calculus	24	40.0
	2-3 calculi	7	11.7
	3-4 calculi	4	6.7
	Multiple tiny calculi	25	41.7
Common Bile Duct	Normal	56	93.3
	Mild Dilated	4	6.7

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As shown in above Table3, Ultrasonography findings of the study population diagnosed with acute cholecystitis. It was noticed that nearly 43.3% of study population had presence of pericholic cystic fluid. More than one-thirds of the study population had normal wall thickness, and rest had an extended wall thickness, ranging from 4-6mm. It was interesting to note that the majority of study population had either a single calculus in their GB (40.0%), or had multiple tiny calculi (41.7%). Very few subjects had 2-4 calculi in their GB. The status of Common Bile Duct (CBD) dilatation among the study participants diagnosed with acute cholecystitis.

Table 11: Clinical and LFT parameters of the study population

Parameters	**Mean ± SD**
Pulse	96.33 ±8.428
Temperature	99.480 ± 1.0413
Total Leucocyte Count (TLC)	13763.52 ± 4137.544
Platelets	2.1885 ± 0.83576
International Normalized Ratio	1.1357 ± 0.10169
Serum amylase	49.20± 41.86
Bilirubin	0.78± 0.435
Serum Creatinine	0.94± 0.142

Table 4 shows the descriptive statistics of the study population regarding the clinical parameters. The mean Pulse rate of the study participants was 96.33 ± 8.42, mean temperature (in Fahrenheit) was 99.5 ±1.04. The routine blood investigations revealed that the mean TLC count among the study participants was 13763 ± 4137, the mean platelet count (in lakhs) among study population was 2.19 ± 0.84. The mean Bilirubin levels were 0.78 ± 0.43 (Mean + SD). Also, the mean serum creatinine levels among study population was 0.94 ±0.14.

DISCUSSION:

Acute cholecystitis is one of the common causes of acute abdomen, characterized by inflammation of gall bladder and usually caused by obstruction of cystic duct. About 95% of the patients have calculus cholecystitis. [6The prevalence of acute cholecystitis varies with age, sex and ethnic group. [7]

In the present study, mean age of the study participant was 43.5 (12) years. Evidence suggests that the frequency of gallstones increases with age, particularly after age 40 to become 4 to 10 times more likely in older individuals. [8,9]

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In a study by Nagi et al in Jalandhar in 2015, most common age group for gall stone disease was found to be 31 to 40 years followed by 41 to 50 years. [114] Study by Sangma et al in 2016 also revealed maximum incidence of cholecystitis in the age group of 41-60 years.[6]

Acute Cholecystitis is characterized by right upper quadrant pain, abdominal guarding, and fever. In the present study also, pain was reported by all patients accompanied with fever by 40% and nausea vomiting by 65% patients. In acute cholecystitis, patients complain of severe pain in abdominal right upper quadrant can be confusing with biliary colic but the characteristic pain is on the contrary prolonged greater than 4–6 hours.

Usually fever, nausea, anorexia, and vomiting and the pain should be referred to right shoulder or back. **[10]** Pain as commonest symptoms were reported by studies elsewhere. **[7,11]** Murphy sign is classical and pathognomic of acute cholecystitis, which was elicited positive in 83.3% of the patients in our study. The findings are consistent with other studies. **[6,7]**

Majority of patients in our patients had been experiencing symptoms such as pain for the first time (85%). Majority of patients with gallstones usually remain asymptomatic. It is essential to define exactly which symptoms gallstones cause: true biliary pain and/or complications, versus nonspecific abdominal complaints including dyspepsia. **[12]**

As mentioned by Nathaniel MM et al, Kenneth WS and Roslyn JJ and Zinner MJ "localized tenderness, guarding and rebound tenderness in the right upper quadrant were consistent and suggestive of acute cholecystitis."[13-15]

Ultrasound imaging helps to make diagnosis for acute cholecystitis. The characteristic signs include edema and thickening of the gallbladder wall, occasionally gas in the wall, and absence of visualization of the organ.

Thickening and edema of the wall is particularly useful in establishing the diagnosis of acalculous cholecystitis when they are coupled with tenderness over the organ evoked by pressure of the ultrasound probe. [6]

CONCLUSION:

Health is multidimensional. Gastrointestinal health has gained importance recently due to the changing food habits and patterns. Acute cholecystitis is one of the common causes of acute abdomen, characterized by inflammation of gall bladder and usually caused by obstruction of cystic duct. The severe abdominal pain patients in right upper quadrant and overall the clinical presentation matched the pain of biliary colic. evidenced by Ultrasonography, majority of patients had extended gall bladder wall thickness. The ultrasound can be informative about pericholecystic fluid collection or inflammatory mass in upper right abdominal quadrant. Leukocytosis is also characteristic of acute cholecystitis.

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