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Evaluation of Symptomatic Improvement after Cholecystectomy in Gall Stone Disease

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Abstract
Introduction: *Cholelithiasis is a chronic recurrent disease of the hepatobiliary system. The impaired metabolism of cholesterol, bile acids and bilirubin are characterized by gall stone formation.*
Materials & Methods: *In present study, apart from studying the clinical presentation, it also looks at improvement in attributable and non-attributable symptoms of gall stone disease following cholecystectomy.*
Result: *In this study, 100 cases of cholelithiasis who were admitted in Guru Nanak Dev Hospital and Government Medical College, Amritsar, for cholecystectomy during November 2017 to October 2019 were studied. At present, available literature on cholelithiasis is reviewed and the results of study are compared with those of other authors.*
Conclusion: *The highest age incidence of cholelithiasis was in the 5^{th} decade, with female preponderance. 100% cases became symptoms free from vomiting after 6 months of cholecystectomy.93% (hyperacidity) cases, 92% (flatulence) cases, 85% (Heartburn) cases, 82%(dyspepsia), 80%(right upper abdominal pain and non attributable symptoms) cases became symptoms free after 6 months of cholecystectomy.*

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I. Introduction

Archaeological excavations demonstraing the presence of gall stones in young Egyptian women have confirmed that cholelithiasis has plagued mankind over 2000 years. Cholelithiasis is the commonest disease of the biliary tract accounting for 85% of biliary pathology (Rigo et al., 1974). The incidence of cholelithiasis in India is 5.4% (Newman and Northop, 1959). Gall stones are 1.6 to 5 times more common on females than in males in developed countries. It is estimated that about 10-20% of population has gallstones (Wilbur and Bolt, 1959; Bainton et al., 1976; Barker et al., 1979; Godrey et al., 1984). Many of these stones are asymptomatic and majority die of unrelated causes (Bateson and Bouchier, 1975). Widespread use of abdominal ultrasonography has led to discovery of increasing number of silent gall stones. Follow-up studies show that only 15% of them develop symptoms and require cholecystectomy (Wenkert and Robertson, 1966).
Cholecystectomy as a treatment of symptoms should only be done if symptoms can definitely be ascribed to gall bladder disease.

II. Materials and Methods

This study titled "Evaluation of symptomatic improvement after cholecystectomy in gall stone disease" was done at Guru Nanak Dev Hospital and Government Medical College,Amritsar, for a period of November 2017 to October 2019. The cases which confirmed the pain and other signs and symptoms to be related to gall bladder disease were selected for study.A total of 100 cases of cholelithiasis were admitted, examined, investigated, and operated during the period between November 2017 and October 2019. Detailed history of all the 100 cases was taken that included information regarding the age, sex, nature of the symptoms, duration of the symptoms, past history of similar complaints, diet history,history of alcohol ingestion and diabetes.Patients of peptic ulcer disease,carcinoma of gall bladder,carcinoma of common bile duct,common bile duct stricture with gall stones or any other common bile duct pathology were excluded from this study. All patients underwent detailed examination, haemogram, electrocardiogram, liver function test, blood sugar, blood urea, serum creatinine, urine analysis, blood group, chest X-ray, and ultrasound scan of the abdomen. Relevant investigations and specialty consultations were taken for patients with associated medical illness and their control was ascertained pre-operatively. Risk and complications of the condition as well as surgery have been explained to the patients, written consent was obtained. Appropriate pre-operative antibiotics were given. In this study, some of the patients had undergone open cholecystectomy and some of the patients underwent laparoscopic cholecystectomy.The gallbladder was sent for histopathological examination. All patients received antibiotics and routine post-operative care. Patient was properly examined in the post-operative period to note

the development in any complication. Suitable treatment was given according to the need.Following cholecystectomy, the patients were advised regarding diet, rest and followed up for 1, 3 and 6 months and their symptoms of pain, dyspepsia,vomiting,flatulence etc. were noted.

III. Results

In this study, 100 cases of cholelithiasis who were admitted in Guru Nanak Dev Hospital and Government Medical College,Amritsar during November 2017 to October 2019 were studied. At present, available literature on cholelithiasis is reviewed and the results of the study are compared with those of other authors.

There is an increased incidence of cholelithiasis in the 5th decade. In the study, the youngest patient was 22-year-old and the oldest patient was 66-year-old (Table 1). Similar incidence is seen in the studies of SharadaB and Srinivas D (5th decade).

TABLE 1 AGE DISTRIBUTION

Age group	No. of cases	%age
20-30	12	12.0
31-40	20	20.0
41-50	36	36.0
51-60	22	22.0
61-70	10	10.0
Total	100	100.0

In the present study, out of 100 patients 82(82%) were female and 18(18%) were male. The present study shows that gallstone disease is a common problem in female population. The female- to-male ratio is 4.5:1 (Table 2).

TABLE 2 SEX DISTRIBUTION

Sex	No. of cases	%age
Female	82	82.0
Male	18	18.0
Total	100	100.0

Clinical study of Pimpale R et al(2019) showed 69% were female and 31% were male. Similar sex preponderance in favor of females was noted by Sharada B and SrinivasD(2017) and Halldestam I et al(2009).

Presenting Symptoms

In this study, 80% patients presented with pain in right upper abdomen and dyspepsia. Other symptoms are hyperacidity (70%) cases, heartburn (70%) cases, flatulence (60%) cases andVomiting (50%) cases. 20% patients presentend with non attributable symptoms.

In this study, we divided the symptoms (right upper abdominal pain and dyspepsia) in to mild, moderate and severe. Pre operative and post operative symptoms were compared to see if there is any improvement.

TABLE 3 RIGHT UPPER ABDOMINAL PAIN

Grade	Total No. of patients (100)
Mild	20 (20%)
Moderate	50 (50%)
Severe	10 (10%)
Total	80 (80%)

TABLE 4 DYSPEPSIA

Grade	Total No. of patients (100)
Mild	20 (20%)
Moderate	45 (45%)
Severe	15 (15%)
Total	80 (80%)

TABLE 5 PRE OPERATIVE COMPLAINTS

Presenting complaints	Present	
	No.	%age
Vomiting	50	50.0
Hyperacidity	70	70.0
Heart burn	70	70.0
Flatulence	60	60.0
Non attributable symptoms	20	20.0

6 MONTHS FOLLOW UP STUDY

TABLE 6 END RESULT OF RIGHT UPPER ABDOMINAL PAIN AT THE END OF 6 MONTHS FOLLOWUP

Grade	No. of patients became symptom free in postoperative period after 6 months	
	No.	%age
Mild	17	85.00
Moderate	42	84.00
Severe	6	60.00
Total	65	81.25

Overall 81.25% patients became symptom free after six months follow up of surgery.

TABLE 7 END RESULT OF DYSPEPSIA AT THE END OF 6 MONTHS FOLLOWUP

Grade	No. of patients became symptom free in postoperative period after 6 months	
	No.	%age
Mild	18	90.00
Moderate	39	86.66
Severe	9	60.00
Total	66	82.5

Overall 82.5% patients became symptom free after six months follow up of surgery.

TABLE 8 END RESULT OF OTHER SYMPTOMS AT THE END OF 6 MONTHS FOLLOWUP

Presenting complaints	No. of patients became symptom free in postoperative period after 6 months	
	No.	%age
Vomiting	50	100.00
Hyperacidity	65	92.80
Heart burn	60	85.72
Flatulence	55	91.66
Non attributable symptoms	16	80.00

From table 8 it can be stated that vomiting (100%) cases, Hyperacidity (92.8%) cases, flatulence (91.6%) cases, Heartburn (85.72%) and non attributable symptoms (80%) cases became symptom free after 6 months of cholecystectomy.

Similar presentations were noted in clinical studies of Vander Velpen GC et al (1993), LF Fenster et al (1995), Halldestam I et al (2008), Srinivas A (2014), Marwah S et al (2015), Malik AA et al (2016), Sharada B and Srinivas D (2017), Soitkar S et al (2018) and Pimpale R et al (2019).

IV. Conclusion

This is a prospective study. The study was done on 100 patients.

1. Among them 18% were male and remaining 82% were female. Male Female ratio was 0.21.
2. The age range was between 20-70 years.
3. Average age for female was 42.7 years and average age for male was 48.6 years. There was female Preponderance in all the age group. The highest age incidence of cholelithiasis was in the 5^{th} decade.
4. Right upper abdominal pain, Dyspepsia, Vomiting, flatulence, hyperacidity, heartburn are the common clinical presentation of Gall stone disease.
5. 20 patients presented with non-attributable symptoms. (like pain in left hypochondrium, left iliac, right iliac or epigastrium).
6. In six months follow up study it was found that there was inverse relationship between the pre operative value and post operative improvement following cholecystectomy. If the preoperative value was high there was less chance of improvement following surgery. In this study 85% cases from mild group, 84% cases from moderate group and 60% cases from severe group become symptom free from right upper abdominal pain. Overall 81.25% patients became symptom free from right upper abdominal pain after six months of surgery.

7. Similarly for dyspepsia symptoms, patients have shown less improvement in severe group but significant improvement in mild group. In this study 90% cases from mild group became symptom free after six months and only 60% cases from severe group became symptom free after six months. Overall 82.5% cases became symptom free after 6 months of cholecystectomy.
8. Regarding other symptoms 100% cases became symptom free from vomiting and 92.8% cases of hyperacidity became symptom free after six months of cholecystectomy.
9. 85.72% cases of heartburn became symptom free after six months of cholecystectomy. Similarly 91.66% cases of flatulence became symptom free after six months of cholecystectomy.
10. 80% cases of non attributable symptoms became symptom free after six months of cholecystectomy.

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