



IMPROVEMENT IN GASTROINTESTINAL SYMPTOMS AFTER CHOLECYSTECTOMY

Saima Zubair*	P.G.Scholar, Department of Jarahat, Faculty of Unani Medicine, Aligarh Muslim University, Aligarh, U.P. India. *Corresponding Author
Iqbal Aziz	Professor, Department of Jarahat A.K Tibbiya college, A.M.U, Aligarh, Uttar Pradesh, India.
Rahida Hilal	Assit. Prof. Department of Jarahat A.K Tibbiya college, A.M.U, Aligarh, Uttar Pradesh, India.
Mohd Tarique	Assit. Prof. Department of Jarahat A.K Tibbiya college, A.M.U, Aligarh, Uttar Pradesh, India.

ABSTRACT

Introduction: Cholecystectomy is acknowledged to be a safe and simple procedure and definitively eradicates gall stones in vast majority of patients¹. Post Cholecystectomy Syndrome is the term used to describe the persistence of biliary colic or right upper quadrant abdominal pain with a variety of gastrointestinal symptoms, which are similar to the features experienced by an individual before cholecystectomy. These symptoms include fatty food intolerance, nausea, vomiting, heartburn, flatulence, indigestion, diarrhea, jaundice and intermittent episodes of abdominal pain².

Aim: 1. To study the symptoms in patients with cholelithiasis.
2. To analyse the persistence of symptoms post operatively and
3. To identify the predictors of symptoms persistence as well as operative success

Methods: Patients admitted in AKTCH who underwent laparoscopic/open cholecystectomy were enrolled in the study. A suitable questionnaire for documenting sociodemographic characteristics of the patients, clinical features and Gastrointestinal symptoms was formulated the questionnaire included baseline documentation of gastrointestinal symptoms and other clinical features as well as assessment of post op symptoms on day 1, day 7, day 30 and after 6 months. **Results:** Pain abdomen was present in 236 (94.4%) patients at the time of presentation. At 6 months after the surgical intervention, abdominal pain was relieved in all patients. Vomiting was present in 113 (45.2%) patients at presentation, it improved significantly and was present in only 6 (2.4%) patients at 6 months follow up. Significant improvement was also noted in symptoms of Nausea from 23.25% to 1.6% ($P=.012$), Food intolerance from 22.8% to 4.8% ($P<.001\%$), Flatulence from 52.4% to 34.0% ($P<.001$), and Diarrhoea from 9.2% to 0.8% ($P<.001$). However, symptoms of heartburn ($P=.092$) regurgitation ($P=.75$) and belching from 14.8% to 10% did not show statistically significant improvement at 6 months post-surgery when compared to baseline. **Conclusion:** In our study, Open/Laparoscopic cholecystectomy significantly relieved symptoms of gall stone disease. Biliary symptoms abdominal pain, nausea, vomiting and flatulence had better outcome compared to dyspeptic symptoms belching, regurgitation and heartburn, which are also relieved in good proportion of patients.

KEYWORDS :

INTRODUCTION

Cholecystectomy is acknowledged to be a safe and simple procedure and definitively eradicates gall stones in vast majority of patients¹. It is mostly performed for symptomatic gall stone disease. But controversy exists about a causal relationship between gallstones and gastrointestinal symptoms².

The symptom complex of gall stone disease can be divided into Biliary symptoms which include nausea, food intolerance, vomiting and dyspeptic symptoms which include flatulence, belching and heart burn. Post Cholecystectomy Syndrome is the term used to describe the persistence of biliary colic or right upper quadrant abdominal pain with a variety of gastrointestinal symptoms, which are similar to the features experienced by an individual before cholecystectomy. These symptoms include fatty food intolerance, nausea, vomiting, heartburn, flatulence, indigestion, diarrhea, jaundice and intermittent episodes of abdominal pain³.

Studies have shown improvement in biliary symptoms post cholecystectomy for many of the gastric symptoms but still some symptoms may be persistent⁴. Several research studies have been carried out to identify the predictors of postoperative patient satisfaction, for example a study by Bates T. et al (1991) identified flatulence and long duration of attacks of pain as risk factors for postoperative dissatisfaction⁵.

common problem. Autopsy reports have shown a prevalence of gallstone from 11% to 36%. The prevalence of gallstone is related to many factors including age, gender and ethnic background. Risk factor for gallstone disease are Obesity, Pregnancy, dietary factors, Crohn's disease, terminal ileal resection, gastric surgery, hereditary spherocytosis, sickle cell disease and thalassemia. Women are three times more likely to develop gallstones than men, and, and first degree relative of patients with gallstones have a two fold greater prevalence⁶. Survey reports from Europe, North and South America, and Asia reveal that up to 5.3-25% of the population is effected by cholelithiasis. Malhotra (1968) indicated much lower incidence in India than in western countries⁷.

Gallstones are usually asymptomatic, and according to studies only 20% of people with cholelithiasis are symptomatic, experience pain and complications. The most common risk factor of cholelithiasis is gender, with higher preponderance for females. The old dictum of fat fertile female forty were the most commonly effected group. Another risk factor related to gallstones is metabolic syndrome events⁸.

Aims And Objectives

1. To study the symptoms in patients with cholelithiasis.
2. To analyse the persistence of symptoms post operatively and
3. To identify the predictors of symptoms persistence as well as operative success.

MATERIALS AND METHODS

Gallstone disease affecting the digestive tract is the most

This Hospital based prospective Randomized observational study was undertaken on topic

"Improvement in gastrointestinal symptoms and quality of life after cholecystectomy" on 250 patients undergoing Laparoscopic/Open Cholecystectomy to study the improvement in the Gastro Intestinal Symptoms and its determinants at Ajmal Khan Tibbiya College and Hospital (AKTCH), Aligarh Muslim University, Aligarh, India from September 2021 to June 2023.

A suitable questionnaire for documenting sociodemographic characteristics of the patients, clinical features and Gastro intestinal symptoms was formulated the questionnaire included baseline documentation of gastrointestinal symptoms and other clinical features as well as assessment of post op symptoms on day 1, day 7, day 30 and after 6 months. The questionnaire was administered by conducting face to face interview. Well Informed consent was obtained from all the participants prior to the interview.

Inclusion Criteria:

1. Patients giving consent for inclusion in the study .
2. Patients between 18 – 70 years of age of both sexes.
3. Patients undergoing laparoscopic/open cholecystectomy for gallstone.
4. Patients with ASA gr 1 and 2 .

Exclusion Criteria:

1. Patients not willing to participate in the study.
2. Patients less than 18 years of age.
3. Patients with acute cholecystitis
4. Severe COPD
5. HIV . HBSAG , HCV positive patients
6. ASA gr 3rd and 4th

Procedure Of The Study

Before surgery well informed written consent was obtained from the patients, IV line maintained and all monitors placed. After anaesthesia (GA/SA) , proper cleaning & draping was done . Cholecystectomy was performed. Per op findings were noted on prescribed proforma Stones were analysed macroscopically for size , number and type. Excised GB was sent for Histopathological examination in the dept. of Pathology, Jawaharlal Nehru Medical College, AMU. Post op monitoring done accordingly for I/O charting for 24 hours. Stitches removed on 7th day .Post op symptoms were assessed on day 1, day 7, day 30 and at 6 months FOLLOW UP – Clinical assessment at 0th day, then at 7 days, 15 days and monthly upto 6 Months.

RESULT

A total of 250 patients were enrolled in the study.

Baseline Characteristics Of Study Participants

Majority of the patients were females constituting 94.4% (n=226) of the participants (Table 1). The mean age of the participants was 37.69 ± 11.24 years. Majority of patients (n=95, 38.0%) belonged to 31-40 years age group followed by 41-50 years (n=92, 36.8%), <30 years (n=39, 15.6%) and >50 years (n=24, 9.6%) (Table 1).

Table 1: Baseline Characteristics Of Study Participants

Variable	Frequency	Percentage
Gender		
Female	226	94.4%
Male	24	5.6%
Age Group		
≤ 30 years	39	15.6%
31-40 years	95	38.0%
41-50 years	92	36.8%
> 50 years	24	9.6%

Presenting Complaints of Patients with Cholelithiasis

Pain was the most common presenting complaint reported in 236 (94.4%) of patients followed by Flatulence (n=131, 52.4%) and Vomiting (n=113, 45.2%). Other common presenting symptoms were Nausea (n=58, 23.2%), food intolerance (n=57, 22.8%), and heartburn (n=45, 18.0%). Table 5 shows the presenting complaints of the patients.

Table 2: Presenting Complaints of Patients with Cholelithiasis

Symptom	Frequency (n)	Percentage
Pain	236 (250)	94.4%
Vomiting	113 (250)	45.2%
Nausea	58 (250)	23.25
Food Intolerance	57 (250)	22.8%
Diarrhoea	23 (250)	9.2%
Flatulence	131 (250)	52.4%
Belching	37 (250)	14.8%
Heartburn	45 (250)	18%

The comparative analysis is presented in table 3.

Pain abdomen was present in 236 (94.4%) patients at the time of presentation. At one week post surgery, pain was relieved in significant number of patients and was present in only 88(35.2%) patients (P<.001). Vomiting was present in 113 (45.2%) of patients at presentation, it improved significantly and was present in 36 (14.4%) patients (P<.001). Significant improvement was also noted in symptoms of Nausea from 23.25% to 10.4%(P=.04), Food intolerance from 22.8% to 8.0% (P=.04%), Flatulence from 52.4% to 12.8%(P<.001), Belching from 14.8% to 6.0%, and Diarrhoea from 9.2% to 0.8% (P<.001).However, symptoms of heartburn (P=.10) and regurgitation (P=.16) did not show statistically significant improvement.

Pain abdomen was present in 236 (94.4%) patients at the time of presentation. At one month post surgery, pain was relieved in significant number of patients and was present in only 43 (17.2%) patients (P<.001). Vomiting was present in 113 (45.2%) of patients at presentation, it improved significantly and was present in only 6 (2.4%) patients (P<.001). Significant improvement was also noted in symptoms of Nausea from 23.25% to 2.4% (P=.02), Food intolerance from 22.8% to 8.4%(P=.04%), Flatulence from 52.4% to 22.0% (P<.001), Belching from 14.8% to 5.2%, and Diarrhoea from 9.2% to 0.8% (P<.001). However, symptoms of heartburn (P=.092) and regurgitation (P=.75) did not show statistically significant improvement at one month post surgery when compared to baseline (table).

Pain abdomen was present in 236 (94.4%) patients at the time of presentation. At 6 months after the surgical intervention, abdominal pain was relieved in all patients. Vomiting was present in 113(45.2%) patients at presentation, it improved significantly and was present in only 6 (2.4%) patients (P<.001) at 6 months follow up. Significant improvement was also noted in symptoms of Nausea from 23.25% to 1.6%(P=.012), Food intolerance from 22.8% to 4.8% (P<.001), Flatulence from 52.4% to 34.0%(P<.001), , and Diarrhoea from 9.2% to 0.8% (P<.001). However, symptoms of heartburn(P=.092) regurgitation (P=.75) and belching from 14.8% to 10% did not show statistically significant improvement at 6 months post-surgery when compared to baseline (table).

Table:3

Symptom	Baseline	1 week post-Surgery	1 month post surgery	6 month post surgery
Pain	236 (94.4%)	88 (35.2%)	43 (17.2%)	0 (0%)

Vomiting	113 (45.2%)	36 (14.4%)	6 (2.4%)	6 (2.4%)
Nausea	58 (23.25%)	26 (10.4%)	6 (2.4%)	4 (1.6%)
Food Intolerance	57 (22.8%)	20 (8%)	21 (8.4%)	12 (4.8%)
Diarrhoea	23 (9.2%)	2 (0.8%)	2 (0.8%)	2 (.8%)
Flatulence	131 (52.4%)	31 (12.8%)	55 (22.0%)	85 (34%)
Belching	37 (14.8%)	15 (6.0%)	13 (5.2%)	25 (10%)
Heartburn	45 (18%)	40 (16.0%)	38 (15.2%)	37 (14.8%)
Regurgitation	22 (8.8%)	11 (4.4%)	13 (5.2%)	13 (5.2%)

DISCUSSION

Gallstone disease still remains one of the major causes of abdominal morbidity. For gallstone disease, laparoscopic cholecystectomy is the preferred method of removing the gallbladder. Cholecystectomy is needed as recurrence of stone in a diseased gall bladder and complications arising from gallstones are well known. Cholecystectomy is safe and provides complete relief in majority of patient. Symptoms of biliary pain due to gallstones have traditionally been termed "biliary colic" by pioneers in medical practice such as Sir William Osler. The original symptom complex was defined by a sudden onset, of intense and agonizing pain, localized in the right hypochondrium or epigastrium, with projection to the shoulder, and duration of hours to days or possibly even weeks⁹.

In our study total 250 patients with symptoms of cholelithiasis were operated. Out of which pain was present in 236 patients and it was cured in all the patients at 6 months after cholecystectomy. Similar improvements have been reported in many studies worldwide. Sagar soitkar et al (2018)¹⁰ reported that pain was present in all of their patients enrolled preoperatively and it improved in 95% of patients 3 months after the operation. Similarly, Qureshi MA et al (1993)¹¹ found that pain abdomen which was present in 95% of their patients preoperatively persisted in only 12% of their patients post operatively. Amir M. & Zubair M (2009)¹² reported that only 2.5% patients had pain 6 months after the operation which was present in 99% patients at baseline. Velpen et al (1993)¹³ reported improvement from 45% to 3.4%, Niranjan et al (2000)¹⁴ from 96% to 7%, Malik AA et al (2016)¹⁵ from 97% to 6%, Aggarwal M et al (2016)¹⁶ from 96% to 15%, and Finan KR et al (2006)¹ from 87% to 31%.

In our study vomiting was present in 45.2% of patients which significantly reduced at 6 months and present in only 6% of patients. In previous studies by Velpen et al (1993)¹³ vomiting decreased to 3.4% (from 41%), 4.1% (from 23.7%) in Ure BM et al¹⁸ 2.2% (from 50%) in Gui GP et al¹⁷ 2% (from 38%) in Finan KR et al¹, 4% (from 59%), in Aggarwal M et al¹⁶ Vomiting was relieved in all patients. In the study by Qureshi MA et al¹¹, Amir M and Zubair M et al¹², Sagar Soitkar et al¹⁰ there was no improvement in vomiting. In the study of Gi Hyun Kim et al¹⁹ where proportion of patients with vomiting before and after cholecystectomy was 5% they have not mentioned any cause for it.

In our study total numbers of patients with nausea were 23.25% which is significantly reduced at 6 months and present in 4% of the patients. In the study by Malik AA et al¹⁵ it decreased from 29% to 1%, from 38% to 4.2% in by Velpen et al¹³, from 60% to 5% in the study by Qureshi MA et al¹¹, from 70% to 7% in the study of Amir M and Zubair M, from 74% to 11%. In the study by Aggarwal M et al¹⁶, from 26% to 12% in the study of Gi Hyun Kim et al²⁰, and from 75% to 9.7% in Gui GP et al¹⁷. Nausea improved in half of the patients in the study by L.

Fredrick et al²⁰ from 80% before to 40% after cholecystectomy and there was cure in almost all patients in the study by Sagar Soitkar et al¹⁰.

In our study, total numbers of patients with food intolerance were 22.8% which improved in most patients and present in about 4.8% patients 6 months after cholecystectomy. Velpen et al¹³ reported an improvement from 36% to 16%, Gi Hyun Kim et al¹⁹ reported a modest improvement from 20% to 15% while Amir M and Zubair M et al¹² reported significant improvement from 57% to 7.5%. In study by L. Fredrick et al²⁰ food intolerance was present in 80% of patients before operation and after cholecystectomy it reduced in half of the patient and was present in 40% of the patients.

In our study belching was present in 14.8% patients before operation. At one week after the Cholecystectomy it was present in 6% patients and at 1 month and 6 months post-surgery it persisted in 5.2% and 10% patients respectively. Variable results have been reported in various studies and the reason why the number of patients again increased after 6 months follow up is not clear. In study of Aggarwal M et al¹⁶ belching improved in almost all the patients. Sagar Soitkar et al¹⁰ reported an improvement from 40% to 8%, from 41 to 10% in the study by Qureshi MM et al, it reduced to 20% from 53% in the study by Gui GP et al¹⁷, and from 62% to 39% in Niranjan B et al¹⁴ study and from 62% to 40% in the study by Finan Kr et al¹.

In our study 18% patients presented with heart burn before cholecystectomy and it relieved in some patients and persisted in 14.8% of the patients 6 months after cholecystectomy. However, in the study by Malik AA et al pre operatively heart burn was present in 16% of patients and it was relieved in almost all the patients post operatively. With regards to other studies, it decreased to 7% from 56% preoperatively in Aggarwal M et al¹⁶, 14% in Gui GP et al¹⁷, 4.5% in Amir M and Zubair¹², 12% in Gi Hyun Kim et al¹⁹, 8.5% in Velpen et al¹³. In about half of the patients in L. Friedrich et al²⁰. However there was no significant improvement in study of Ure BM et al¹⁸ where it improved from 62% before operation to about 45.3% patients after operation.

In our study total number of patients having diarrhea were 9.2% with Diarrhoea were present and it remains in 8% after 6 months follow up. In study of Malik AA et al¹⁵ it was cured in almost all the patients and it decreased to 8% from 20% in the study by Gui GP et al¹⁷. However, the study by Finan KR et al¹ revealed that there was increase in proportion of patients with diarrhea from 49% preoperatively to 64% postoperatively. An increase was also reported from 8% to 14% in the study by Gi Hyun Kim et al¹⁹.

There was 8% patients in our study with regurgitation preoperatively and present in 5.2% patients post operatively. The study by L. Friedrich²⁰ also reported this symptom in 80% of patients preoperatively and it reduced in half of the patients that is 40% of the patients post operatively.

In our study patients with flatulence were 52.4% and there was significant improvement post operatively. After one week present in 12.8% of the patients. However, it increased to 22% at 1 month and in 34% of patients after 6 months.

CONCLUSION

- In our study, Open/Laparoscopic cholecystectomy significantly relieved symptoms of gall stone disease. Biliary symptoms abdominal pain, nausea, vomiting and flatulence had better outcome compared to dyspeptic symptoms belching, regurgitation and heartburn, which are also relieved in good proportion of patients.
- All patients should be pre operatively counseled about the risk of persistence of some non-pain symptoms after Open /laparoscopic cholecystectomy.

REFERENCES

1. Finan KR, Leeth RR, Whitley BM, Klapow JC, Hawn MT. Improvement in gastrointestinal symptoms and quality of life after cholecystectomy. *The American journal of surgery*. 2006 Aug 1;192(2):196-202.
2. Ros E, Zambon D. Postcholecystectomy symptoms. A prospective study of gall stone patients before and two years after surgery. *Gut*. 1987 Nov 1;28(11):1500-4.
3. Shea JA, Berlin JA, Bachwich DR, Staroscik RN, Malet PF, McGuckin M, Schwartz JS, Escarce JJ. Indications for and outcomes of cholecystectomy: a comparison of the pre and postlaparoscopic eras. *Ann Surg*. 1998 Mar;227(3):343-50.
4. Jørgensen T. Abdominal symptoms and gallstone disease: an epidemiological investigation. *Hepatology*. 1989 Jun;9(6):856-60. doi: 10.1002/hep.1840090611. PMID: 2653995.
5. Bates T, Harrison M, Ebbs SR, A'hern RP. Influence of cholecystectomy on symptoms. *Journal of British Surgery*. 1991 Aug;78(8):964-7.
6. Margaret Farquharson and Brendan Moran. Farquharson's textbook of Operative General Surgery. 9th edition
7. Malhotra SL. Epidemiological study of cholelithiasis among railroad workers in India with special reference to causation. *Gut*. 1968 Jun;9(3):290-5. doi: 10.1136/gut.9.3.290. PMID: 5661966; PMCID: PMC1552592.
8. Tandon RK et al. Prevalence and type of biliary stones in India. *World J Gastroenterol* 2000;15; 6(S3): 4-5
9. Osler W. *The Principles and Practice of Medicine*. Appleton; New York, NY, USA: 1909.
10. Soitkar S, Saxena D, Wasnik N, Akhtar M. Study of persistent post laparoscopic cholecystectomy symptoms: a 6 month long follow up of 62 patients. *Int Surg J* 2018;5:3368-71.
11. Qureshi MA, Burke PE, Brindley NM, Leahy AL, Osborne DH, Broe PJ, Bouchier-Hayes DJ, Grace PA. Post-cholecystectomy symptoms after laparoscopic cholecystectomy. *Ann R Coll Surg Engl*. 1993 Sep;75(5):349-53. PMID: 8215152; PMCID: PMC2497962.
12. Mohammed Amir, Mohammad Zubair. Influence of cholecystectomy on symptomatic cholelithiasis: can all symptoms be improved?. *RMJ*. 2009; 34(2): 141-144.
13. Velpen GCV, Shimi SM, Cuschieri A (1993) Outcome after cholecystectomy for symptomatic gallstone disease and effect of surgical access: laparoscopic v open approach. *Gut* 34:1448-1451.
14. Niranjana B, Chumber S, Kriplani AK. Symptomatic outcome after laparoscopic cholecystectomy. *Trop Gastroenterol*. 2000 Jul-Sep;21(3):144-8. PMID: 11084841.
15. Malik AA, AHMAD WR, UL BS, Manhas A. Persistence of Symptoms after Laparoscopic cholecystectomy.
16. Aggarwal M, Agarwal N, Tushar S.M., Naveen S., Singh S. Is Laparoscopic Cholecystectomy effective in relieving dyspepsia in patients of cholelithiasis? A prospective study. 2016;37(2):86-92.
17. Gui GP, Cheruvu CV, West N, Sivaniah K, Fiennes AG. Is cholecystectomy effective treatment for symptomatic gallstones? Clinical outcome after long-term follow-up. *Ann R Coll Surg Engl*. 1998 Jan;80(1):25-32. PMID: 9579123; PMCID: PMC2502763.
18. Ure BM, Troidl H, Spangenberg W, Lefering R, Dietrich A, Eypasch EP, Neugebauer E. Long-term results after laparoscopic cholecystectomy. *Br J Surg*. 1995 Feb;82(2):267-70.
19. Kim GH, Lee HD, Kim M, Kim K, Jeong Y, Hong YJ, Kang ES, Han JH, Choi JW, Park SM. Fate of dyspeptic or colonic symptoms after laparoscopic cholecystectomy. *J Neurogastroenterol Motil*. 2014 Apr 30;20(2):253-60.
20. L. Frederick Fenster; Rocelyn Lonborg; Richard C. Thirlby; L. William Traverso (1995). *What symptoms does cholecystectomy cure? Insights from an outcomes measurement project and review of the literature.*, 169(5),