



## Symptomatic Outcome After Laparoscopic Cholecystectomy-A Prospective Study

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### Abstract

**Background:** Laparoscopic Cholecystectomy has been the gold standard in the treatment of gallstone disease, but significant proportion of individuals undergoing this procedure persist with symptoms postoperatively and in some patients, new symptoms develop that were not present preoperatively.

**Objective:** To study the amelioration of symptoms, persistence of symptoms and development of new symptoms after Laparoscopic Cholecystectomy.

**Material and Methods:** A total of 100 patients with symptomatic gallstone disease of either sex in the age group of 18-65 years attending the OPD of ASCOMS Jammu were taken for the study. A standard symptom questionnaire was provided to them to evaluate the symptomatic outcome and compare the quality of life at interval of one and three months post-operatively.

**Results:** 83% patients were satisfied with the treatment regarding amelioration of symptoms, whereas there was persistence of presenting symptom like upper abdomen pain in 9.28% patients, bloating in 13.04% patients after laparoscopic cholecystectomy and emergence of new symptoms like nausea (11.36%), heartburn (7.46%) patients after laparoscopic cholecystectomy. Port site infection was seen in 2(2.06%) patients after three months post operatively.

**Conclusion:** In conclusion, Laparoscopic Cholecystectomy is the gold standard for the management of Cholelithiasis but many patients persist with symptoms post-operatively and in some patients, there is emergence of new symptoms. So, patients need to thoroughly counselled for post-cholecystectomy syndrome and the patients should be fully investigated before surgery to exclude other possible causes before labelling them as post-cholecystectomy syndrome.

**Keywords:** Laparoscopic Cholecystectomy, Post-cholecystectomy syndrome, Dyspepsia, Bloating, Abdominal pain

### Introduction

Gallstone disease is a common condition worldwide that affects 5-22% of the people in western countries (1). The prevalence of gallstone disease in Asian countries is becoming similar to that of western world due to improved socioeconomic status and changing lifestyle. In North India it has been found to have an incidence of 6% and is seven times more

common in North Indians as compared to South Indians (2).

The major risk factors for gallstones include increasing age, female sex, obesity, metabolic syndrome, hypertriglyceridemia, diabetes and insulin resistance (3). Depending upon the composition there are three types of gallstones:

1. Cholesterol stones.

2. Pigment stones.

3. Mixed stones.

Most gallstones are asymptomatic, and usually one or more episodes of episodic gallbladder pain (EGP) usually precede the development of more serious complications such as acute cholecystitis, pancreatitis, or bile duct stones (4). Elective cholecystectomy is performed in 70% of patients with symptomatic cholelithiasis (5).

Laparoscopic cholecystectomy is the gold standard in the management of cholelithiasis. However many patients report persistence of symptoms after elective cholecystectomy also known as post-cholecystectomy syndrome. This syndrome may result from:

1. Overlooked common bile duct stones (6).
2. Pre-existing conditions such as gastroesophageal reflux, peptic ulcer disease and functional dysmotility disorders which may cause symptoms.
3. Impairment of the antropyloric junction (7).
4. Increased duodenogastric reflux (8).

There may also be appearance of new symptoms that were not present preoperatively.

### Aims and Objectives

In patients with symptomatic cholelithiasis:

1. To study amelioration of symptoms after laparoscopic cholecystectomy.
2. To study persistence of symptoms after laparoscopic cholecystectomy.
3. To study emergence of new symptoms after laparoscopic cholecystectomy.

### Material and Methods

This prospective study was conducted in the Department of General Surgery ASCOMS, Jammu from October 2017 to October 2018. A sample size of 100 patients with symptomatic gall stone disease in the age group of 18-65 years of either sex was taken for this study who reported to Surgery OPD of ASCOMS hospital, Jammu. Exclusion criteria included patients with comorbidities like diabetes, hypertension, liver cirrhosis, malignancy, psychiatric diseases, pregnant females, patients with

choledocholithiasis or cholangitis, ASA III or ASA IV patients.

Prior to surgery, careful history was taken and physical examination was done in all patients. A standard questionnaire was provided to all patients to evaluate the presenting complaints-onset, duration and progression etc. and was used to gather information from the patients. The questionnaire comprised questions about age, sex, education level, residence and nature of work. The information regarding symptomology was also collected which included the presenting symptoms like pain-upper or lower abdomen, nausea, vomiting, flatulence, dyspepsia, constipation etc. All baseline investigations including CBC, RFTs, LFTs, Coagulation profile, serology, blood grouping, chest Xray, ECG and USG abdomen were done. The pre-anesthetic checkup was done and patients were taken for laparoscopic cholecystectomy under general anesthesia. Laparoscopic cholecystectomy was done using 3-ports or 4-ports method depending on feasibility and requirement. Pneumoperitoneum was created and pressure was kept between 11-14 mm of Hg. On completion of procedure drain was kept in Morrisons pouch in all patients. Sheath closure was done using polyglactin suture and skin was closed using silk sutures. In the postoperative period, patient was kept on I/V fluids, antibiotics and analgesics. After removal of drain patient was discharged on 1<sup>st</sup> postoperative day and suture removal was done on 7<sup>th</sup> postoperative day. Following laparoscopic cholecystectomy patient either visited the hospital after one month and three months or was contacted telephonically for completion of questionnaire. Patients who completed the questionnaire preoperatively and again at one month and three months postoperatively were included in the study. Assessment of intensity of pain was done using Visual Analog Scale (VAS). VAS score >1 was considered as pain. Score between 1-3 was labelled mild pain, score between 4-6 was labelled as moderate pain and a score between 7-10 was labelled as severe pain.

The patients were evaluated for amelioration (relief), persistence and emergence of symptoms after laparoscopic cholecystectomy. Relief was defined as reporting the symptoms preoperatively but not after cholecystectomy. "Persistence" was defined as reporting the symptoms both before and after

cholecystectomy. “Emergence”-was defined as not reporting the symptoms pre-operatively, but reporting the symptoms post-cholecystectomy.

Based on the above definitions, relief rates, persistence rates and emergence rates were calculated

for all the symptoms at 1 month and at 3 months post-operatively.

Relief Rate for each symptom was calculated as: 1- Persistence rate.

PERSISTENCE RATE for each symptom was calculated as:

$$\frac{\text{Patient with a persistent symptom postoperatively}}{\text{Number of patients with same symptom pre operatively}}$$

EMERGENCE RATE for each symptom was calculated as:

$$\frac{\text{Number of patients showing emergence of a particular symptom post operatively}}{\text{Number of patients without symptoms pre operatively}}$$

The data was statistically analyzed and the results were expressed with appropriate tables/charts. A p-value of <0.05 was considered significant.

**Results:**

A total of 100 patients were taken for study after fulfilling the inclusion criteria. Three patients were lost to follow-up and total patients finally participating in the study were 97. These patients have been followed up pre-operatively, at one month

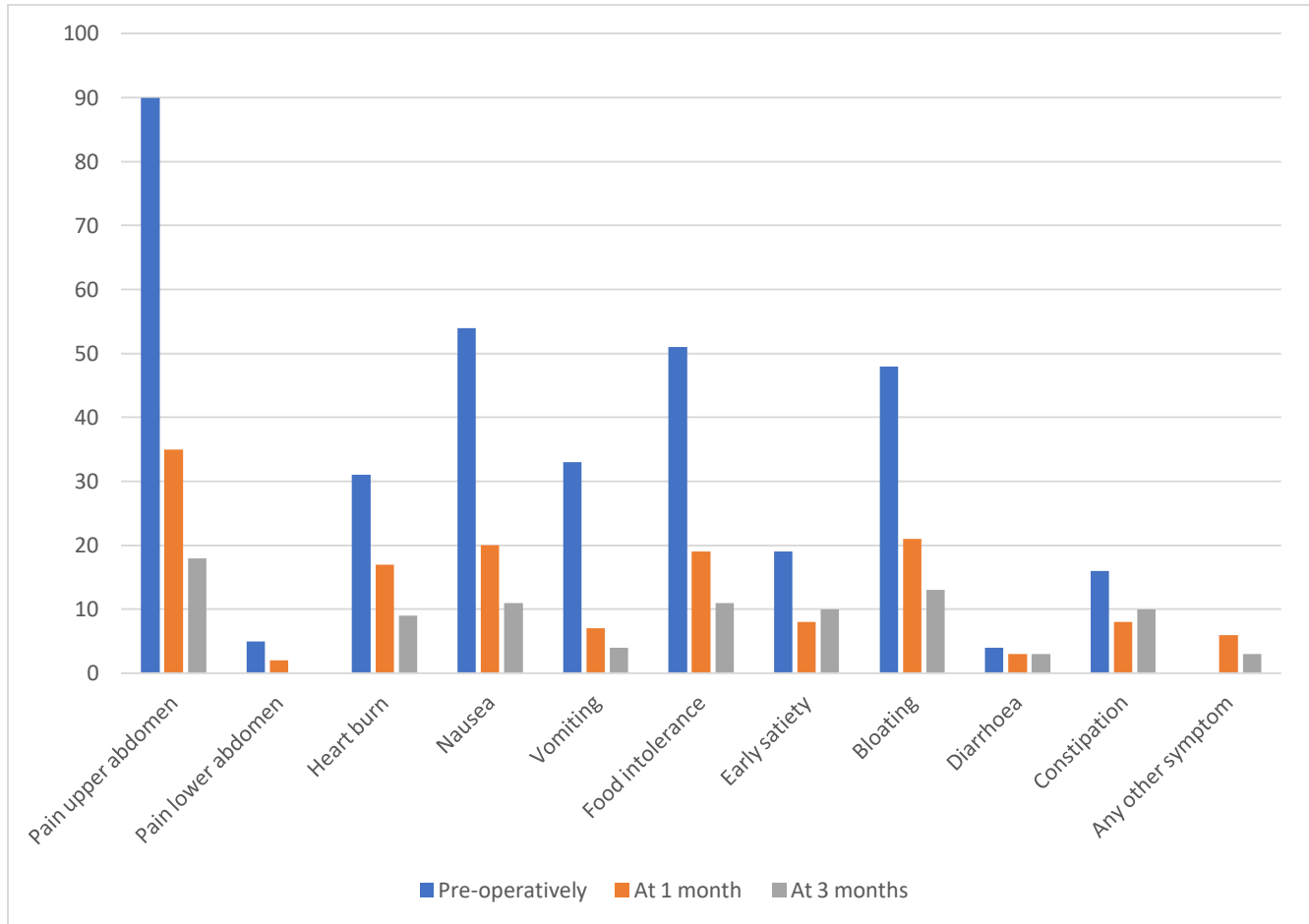
and at three months post-operatively. The characteristics of the study population with respect to presenting symptoms and their amelioration/persistence after one month and three months is given in table 1

**Table 1: Distribution of symptoms among the study population**

| Variables          | Number of patients (% of total) |            |             |
|--------------------|---------------------------------|------------|-------------|
|                    | Pre-operatively                 | At 1 month | At 3 months |
| Pain upper abdomen | 88(90.72)                       | 34(35.05)  | 18(18.56)   |
| Pain lower abdomen | 5(5.15)                         | 1(1.03)    | 0(0)        |
| Heartburn          | 30(30.93)                       | 16(16.49)  | 8(8.25)     |
| Nausea             | 53(54.64)                       | 19(19.59)  | 11(11.34)   |
| Vomiting           | 32(32.99)                       | 7(7.22)    | 3(3.09)     |
| Food intolerance   | 49(50.52)                       | 18(18.56)  | 11(11.34)   |
| Early satiety      | 18(18.56)                       | 8(8.25)    | 9(9.28)     |
| Bloating           | 46(47.42)                       | 20(20.62)  | 13(13.40)   |
| Diarrhea           | 4(4.12)                         | 3(3.09)    | 3(3.09)     |

|   |           |         |           |
|---|-----------|---------|-----------|
| Constipation                              | 16(16.49) | 8(8.25) | 10(10.31) |
| Any other symptom<br>(Port site symptoms) | -         | 6(6.19) | 2(2.06)   |

**Figure1: showing distribution of symptoms among study population**



Pain upper abdomen was the most common presenting complaint in 88(90.72%) patients and was present in 34(35.05%) patients at one month and 18(18.56%) patients at 3 months followed by nausea which persisted in 19(19.59%) patients at one month and 11(11.34%) patients after three months. Food intolerance which was the presenting complaint in 49(50.52%) patients persisted in 18(18.56%) patients at one month and 11(11.34%) patients after three months; bloating persisted in 13(13.40) patients after three months; constipation was the presenting complaint in 16(16.49%) patients and decreased to 8(8.25%) patients after one month but slightly increased to 10(10.31%) patients after three months

and vomiting and diarrhea in 3(3.09%) patients each. None of the patients had pain lower abdomen after three months which was presenting complaint in 5(5.15%) patients. There was emergence of new symptoms in few patients which was not present pre-operatively. Port site symptoms were present in 6(6.19%) patients after one month and 2(2.06%) patients developed port-site infection which persisted for three months.

1. Most of the patients, 80(80.41%) in our study were aged between 31-60 years. Mean age of the patients with standard deviation in our study was  $48.81 \pm 11.85$  years.

2. There was a female preponderance in our study i.e;69(71.13%) patients were females and 28(28.86%) were males.

3. Pain upper abdomen was the most common presenting symptom in our study with 88 (90.72%) patients reporting the symptom at presentation which was followed by nausea in 53(54.64%) patients, food intolerance in 49(50.52%) patients; bloating in 46(47.42%) patients; vomiting in 32 (32.99%) patients; heartburn in 30(30.93%) patients; early satiety in 18(18.56%) patients; constipation in 16(1.49%) patients; pain lower abdomen in 5(5.15%) patients and diarrhea in 4(4.12%) patients.

### Discussion:

Laparoscopic cholecystectomy is the gold standard for the treatment of uncomplicated symptomatic gall stones. It is done with the intent to relieve the symptoms and prevent complications. However, in certain patients the symptoms are not relieved as expected and these patients present with one or more symptoms.

The study population comprised of 71.13% females and 28.87% males. The study done by **Quintana JM et al (2005)** also showed female preponderance with 67.9% females (9).

Mean population age was  $48.81 \pm 11.85$  years consistent with study conducted by **Mertens MC et al. (2009)** which had mean age of  $46.0 \pm 11.4$  years (10).

Out of 97 patients the most frequent presenting symptom was pain upper abdomen in 88 patients (90.72%), followed by nausea in 53 patients (54.64%), food intolerance in 49 (50.52%) patients, bloating in 46 (47.42% patients). **Qureshi MA et al (1993)** reported pain as the commonest symptom presented by patients presenting with cholelithiasis (11). In a study done by **Weinert CR et al. (2000)**,89% patients had pain upper abdomen as the presenting symptom.

The distribution of non-pain symptoms is similar to the study done by **Luman W et al (1996)** and **Weinert CR et al (2000)** (12). In the studies conducted by **Ros E and Zambon D (1987)** and **Fenster LF et al. (1995)** non-pain symptoms were relieved in 40-70% of patients after cholecystectomy which is consistent with our study (13).

In our study, young patients showed better relief of symptoms than older patients which is in accordance with the study done by **Schmidt et al (2012)** where patients with age more than 60 years fared slightly worse than younger patients (14). Persistent pain in the older patients may be due to some associated comorbidity such as GERD, IBS or somatization disorder which goes in accordance with the study conducted by **Thistle JL et al (2011)** (15).

The persistence rate of different symptoms at one month after laparoscopic cholecystectomy was 38.64% for pain upper abdomen,20% for pain lower abdomen,40% for heartburn,30.19% for nausea,21.8 % for vomiting,43.48% for bloating,50 % for diarrhea and 43.75 % for constipation.

However the observation made in the study conducted by **Mertens MC et al (2009)** reported lower persistence rates of post-operative symptoms at 6 weeks follow-up for upper abdominal pain, nausea, vomiting and similar persistence rates for heartburn and diarrhea after 6 weeks(10). Similar results were reported by **Weinert CR et al (2000)** (16). In another study conducted by **Velpen GCV et al (1993)** persistence rates for various symptoms were similar to our study except for the lower persistence rate of heartburn observed in our study (17).

The persistence rate of different symptoms 3 months after laparoscopic cholecystectomy in our study was 20 % for pain upper abdomen,26% for heartburn,20.07% for nausea,9% for vomiting,26.09% for bloating. Persistence rate for diarrhea was same as after one month i.e,75 %. But the persistence rate of constipation increased to 62.5% (increase of 12.5%) from the rate at one month. This goes in accordance with the study conducted by **Qureshi MA et al (1993)** but the follow-up period in this study was 12 months (11). Similar results were also reported by **Luman W et al. (1996)** with follow-up at 6 months (18). However this study did not show any symptomatic relief with regard to diarrhea or constipation and relief from heartburn was very low at 3 %. This also shows that with increasing duration of follow-up all the symptoms don't necessarily decrease and some even show reappearance.

In our study there was the emergence of port site symptom in 6 (6.19% patients like pain and discharge after one month which decreased to 2(2.06%)

patients after three months. This observation is similar to the study done by **Velpen GCV et al (1993)** (17).

**Conclusion:**

Laparoscopic cholecystectomy is the gold standard for the management of uncomplicated symptomatic cholelithiasis after diagnosing the condition ultrasonography. However all the patients with cholelithiasis presenting with common dyspeptic or upper gastrointestinal symptoms have to be properly assessed as the presence of these symptoms may not be due to cholelithiasis but because of some other entity and in those cases Laparoscopic cholecystectomy is not going to ameliorate the symptoms, and in some cases may aggravate the same. A thorough clinical assessment of the patients should be done before subjecting the patient to Laparoscopic cholecystectomy to rule out any other abnormality presenting with similar complaints and the patient should be properly counselled regarding the risk of surgery, its complications and persistence of symptoms or the emergence of new symptoms post-operatively.

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