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Persistence of Symptoms After Laparoscopic Cholecystectomy

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Abstract

Background: A significant proportion of individuals undergoing cholecystectomy for symptomatic cholelithiasis persist with symptoms even after surgery.
Objectives: This study was aimed to test our hypothesis that age of presentation and duration of symptoms are the risk factors that predispose to negative symptomatic outcome after cholecystectomy.
Patients and Methods: 351 patients with diagnosis of symptomatic gallstones admitted to a tertiary care hospital for elective laproscopic cholecystectomy over a period of three years from 2009. They were provided a standard symptom questionnaire to evaluate the symptomatic outcome and to compare the quality of life at interval of one, three and six months after the procedure regarding the presenting symptoms at the time of admission. Out of 351 patients, 51 patients refused to continue participation in the study and were excluded from the study group. The remaining 300 patients were followed till six months after procedure.
Results: 55.66% of patients were highly satisfied after cholecystectomy with regard to alleviation of preoperative symptoms, while 34.33% of patients were satisfied with the treatment. A minority of 8.6% of patients perceived no change with regard to preoperative symptoms, while 1.3% of them had worsening of symptoms.
Conclusions: We conclude that management of gall bladder stone disease should be tailored precisely with respect to the quality of life index, with increased emphasis on early detection and treatment as well as increased emphasis on counseling in an elderly cohort after considering the prognosis after cholecystectomy differentially.

Keywords: Cholecystectomy, Dyspepsia, Abdominal Pain, Jaundice

1. Background

Gall bladder stones disease (GBSD) is a common condition worldwide and about 20% of patients develop clinical symptoms (1, 2) and require hospitalization. It frequently occurs in young people otherwise, healthy people have biliary and dyspeptic symptoms.

Previous studies have suggested that gallbladder motility and other physiologic characteristics have a role (3, 4). Removal of gall bladder in chronically ill patients may increase the risk of perpetuating the symptoms secondary to decrease in lower esophageal sphincter pressure, increasing duodeno-gastric reflux, or inducing sphincter of Oddi dysfunction (5-7).

Poor health can alter both perception and interpretation of abdominal symptoms. Non-gastrointestinal disorders or medications taken for other conditions have also been implicated as an axiomatic cause of persistent symptoms.

Treatment of symptomatic gallbladder stones with cholecystectomy is followed by cure or improvement of symptoms in about 90% of patients (8-11). However, in 20% -30% of patients significant pain and dyspeptic symptoms still persist (8-16). Laparoscopic cholecystectomy (LC) offers marked and definite advantages with regards to early ambulation, decreased duration of hospital stay, less postoperative pain, improved postoperative pulmonary function, decreased or equivocal post-op complication rates and decreased time to return to normal day to day activities as has been demonstrated in both randomized controlled trials (17-19) and cohort studies (20-22). After subjecting patients of symptomatic gallstones to cholecystectomy, some patients still persist with various symptoms after procedure.

2. Objectives

Our study was carried out to identify and evaluate risk factors for negative symptomatic outcome postoperatively as well as determining the strength of this association to the persistence of preoperative symptoms, so to enable us to evolve clinical criteria that will provide us a measure of predictive probability with regards to negative outcomes and the HRQoL (health related quality of life) after cholecystectomy.

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3. Patients and Methods

Patients with symptomatic gallstone disease admitted in our hospital for elective cholecystectomy were enrolled in this prospective study. Patients requiring emergency cholecystectomy, patients with choledocholithiasis or cholangitis, pregnancy, liver cirrhosis and those with history of abdominal malignancy, psychiatric disease and previous abdominal surgery were excluded from the study.

Patients with an anesthetic grading of ASA III or IV were also excluded from the study in addition to those who refused or withdrew the consent. A self-report questionnaire was prepared and completed by post-cholecystectomy patients after informed consent. Predictors of the persistence of both biliary and dyspeptic symptoms and their strength of association was subsequently investigated using appropriate statistical analysis. The study was undertaken after being approved by the institutional review board of the hospital.

Total number of 351 patients were found eligible and subsequently recruited for the study. All of them received questionnaires in preoperative period. Out of 351 patients, 51 patients were lost in follow up and were excluded from the study, while the remaining 300 patients were followed during the study (Figure 1).

Prior to admission, routine physical examination in surgical clinics was carried out followed by counseling for surgical and anesthetic procedures. At the same instance, records were perused for relevant medical history of comorbidities and concurrent drug therapy, if any.

After obtaining informed consent for the study and completion of assessment, patients fulfilling the inclusion criteria were provided self-report questionnaires comprising of two sections, one seeking demographic information and the other one clinical information.

The demographic questionnaire comprised queries about sex, age, marital status, educational level and work. Clinical information constituted symptomatology and their duration which included biliary (upper abdominal pain, nausea, vomiting), dyspeptic (bad taste, heart burn, upper abdominal pain, diarrhea and flatulence) and non-specific symptoms (general malaise, fatigue, weight change, decrease in sexual functioning).

Patients were assessed postoperatively at seven days, fifteen days and three months after surgery. In each visit copies of the form were filled up by the patient and collected by the primary investigator. The relevant information was compiled at the end of the study period.

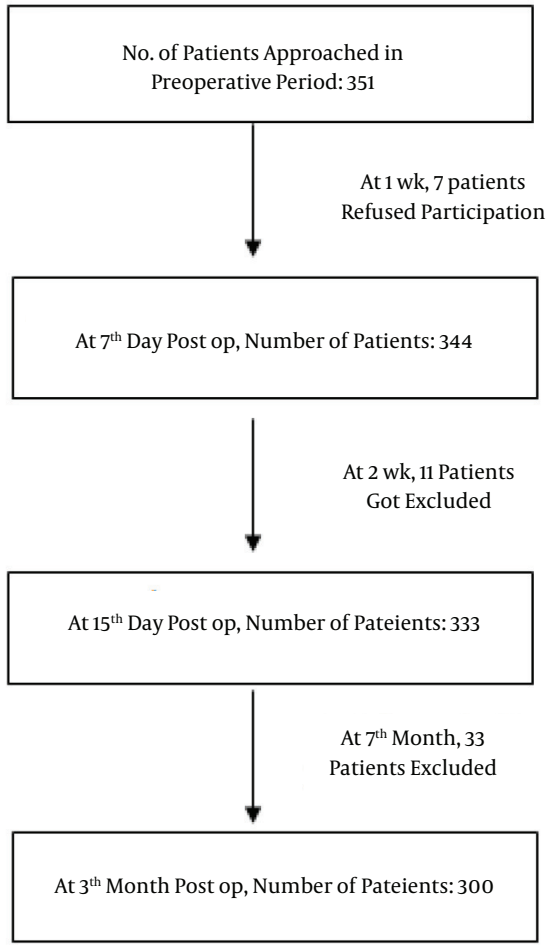

Figure 1. Flowchart of Study

4. Results

Dyspeptic symptoms like bad taste, heart burn, vomiting and diarrhea did not persist in any of the patients three months after cholecystectomy. Flatulence persisted in 5.9% of patients whereas biliary symptoms also showed a decrease, but pain persisted in 5.86% of patients, fever in 16.66% and jaundice in 31.81%.

In 31 patients who had jaundice preoperatively due to cholidocholithiasis and had subsequently undergone ERCP before surgery, there was no persistence of jaundice in postoperative period. However it persisted in all of the cases of Gilbert syndrome, hepatitis and hemolytic anemia present in our study.

Symptoms like lower abdominal pain developed in 29% of patients at 7th day and persisted in 7.6% of patients at 3rd month post op. Port site discomfort was noted in 78% of

patients at 7th day which subsequently decreased to 12.33% at 3rd month.

As the age is concerned, it was noted that in the age group of < 20 years (18 patients) dyspeptic symptoms such as bad taste (5 patients) and dyspepsia (6 patients) which abated did persist in a week's time whereas biliary pain, which was the most common symptom preoperatively persisted in only 3 patients by two weeks and had totally disappeared at the three month review period.

In the 20 to 40 year cohort that comprised the majority (208 patients), nausea persisted in 4.6% and flatulence in 7.7% of cases at three months. Biliary symptoms also decreased but pain persisted in 5.9% of patients, jaundice in 31.8% and fever in 22.2% of them.

In patients with age > 40, none of the dyspeptic symptoms persisted at three months after surgery. While as the biliary symptoms showed improvement in prevalence at 3rd month in majority of the patients except persistent pain (7.1%), jaundice (28.57%) and fever (in 9%).

4.1. Gender

In males, none of the dyspeptic symptoms persisted at 3rd month, while as biliary symptoms like pain, jaundice and fever persisted at 3rd month in 3.7%, 33.3% and 22.2%, respectively

In females, except nausea (3.7%) and flatulence (6.9%), dyspeptic symptoms were not part of clinical complaints at 3rd month of follow up. Whereas biliary symptoms like pain (6.32%), jaundice (31.3%) and fever (14.28%) were still present at 3rd month.

4.2. Duration

In those where the duration of preoperative symptoms was less than 6 months, dyspeptic symptoms like bad taste, dyspepsia, vomiting and diarrhea disappeared at 3rd month postoperatively, while nausea and flatulence persisted in 1.4% and 3.8% of patients, respectively. Though the biliary symptoms markedly decreased in prevalence at 3rd month, pain (3.18% patients), jaundice (23.1% patients) and fever (6.25% patients) remained as a problem.

In those where the duration of preoperative symptoms was more than 6 months, dyspeptic symptoms like bad taste, heart burn, vomiting and diarrhea disappeared at 3rd month post operatively, while nausea and flatulence persisted in 10.52% and 12.5% of cases, respectively. All the biliary symptoms showed a decrease in prevalence at 3rd month; however pain, jaundice and fever persisted in 14.28%, 44.44% and 28.57% of patients, respectively.

Overall, 55.66% of patients were highly satisfied after cholecystectomy with regard to preoperative symptoms; while 34.33% of patients were satisfied with the treatment. About 8.6% of patients perceived no change with regard to preoperative symptoms, while as 1.3% of patients had worsening of symptoms.

5. Discussion

In our study, which included 300 patients, we found out that three parameters are effective predictors of negative outcome which included age, sex and duration of preoperative symptoms, and all of them had an influence on persistence of symptoms.

Our results in age group extremes concurred with the study conducted by Bates et al. (15), who found that older age group is a strong predictor of unsuccessful outcome. Other study done by Mort et al. (23), also found that patients over the age of 60 years, experienced a higher major postoperative complication rate compared to younger patients (P < 0.01).

Another study, conducted by Quintana et al. (24) entitled 'Influence of age and gender on quality-of-life outcomes after cholecystectomy', also found that older patients had poorer HRQoL (health related quality of life), and their post-intervention improvement was lower than younger patients.

The study conducted by Finan et al. (25), demonstrated that there is not only a significant reduction of GI symptoms but also an improvement in patients' general quality of life. Our study also concurs with findings of Hsueh et al. (26) who concluded that the health related quality of life of the cholecystectomy patients were significantly improved at three months and six months after surgery (P < 0.05). Jaundice persisted in one patient in this group into postoperative period. It can probably be the result of jaundice due to other reason like hemolytic disease in this patient.

5.1. Age as a Predictor

In our study, pain was the most common presentation (97% patients) followed by nausea and vomiting (over 30%). This confirms the study conducted by Niranjan et al. (27), which demonstrated pain as the most common presentation. Painful symptoms decreased from 97% to 5.8% after cholecystectomy. All the symptoms except jaundice decreased in post-operative period. This goes in accordance with the study conducted by Bates et al. (15), Mort et al. (23), Quintana et al. (24) and Finan et al. (25).

As far as the relationship of different age groups with regards to persistence of symptoms is concerned, our study does not show any significant difference on the prevalence or variation in different age groups. This goes in accordance with the study conducted by Mort et al. (23),

Table 1. Distribution of Symptoms Preoperatively Among 300 Patients[a]

	Bad Taste	Heart Burn	Pain	Nausea	Vomiting	Diarrhoea	Flatulence	Jaundice	Fever
Age, y									
< 20									
Present	5 (27.8)	6 (33.3)	18 (100)	6 (33.3)	4 (22.2)	0	1 (5.6)	1 (5.6)	1 (5.6)
Absent	13 (72.2)	12 (66.7)	0	12 (66.7)	14 (77.8)	18 (100)	17 (94.4)	17 (94.4)	17 (94.4)
20 - 40									
Present	31 (14.9)	31 (14.9)	202 (97.1)	64 (30.8)	72 (34.6)	8 (3.8)	26 (12.5)	22 (10.6)	18 (8.7)
Absent	177 (85.1)	177 (85.1)	6 (2.9)	144 (69.2)	136 (65.4)	200 (96.2)	182 (87.5)	186 (89.4)	190 (91.3)
> 40									
Present	8 (10.8)	10 (13.5)	70 (94.6)	16 (21.6)	27 (36.5)	11 (14.9)	7 (9.5)	21 (28.4)	11 (14.9)
Absent	66 (89.2)	64 (86.5)	4 (5.4)	58 (78.4)	47 (63.5)	63 (85.1)	67 (90.5)	53 (71.6)	63 (85.1)
Sex									
Male									
Present	10 (17.9)	11 (19.65)	53 (94.6)	5 (8.95)	12 (21.4)	6 (10.7)	5 (8.9)	15 (26.8)	9 (16.1)
Absent	46 (82.1)	45 (80.4)	3 (5.4)	51 (91.1)	44 (78.6)	50 (89.3)	51 (91.1)	41 (73.2)	47 (83.9)
Female									
Present	34 (13.9)	36 (14.8)	237 (97.1)	81 (33.2)	91 (37.3)	13 (5.3)	29 (11.9)	29 (11.9)	21 (8.6)
Absent	210 (86.1)	208 (85.2)	7 (2.9)	163 (66.8)	153 (62.7)	231 (94.7)	215 (88.1)	215 (88.1)	223 (91.4)
Duration, mo									
< 6									
Present	36 (15.8)	37 (16.2)	220 (96.5)	67 (29.4)	84 (36.8)	14 (6.1)	26 (11.4)	26 (11.4)	16 (7.0)
Absent	192 (84.2)	191 (83.8)	8 (3.5)	161 (70.6)	144 (63.2)	214 (93.9)	202 (88.6)	202 (88.6)	212 (93.0)
> 6									
Present	8 (11.1)	10 (13.9)	70 (97.2)	19 (26.4)	19 (26.4)	5 (6.9)	8 (11.1)	18 (25)	14 (19.4)
Absent	64 (88.9)	62 (86.1)	2 (2.8)	53 (73.6)	53 (73.6)	67 (93.1)	64 (88.9)	54 (75.0)	58 (80.6)

[a] Values are presented as No. (%).

in which they found that there was no age-related difference with regards to minor post-operative complication rates.

The older patients reported similar levels of patient satisfaction, but reported recurrence of preoperative abdominal pain less often than the younger patients, and that there was no statistically significant difference between the older and younger patients in post-operative parameters such as time taken for ambulation and discharge from the hospital.

No doubt that few of our older cohort patients experienced persistent pain in the postoperative period, which may be due to some associated comorbidities, such as GERD, IBS or somatization disorder which goes in accordance with the study conducted by Thistle et al. (28) who concluded that concomitant GERD, IBS, and somatization determine the odds for relief from upper abdominal pain after cholecystectomy.

5.2. Gender as a Predictor

In male group, we found that all the symptoms decreased postoperatively which is in accordance with the study entitled 'Prospective 6 weeks follow-up post-cholecystectomy: the predictive value of pre-operative symptoms', conducted by Mertens et al. (29), which concludes that predictors of symptomatic outcome were only identified in women not in men, and also stated that known risk factors for long term outcome might be valuable in female patients only.

In female group, we found that pain, nausea, vomiting and flatulence persisted for a longer duration during post-operative period when compared to males, which is in accordance with the study of Mertens et al. (29), concluding that predictors of post-operative symptomatic outcome have only been identified in female patients, however sex is not predictor of post-operative outcome.

Another study (24) concludes that in post cholecystectomy patients, there was a slower rate of improvement in women than in men, even though the post-procedural quality of life was similar in both groups.

5.3. Duration of Symptoms as a Predictor

We found that patients with less than 6 months duration of symptoms, had less persistence of symptoms correlating with the study done by Bates et al. (15), which states that longer duration of pain is predicted as an unsuccessful outcome.

Table 2. Distribution of Symptoms Postoperatively at 3rd Month Among 300 Patients[a]

	Bad Taste	Bad Taste	Pain	Nausea	Vomiting	Diarrhoea	Flatulence	Jaundice	Fever
Age, y									
< 20									
Present	0	0	0	0	0	0	0	1 (5.6)	0
Absent	18 (100)	18 (100)	18 (100)	18 (100)	18 (100)	18 (100)	18 (100)	17 (94.4)	18 (100)
20 - 40									
Present	0	0	12 (5.8)	3 (1.4)	0	0	2 (1)	7 (3.4)	4 (1.9)
Absent	208 (100)	208 (100)	196 (94.2)	205 (98.6)	208 (100)	208 (100)	206 (99)	201 (96.6)	204 (98.1)
> 40									
Present	0	0	5 (6.8)	0	0	0	0	6 (8.1)	1 (1.4)
Absent	74 (100)	74 (100)	69 (93.2)	74 (100)	74 (100)	74 (100)	74 (100)	68 (91.9)	73 (98.6)
Sex									
Male									
Present	0	0	2 (3.6)	0	0	0	0	5 (8.9)	2 (3.6)
Absent	56 (100)	56 (100)	54 (96.4)	56 (100)	56 (100)	56 (100)	56 (100)	51 (91.1)	54 (96.4)
Female									
Present	0	0	15 (6.2)	3 (1.2)	0	0	2 (0.8)	9 (3.7)	3 (1.2)
Absent	244 (100)	244 (100)	229 (93.8)	241 (98.8)	244 (100)	244 (100)	242 (99.2)	235 (96.3)	241 (98.8)
Duration, mo									
< 6									
Present	0	0	7 (3.1)	1 (0.4)	0	0	1 (0.4)	6 (2.6)	1 (0.4)
Absent	228 (100)	228 (100)	221 (96.9)	227 (99.6)	228 (100)	228 (100)	227 (99.6)	222 (97.4)	227 (99.6)
> 6									
Present	0	0	10 (13.9)	2 (2.8)	0	0	1 (1.4)	8 (11.1)	4 (5.6)
Absent	72 (100)	72 (100)	62 (86.1)	70 (97.2)	72 (100)	72 (100)	71 (98.6)	64 (88.9)	68 (94.4)

[a] Values are presented as No. (%).

Same rule held true for dyspeptic symptoms like pain, nausea, vomiting, flatulence and biliary symptoms like jaundice and fever in those with more than 6 months of duration, which correlates well with the studies conducted by Weinert et al. (30); Luman et al. (31); and Borly et al. (32), who stated that patients with duration of symptoms more than 6 months had persistence of symptoms in the postoperative symptoms.

5.4. Conclusion

It is an attempt to bring together various parameters in one to help to evolve a mechanism to predict. In summary, Definitve surgery obviates risk of recurrence but does carry a small percentage of risk of non-abating of symptoms.

Footnote

Authors' Contribution: Surgeries were performed by Ajaz Ahmad Malik, Rauf Ahmad Wani and Shams ul Bari. Data was compiled by Anju Manhas and written by Shams ul Bari.

Table 3. Comparison of Symptoms Between Pre and Postoperative Period[a]

	Pre-Op	Post-Op 7th Day	Post-Op 15th Day	Post-Op 3 Month	P Value
Bad taste					< 0.0001
Absent	256 (85.3)	294 (98.0)	299 (99.7)	300 (100.0)	
Present	44 (14.7)	6 (2.0)	1 (0.3)	0	
Heart burn					< 0.0001
Absent	253 (84.3)	298 (99.3)	300 (100.0)	300 (100.0)	
Present	47 (15.7)	2 (0.7)	0 (0)	0	
Pain					< 0.0001
Absent	10 (3.3)	222 (74)	233 (77.6)	283 (94.3)	
Present	290 (96.7)	78 (26.0)	67 (22.3)	17 (5.7)	
Nausea					< 0.0001
Absent	214 (71.3)	295 (98.3)	297 (99.0)	297 (99.0)	
Present	86 (28.7)	5 (1.7)	3 (1.0)	3 (1.0)	
Vomiting					< 0.0001
Absent	197 (65.7)	293 (97.7)	296 (98.7)	300 (100.0)	
Present	103 (34.3)	7 (2.3)	4 (1.3)	0	
Diarrhoea					< 0.0001
Absent	281 (93.7)	299 (99.7)	300 (100.0)	300 (100.0)	
Present	19 (6.3)	1 (0.3)	0	0	
Flatulence					< 0.0001
Absent	266 (88.7)	294 (98.0)	296 (98.7)	298 (99.3)	
Present	34 (11.3)	6 (2.0)	4 (1.3)	2 (0.7)	
Jaundice					< 0.0001
Absent	256 (85.3)	276 (92.0)	276 (92.0)	286 (95.33)	
Present	44 (14.7)	24 (8.0)	24 (8.0)	14 (4.67)	
Fever					< 0.0001
Absent	270 (90.0)	296 (98.7)	292 (97.3)	295 (98.3)	
Present	30 (10.0)	4 (1.3)	8 (2.7)	5 (1.7)	

[a]Values are presented as No. (%).

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