

Frequency of Clinical Symptoms in Post Cholecystectomy Syndrome Patients our Hospital Experience: A Cross-Sectional Study

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ABSTRACT

Aim: To determine the frequency of different clinical symptoms in (PCS) Post Cholecystectomy Syndrome patients, at a secondary care facility

Study Design: A cross-sectional study

Place and Duration: This study was conducted at Liaquat University of Medical Health Sciences Jamshoro, Pakistan from May 2020 May 2021.

Methodology: For the purpose of this study, 100 patients were selected. Only those individuals were selected who qualified against an inclusion criterion which was set based on the patients' history of cholecystectomy. For this purpose, a questionnaire was made. The patients that were selected had to go through CT (computed tomography) scans and sonographic tests. Blood testing was also done and sera were prepared for in-depth laboratory tests. Data from the research were analyzed by using SPSS version 19.

Results: Most common clinical symptom after post-surgery was right upper quadrant pain (114 patients). Epigastric discomfort was present in 97 patients. Fever was third in line (73 patients) with jaundice being fourth (23 patients). Abdominal tenderness (19 patients) was followed by bile leakage (7 patients), fluid in the peritoneal region (19 patients), CBD dilation (39 patients), recurrent stone in CBD (12 patients), retained stone in CBD (19 patients), dysfunctioning of Oddi sphincter (37 patients) and remnants of the cystic duct stump was present in 41 patients.

Conclusion: The results of this study show that post cholecystectomy symptoms and conditions vary among patients and all of them need to be kept in while proposing proper follow-up treatment

Keywords: post cholecystectomy syndrome, bile leak, sonography, CT scan

INTRODUCTION

It is very common for gallstones to develop in individuals that are of adult age, especially in females of reproductive age. The most common and safest way of treating this condition is through surgery, also known as cholecystectomy. Gallstone condition is called cholelithiasis in medical terms. Post-surgery it is not uncommon for a few patients to develop certain painful symptoms such as biliary colic. This syndrome is similar to the one in which patients have pre-surgery as a result of gallstones. Different patients develop different conditions and the entire set of these conditions is medically termed as (PCS) post cholecystectomy syndrome. This term for post gallbladder surgery conditions was originally coined in 1947 by Crider and Womack. The definition of PCS is "diagnosis of various detectable symptomatic biliary conditions which are similar to the ones that were present prior to surgery" (2). The time bracket during which these symptoms remain active is also quite huge for some post-surgery diseases. For example gut and biliary symptoms start from the second-day post cholecystectomy and remain for almost 25 years.

It is usual for PCS to occur more frequently in females instead of males. The percentage variance is almost 45% females to 30% males (3, 4). The upper gut shows the same symptoms as before surgery in most PCS cases. Almost a quarter of the patients on which the surgery has been performed, complain of the upper gut and biliary symptoms. These symptoms can be transient, and they

can also be persistent. Out of all the cases, about 10% of patients show life-long symptoms of biliary discomfort.

There are multiple reasons for PCS to occur, some of them (during surgery) could be: Injury caused to the biliary duct, biliary stricture, retention of the stone in the biliary duct, remnants in the bile duct or cystic duct, remnants in the gallbladder, Oddi sphincter dysfunction (secondary) (1,5) and biliary microlithiasis.

PCS is usually reported within the initial year post-surgery, usually within the first 3 years.

The biliary system in post-surgery plays an important role in the etiology of PCS, almost 50% of complaints are due to: Dysmotility, injury caused to the biliary system, stone in the bile duct and choledochocyst. The other 50% are considered to be caused by non-biliary associations, these include: Disorders of the gut, gastritis, peptic disorder, dyspepsia and dysfunction of the Oddi sphincter. Clinically PCS most commonly manifests as: Dyspepsia, epigastric discomfort, flatulence, emesis, anorexia and indigestion (1, 5)

PCS is instigated when the patients eat. Eating induces diarrhoea in many patients. PCS induced diarrhoea is caused by bile acid and in order to treat this type of diarrhoea, physicians recommend specific sequestrate therapy for bile acid (1). PCS's differential diagnosis diseases/conditions include: Esophagitis reflux, peptic acid disorder, gastritis, disorders of the pancreas, IBC and many other (3, 4)

A number of tests are performed (upper abdomen) during follow-up. These tests may include: CT scans, sonography, endoscopy, ERCP and MRCP (8, 9).

These above mentioned and other possible imaging scans have decreased the amount of exposure-based surgeries are done, making treatment less invasive and more accurate (10). Unfortunately, despite being an entire complex of ailments on its own, PCS is very rarely reported. This study was aimed at establishing the presence of different clinical symptoms in Post Cholecystectomy Syndrome, at a secondary facility in Punjab.

METHODOLOGY

This cross-sectional study was done in our hospital. Permission was taken from the ethical review committee of the institute. All patients regardless of their gender and age group that were included in the study had undergone cholecystectomy. Patients were given a consent form to fill out and were inducted on a volunteer basis. "Sampling for proportions" was the method used for selecting 100 volunteer patients. A sample size of 100 post cholecystectomy syndrome (PCS) was calculated by 5% type – 1 e, and 90% power of test as cited previously (10).

All inducted volunteers were required to provide a detailed clinical history. For this purpose officers were deployed. The proforma had the following details to be filled: Cholecystectomy duration, post-surgery improvements in biliary symptoms, symptom recurrence, type of symptoms, problems in digestion and presence of diarrhoea. In order to follow proper ethical protocol and to conduct the research in an official manner, Helsinki's declaration was used to infer relevant guidelines. The principal party behind this research was given the duty of handling all ethical issues, making sure that no part of the research was discriminatory. As this research required private personal data, for the sake of confidentiality all documents were kept under lock and key in secure lockers and safes. Those patients who had undergone cholecystectomy and were diagnosed with PCS were specifically requested to provide details for the investigation of their specific PCS symptoms and complexity. These details included parameters such as Surgery details, nature of symptoms, the occurrence of symptoms and duration of symptoms

All patients were also checked and their complaints were verified by a consulting surgeon who then was required to enlist everything in another pre-structured proforma. Permission to perform CT scans and sonography was granted whenever required and considered useful or necessary by the consulting physicians. In cases where upper gut problems were suspected, endoscopy was done as this was considered a special/peculiar case of PCS. Chronic and acute cases also required elective procedures at times that were duly performed. In some cases of post-surgery, patients developed severe/ at times fatal conditions (bile leak or severe colic) and were shifted and treated in emergency wards. For surgeries that took place during the course of the treatment, consent forms enlisting all possible repercussions and side effects of the said surgery were required to be signed by the patients. The heirs of the patients by law were also informed of the

benefits and the harms of the interventions being made. Blood testing samples were collected and tested by senior reputed staff members. Centrifuged blood was used for lab testing. Microsoft Excel was used as the main result of compiling software. SPSS version 19.0 was used for detailed numeral analysis. Chi-square test and Student's t-test were the two techniques used to analyse categorical and continuous variables of data. Graphical depiction of data sets was done using Microsoft Excel as well.

RESULTS

The mean age of the patients was 50 years. A total of 25 were male participants whereas the female was 75. This makes the male to female ratio to be at 1:3. In most cases, 90%, of H. pylori was positive. Another condition found in the majority of cases was an abnormal liver profile. The most common clinical symptom post-surgery was right upper quadrant pain (in 114 patients). After that was epigastric discomfort (in 97 patients). Fever was third in line (in 73 patients) with jaundice being fourth (in 23 patients). Abdominal tenderness (in 19 patients) which was followed by bile leakage (in 7 patients), fluid in the peritoneal region (in 19 patients), CBD dilation (in 39 patients), recurrent stone in CBD (in 12 patients), retained stone in CBD (in 19 patients), dysfunctioning of Oddi sphincter (in 37 patients) and remnants of the cystic duct stump was present in 41 patients.

Table 1: Participants demographic details (n=100)

	Mean	SD
Age (Years)	50	9.1
Pulse (bpm)	71	5.1
Systolic blood pressure (mmHg)	119	5.7
Diastolic blood pressure	78	6.1

Table 2: Clinical results of patients of PCS

	Number	Percentage
ALT	62	46
AST	50	37
ALP	106	79
LDH	58	43
Bilirubin	70	52
PT	35 seconds	26 seconds
Amylase	38	28
WBC	106 µL	79 µL
H. Pylori	122	91

DISCUSSION

The current study was aimed at exploring the variations of PCS across the multitudes of patients (in this case the number was set at 100) that undergo gallbladder stone surgery using CT scanning and sonography whenever required. The mean age of the participants was 50 years, it corresponded with the age kept impervious studies cited (11, 12).

Sonographic scans revealed bile leakage (in 7 patients), fluid in the peritoneal region (in 19 patients), CBD dilation (in 39 patients), recurrent stone in CBD (in 12 patients), retained stone in CBD (in 19 patients), dysfunctioning of Oddi sphincter (in 37 patients) and the last being remnants of the cystic duct stump (in 41 patients). These results are consistent with what has been discovered in previous studies (16, 17).

Another set of findings made by this study that corresponds with older studies is: CBD stone = 12 patients and CBD stone (retained) = 19 patients (17, 19)

One result which was not consistent with previous studies was that this study found remnants in cystic ducts in 48 patients which are considerably less (16). The most common etiology of post cholecystectomy syndrome is remnants in the cystic duct and this study shows the same result (16-18). The study also reveals that there is always a chance of about 17-24% of stone occlusions in cystic duct stumps (19). The results of this study show that post cholecystectomy symptoms and conditions vary among patients and all of them need to be kept in while proposing proper follow-up treatment.

CONCLUSION

The results of this study clearly show that post cholecystectomy syndrome is not a single disorder instead it is an entire complex of varying illnesses, disorders, and conditions that require independent, dedicated, and specific treatment and therapeutic diagnoses. As most of the symptoms involve many different regions of the body, it is crucial to approach PCS in a multidisciplinary fashion. Imaging techniques save time and energy and are more efficient. Future studies should be conducted nation-wide to get a wider picture of PCS.

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