



Original Article

Incidence of Biliary Leakage and Spilled Gallstones in Laparoscopic Cholecystectomy

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ABSTRACT

Gallstones (GS) are a major health problem worldwide. Its prevalence in the adult population of the United States is about 10%, which reaches 30% in the age group over 70 years. The incidence of GS in Pakistan is 15%, which represents 22% of surgical admissions. Laparoscopic cholecystectomy is accepted worldwide as the 1st line of treatment for symptomatic gallstone disease. **Objective:** To assess the occurrence of spilled gallstones and biliary leakage during laparoscopic cholecystectomy. **Methods:** A prospective descriptive study was conducted in the Surgical Department of Hayatabad Medical Complex Peshawar for six months duration from 15 June, 2021 to 15 November, 2021. Patients with gallstones were hospitalized via outpatient department. They were admitted for the analysis after procurement of knowledgeable consent in written form. All related investigations have been performed. Eligibility for anesthesia was assessed using the ASA scoring system. Patients endured laparoscopic cholecystectomy and the data was secured in a previously designed form. **Results:** During the period under analysis, 150 patients underwent laparoscopic cholecystectomy. 40.10 years \pm 10.74 years was the mean age. The main complication in 18 cases (12%) where the largest number of stones were removed during surgery, was gallstone spillage from whom 3 (17.6%) patients were 19-29 years old, 8 patients (47.1%) were 30-40 years old, 5 (29.4%) patients were 41-50 years old and 1 patient (5.9%) was 51-60 years old and 1 (5.9%) patient were 61-70 years old. The rate of gallstone spillage was 7 (4.7%) for men and 1 (7.3%) for women. Biliary leakage occurred in 5 patients (3.3%) aged 30-40 years and in 1 (0.7%) of patients aged 41-50 years. **Conclusion:** Laparoscopic cholecystectomy is effective and safe method in our environment and brings improved outcomes in the hands of specialists.

INTRODUCTION

Gallstones are a major health problem worldwide. Its prevalence in the adult population of the United States is about 10%, which reaches 30% in the age group over 70 years [1]. The incidence of GS in Pakistan is 15%, which represents 22% of surgical admissions [2,3]. Laparoscopic cholecystectomy is accepted worldwide as the 1st line of treatment for symptomatic gallstone disease. Karl-Langerbach accomplished the first open cholecystectomy in 1882, and Philip Mort executed the first Laparoscopic cholecystectomy in 1987 in Lyon, France [4,5]. In 1991, 1st

laparoscopic cholecystectomy was performed in Pakistan [6]. Globally, Laparoscopic cholecystectomy has believed to be a typical treatment for gallstone disease and open cholecystectomy has been substituted [7]. In the United States alone, 75% of the 600,000 gallstone surgeries performed annually are performed laparoscopically [8]. Laparoscopic cholecystectomy gives the subject, the assistances of minimally invasive surgery (MIS), counting better postoperative healing, cosmetic surgery scarring and earlier arrival to daily routine. Though, it is associated

with some of the rare complications reported in open cholecystectomy [9]. The laparoscopic cholecystectomy complications comprise primary or late complications. Primary complications include port entrance complications, intestinal trauma, bleeding, and late complications including gallstones, biliary leakage, and biliary trauma. Gallstone spillage is common during laparoscopic cholecystectomy [10]. The estimated incidence is between 3 and 33%. The incidence of complications due to stones that are not removed is approximately 0.3%. Biliary leakage is observed in 0.3-2.7% of patients after laparoscopic cholecystectomy. Although most spilled intraperitoneal gallstones are negligible by the surgeons, result in postoperative adhesions, peritonitis, intra and extra-abdominal abscesses, enterocutaneous, and entero vesical fistulas have been reported. Laparoscopic cholecystectomy is a new method of treating gallstone disease in Pakistan [11]. There is a tendency to prefer laparoscopic cholecystectomy in place of open cholecystectomy [12]. The laparoscopic cholecystectomy complications have been investigated in several hospitals. Though, since no systematic facts has been printed from our center, they should be reproduced [13]. Further studies should be conducted to change future development for the treatment and prevention of complications after laparoscopic cholecystectomy. The aim of this analysis was to assess the occurrence of spilled gallstones and biliary leakage during laparoscopic cholecystectomy.

METHODS

A prospective descriptive study was performed at the Surgical Department of Hayatabad Medical Complex Peshawar for six months duration from 15 June, 2021 to 15 November, 2021 on 150 patients approved by the Hospital Ethics Committee Patients with obstructive jaundice, gallbladder cancer, comorbidities and history. Upper abdominal surgery was ruled out due to confounding factors and study biasness. Patients with gallstones were hospitalized via outpatient department. They were admitted for the analysis after procurement of knowledgeable consent in written form. All related investigations have been performed. Eligibility for anesthesia was assessed using the ASA scoring system. Patients endured laparoscopic cholecystectomy and the data were secured in a previously designed form.

RESULTS

During the period under analysis, 150 patients underwent laparoscopic cholecystectomy. 40.10 years \pm 10.74 years was the mean age. Most patients 68(45.3%) were 30-40 years old, 39(26%) were 50-41 years old, 35 patients(23.3%) were under 30 years old and 7 patients (4.7%) were older >

60 years. The M:F ratio was 1: 2.40. As shown in Figure 1, 39 (26%) were male and 111(74%) were female.

Genderwise distribution

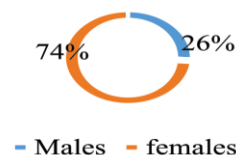


Figure 1: Gender-wise Distribution

The main complication in 18 cases (12%) where the largest number of stones were removed during surgery was gallstone spillage from whom 3 (17.6%) patients were 19-29 years old, 8 patients (47.1%) were 30-40 years old, 5 (29.4%) patients were 41-50 years old and 1 patient (5.9%) was 51-60 years old and 1 (5.9%) patient were 61-70 years old, shown in Table 1. Gallstone's spillage was more common in women than men. The rate of gallstone spillage was 7 (4.7%) for men and 11 (7.3%) for women. Biliary leakage occurred in 5 patients (3.3%) aged 30-40 years and in 1 (0.7%) of patients aged 41-50 years. Of all patients, 1 (0.7%) biliary leak was in male and 5 (3.3%) were female. Also, 12 patients (8%) underwent open cholecystectomy and laparoscopic cholecystectomy was successfully performed in 138 patients (92%). There were no deaths in our study.

Gall stone spillage	N=18
Age wise distribution	
19-29 years	3 (17.6%)
30-40 years	8 (47.1%)
41-50 years	5 (29.4%)
51-60 years	1 (5.9%)
61-70 years	1 (5.9%)
Gender wise distribution (18/150)	
Males	7 (4.7%)
females	11 (7.3%)
Biliary leakage (n=6)	
30-40 years	5 (3.3%)
41-50 years	1 (0.7%)
open cholecystectomy	12 (8%)
laparoscopic cholecystectomy	138 (92%)

Table 1: Patients' distributions of complication according to Age

DISCUSSION

Laparoscopic cholecystectomy has developed to be the first line of treatment for chronic cholecystitis and symptomatic gallstones and has replaced traditional open cholecystectomy [13,14]. In acute cholecystitis, maximum specialists now prefer laparoscopic cholecystectomy. Laparoscopic procedure has many benefits, but incidence of morbidity is somewhat advanced, especially in educational settings [15]. This study aim was to focus specifically on biliary leakage and spilled gallstones, two common complications of LC. 40.10 years \pm 10.74 years was

the mean age. Most patients 68(45.3%) were 30-40 years old, 39(26%) were 50-41 years old, 35 patients(23.3%) were under 30 years old and 7 patients (4.7%) were older > 60 years. In the study of Müftü et al., 40.30 years was the mean age and the maximum of patients (31.66%) were in the 30-40 years of age group. However, in the CL study in acute cholecystitis, 43.7 years was the mean age of patients and 4.5: 1 was the female to male ratio [16,17]. Alternative study was on 280 LC cases involving 140 males and 140 females with 56.9 years (89-23 years) mean age [18]. In all cases, we used the classic 4-port approach in our work. Though, a 3-port technique, and more freshly 2 cholecystectomy ports, using 3 mm miniature instruments, is possible and can improve aesthetic and surgical outcomes [19]. In this study a varus needle is used to produce pneumoperitoneum, but in an LC study, direct placement of a trocar without pneumoperitoneum proved to be a safe, effective, and time-saving alternative with fewer procedural complications [20,21]. Gallbladder injury is a life-threatening and serious complication of LC, and numerous analyses stated 0.6% to 1.5% of biliary duct injury. Biliary duct injury during LC is worrisome and can lead to benign biliary duct obstruction after surgery several months later, increased complications, and postoperative mortality [22]. Late postoperative stenosis is often the result of overuse of electrical coagulation in the vicinity of the common biliary duct or late problem of biliary reconstruction due to injuries after cholecystectomy. In this analysis, severe biliary duct injury happened in 1(0.7%) case [23]. ERCP and MRCP were performed to show lateral biliary duct damage. Stenting was also performed with successful results in the same session. 1.94 days was the average hospital stay, comparable to a local study at the Khyber Teaching Hospital, which recorded 2.06 days compared with Vagenas K et al., 2.29 days were reported in a center study [24]. Despite the complications mentioned, the inclusive result was acceptable, with improved reception of the operation by the patient [25].

CONCLUSION

LC is the most common method for symptomatic gallstones. In experienced hands, this is a safe and effective method in our environment. Most of the complications were due to inexperience and excessive enthusiasm. Adequate preoperative work, low conversion thresholds, and adequate training and equipment make this surgery a safe procedure with good results.

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