ORIGINAL ARTICLE

Frequency of Adhesions, wound infection and duration of hospital stay in patients undergoing Laparoscopic Cholecystectomy with Previous Abdominal Surgery

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ABSTRACT

Background: Laparoscopic surgery is considered to be secure and effective treatment option for abdominal surgeries and leads to decreased post-operative pain, rapid healing and shortened hospital stay. LC has now become the preferred procedure in the surgical treatment of symptomatic biliary lithiasis, symptomatic gallstones and chronic cholecystitis.
Aim: To determine the frequency and percentage of wound infection and adhesion in patients undergoing laparoscopic cholecystectomy with previous abdominal surgeries.
Setting and duration of study: Surgical Department, Mayo hospital Lahore, from 01-05-2014 to 31-10-2014.
Methods: Demographic profile was recorded including age, gender and address. Wound infection was assessed after operation clinically by purulent discharge within 10 days post-operatively. Adhesions were looked peroperatively. All the procedure was conducted by a single surgical team. It was found that the mean +standard deviation of age was calculated as 39.78 +2.95 years. There were 55% patients who already had lower abdominal surgery preoperatively and 45% cases who had underwent upper abdominal surgery preoperatively. Out of 500 patients undergone with LC, there were 2.8% patients in which wound infection was found post operatively and adhesions were found in 65% patients. By using t-test, there was no significant difference between wound infection ,duration of stay in hospital and operative time with p-value= 0.118, p-value= 0.288 respectively. There was no significant difference between adhesion and hospital stay with (p-value= 0.453). Significant difference was found between adhesion and operative time with p-value as 0.000.
Results: We also used chi-square test to check the association, there was no significant association between type of previous abdominal surgery and wound infection having p-value = 0.479. Wound infection did not show any significant association with age, operation time and stay in hospital having p-value as 0.858, 0.145 and 0.053. Adhesions were significantly associated with operative time and hospital stay having p-value as 0.000 and 0.048 respectively.
Conclusion: It was observed that adhesions were commonly found in patients having previously abdominal surgeries and very low percentage of wound infection was observed. The mean operation time came out to be more whereas the mean hospital stay duration was lesser in patients with previous abdominal surgery, respectively.
Keywords: wound infection, adhesions, laparoscopic cholecystectomy

INTRODUCTION

Cholecystectomy is a very commonly performed abdominal surgery, and in well equipped countries it is preferred to be performed laparoscopically. For example, 90% of cholecystectomies in the USA are performed with laparoscope[1]. LC is considered to be the "gold standard" for the surgical treatment of cholelitheiasis. LC results in less postoperative pain, good cosmesis, lesser duration of hospital stays and early return to work than open cholecystectomy[2,3]. However, the overall significant complication rate in LC remains higher than that seen in open cholecystectomy[4,5]..

Chow A, et al. in 2010, evaluated that Laparoscopy had allowed the surgeons to perform difficult intra-abdominal surgery with minimal traumatic insult. Recently , single-incision laparoscopic surgery (SILS) has been pioneered by innovators , which carries the potential of further reduction in trauma of surgical access. This article has reported the author's technique to perform SILS cholecystectomy, with cautiously placed sutures used to retract the gallbladder and thus aids better vision. The authors performed single incision laparoscopic cholecystectomy on 23 patients with good results. He observed that SILS was a feasible method to perform cholecystectomy[6].

In 2004, Karayiannakis AJ, et al assessed that LC is relatively contraindicated in patients with previous abdominal surgeries . This study specifically analysed the outcome of previous abdominal surgery on the practicality and safety of LC. Data from 1,638 consecutive patients who had undergone LC were reviewed and analyzed for operation times, intraoperative and postoperative complications, and duration of stay in hospital. This research showed that adhesions were found in 70.7 percent in patients with previous upper abdominal surgeries, 58.8% in patients with previous lower abdominal surgeries and 2.1% in patients with no previous abdominal surgery. The mean duration of operation came out to be

Received on 19-10-2019
Accepted on 10-02-2020

(66.4 ± 34.2 min) in patients with previous upper abdominal surgeries, wound infection was shown as (5.2%),taken as a higher incidence, and an extended postoperative hospital stay (3.4 ± 2.1 days) than those who had underwent previous lower abdominal surgery (50.8 ± 24 min, 3.3%, 0.7%, and 2.6 ± 1.4 days, respectively) and those who did not have any previous abdominal surgery (47.4±25.6 min, 5.4%, 1.2%, and 2.8±1.9 days, respectively). All these results summarise that laparoscopic cholecystectomy is not contraindicated in the patients with prior upper or lower abdominal surgeries[7].

MATERIAL AND METHODS

This research had taken place in the surgical department, Mayo hospital Lahore, from 01-05-2014 to 31-10-2014. The sample size was estimated 500 using 95 percent confidence level 1.5% error margin with presumed prevalence of wound infection 3%**.**Both male and female aged 35-45 years, having previously abdominal surgery (Herniorrhaphy or Hernioplasty, Appendectomy, Laparotomy) and with single/multiple calculai greater than 3cm in the gall bladder on USG are included. Patients with chronic liver disease, chronic kidney disease and having coarse texture of liver on USG and splenomegaly as per exclusion criteria are excluded.

Data collection procedure: 500 patients fulfilling the inclusion and exclusion criteria were chosen in the surgical unit, Mayo Hospital Lahore. Patients and in some cases their guardians signed the informed consent and it was clearly explained to the patients and their guardians that this data will be used and published but confidentiality will also be maintained. Age ,gender and address were recorded to maintain demographc profile. Wound infection was assessed after operation clinically by purulent discharge within 10 days post-operatively. Adhesions were looked peroperatively. All the procedure was conducted by a single surgical team.

Data analysis procedure: After the data was collected, it was analyesd through SPSS v.17.0. The quantitative variables like age was analysed and presented as mean and standard deviation. All the categorical variables i.e., gender was analysed and presented as frequencies and percentages. Data stratification was done for age, gender, type of previous abdominal surgeries (upper/lower) to address effect modify. For wound infection and adhesions Chi-square test was used and for mean operative time and mean hospital stay t-test was used , post-stratification. P-value ≤ 0.05 was considered significant.

RESULTS

From five hundred patients undergone with laparoscopic cholecystectomy, it was found that the minimum age was recorded as 35 years, maximum age was recorded as 45 years and the mean +standard deviation was calculated as 39.78 +2.95 years. There were 275(55%) patients who underwent lower and 225 (45%) cases who had underwent upper abdominal surgeries preoperatively respectively (Table 1). .Out of 500 patients undergone with LC, there were 14(2.8%) patients in which wound infection was found post operatively and adhesions were found post operatively of LC in 325 (65%) patients(Table 2-3). By using t-test we learned a notable difference in type of previous abdominal surgeries and operative time of laparoscopic cholecystectomy with (p-value= 0.023).Significant difference was found between adhesion and operative time with p-value as 0.000 (Table 4). Gender have notable difference with operation time and duration of hospital stay having p-value as 0.019 and 0.022). There was not any notable difference between wound infection, duration of hospital stay and operative time with p-value= 0.118, p-value= 0.288(Table5) respectively**.**

Table 1: Frequency and percentage of type of abdominal surgery

	Frequency	%age
Lower Abdominal Surgery	275	55
Upper Abdominal Surgery	225	45
Total	500	100

Able 2: Frequency and Percentage of wound Infection

	Frequency	%age
Yes	14	2.8
No	486	97.2
Total	500	100

Table.3 Frequency and percentage of adhesions

	Frequency	%age
Yes	325	65
No	175	35
Total	500	100

Table.4 Stratification with respect to adhesion (n = 500)

Wound infection	N	Mean + Std. Deviation	P-value
Yes	325	53.02 + 8.42	0.000
No	175	55.96 + 9.04	
Hospital stay			
Yes	325	3.45 + 1.09	0.453
No	175	3.37 + 0.99	

Table 5: Stratification with respect to wound infection (n = 500)

Wound infection	N	Mean + Std. Deviation	P-value
Yes	14	51.60 + 11.17	0.288
No	486	54.12 + 8.67	
Hospital stay			
Yes	14	3.86 + 1.03	0.118
No	486	3.41 + 1.06	

DISCUSSION

In the present research we have studied the LC is an effective and secure procedure for chronic cholecystectomy, also in the patients of prior upper and lower abdominal surgeries. Some common complications of LC in patients with previous upper abdominal and lower abdominal surgeries like wound infection and adhesion.

A previous study showed that adhesions were found in 90.2%, of the patients with prior upper abdominal surgeries, 75% in previous lower abdominal surgeries and 1.4% of patients with no prior surgery. Longest mean operative time of 57 +/-9.8 min. [8] was observed in patients with prior upper abdominal surgeries.

Existing literature proved that there is a higher incidence of postoperative wound infection (5.2%), in patients with previous upper abdominal surgeries and their postoperative stay is comparatively longer (3.4+/- 2.1 days) than the patients who had underwent previous lower abdominal surgeries (50.8 +/- 24 min, 3.3%, 0.7%, and

2.6+/-1.4 days, respectively) and those without previous abdominal surgeries (47.4+25.6 min, 5.4%, 1.2%, and 2.8+1.9 days, respectively)[7]. So in this research, we study the postoperative complication (adhesion and wound infection) of laparoscopic cholecystectomy in patients having previously abdominal surgeries. Results showed that the adhesions were commonly found in patients having previously abdominal surgeries and very low percentage of wound infection was observed. On the other hand significant difference was found between type of previous (upper and lower) abdominal surgery and operative time of laparoscopic cholecystectomy with (p-value= 0.023).

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