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Research Article

**ANALYSIS OF LAPAROSCOPIC CHOLECYSTECTOMY  
WITHOUT USAGE OF PROPHYLACTIC ANTIBIOTICS AND  
AFTER USAGE, VIA COMPARISON OF SKIN INFECTION****<sup>1</sup>Dr. Syeda Makhduma, <sup>2</sup>Dr. Hira Jamil, <sup>3</sup>Dr. Fakhra Bashir Khattak**<sup>1,2,3</sup>House Officer at Mayo Hospital, Lahore.**Abstract:**

**Objective:** We carried out this study to take analysis of laparoscopic cholecystectomy with no usage of prophylactic antibiotics and after usage of prophylactic antibiotics via comparison of skin infection rate and infections in the skin structure among the patients going through this procedure.

**Study Design:** Randomized case-control study.

**Duration and Place:** This study was conducted for the duration of one year starting from December, 2017 to November, 2018 in surgical unit of Mayo Hospital, Lahore.

**Material and Method:** Selected a total number of 144 patients randomly from the surgical ward of the hospital. Divided them into two equal groups named as group A and group B. Before anaesthesia induction, Group B prescribed with 10ml normal saline whereas, Group A was given prophylactic cefuroxime 1.50g impaired into 10ml solution. After this no medicine was prescribed to any of the group. Compared the occurrence rate of skin infection and SSI (Skin Structure Infection) in each group.

**Results:** Three patients of group A (4.16%) fostered skin infection and skin structure infection. Whereas, two patients of group B (2.78%) resulted with skin infection and skin structure infection. With P-value equal to one, difference among both groups statistically wasn't significant.

**Conclusion:** Among patients experiencing laparoscopic cholecystectomy, prescription of prophylactic antibiotic-drugs doesn't decrease the occurrence rate of skin infections and skin structure infections.

**Keywords:** Skin infection, Skin Structure Infections, Laparoscopic cholecystectomy, Prophylactic antibiotics.

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**INTRODUCTION:**

The most favorite procedure for gallstone disease is Laparoscopic Cholecystectomy (LC). Generally, at umbilical port site with a ratio of 0.40% to 1.70%, of Laparoscopic Cholecystectomy (LC) has the main advantage over open cholecystectomy (OC) is this that it has very less infection complications amongst the various benefits [1-4]. Due to this low risk of infection rate, there is a question marked discussion on the necessity of prophylactic antibiotics.

Gallstone diseases are categorized as low-risk group and high-risk group in accordance to risk of infective complications [5]. Individuals in the high-risk group have one or more of the following; diabetes mellitus, age > 60 years, acute cholangitis or acute cholecystitis in the last 30 days of jaundice or history of bile colic [5]. Numerous searches have been performed to conclude whether prophylactic antibiotics are needed corresponding to the low-risk group's patients of gallstone disease [5-8]. We conducted current research study to assess significance of antibiotic prophylaxis in laparoscopic cholecystectomy.

**MATERIAL AND METHODS:**

This case-controlled study was conducted for the duration of one year starting from December, 2017 to November, 2018 in surgical unit of Mayo Hospital, Lahore. Hospital ethical committee permitted the design of study. After providing the information about the study procedures a written consent was taken from all selected patients. Included all those patients in this study who were sorted out for elective laparoscopic cholecystectomy. All those patients were excluded from the study who were having age more than 60 years, suffering from diabetes mellitus, having history of cholecystitis or acute cholangitis, having history of clinical and biochemical jaundice or biliary colic in the last one month.

Calculation of ASA status (American Society of Anesthesiologists), complete blood count (CBC), weight of body, ECG, liver function tests and chest X-ray were appraised in standard preoperative

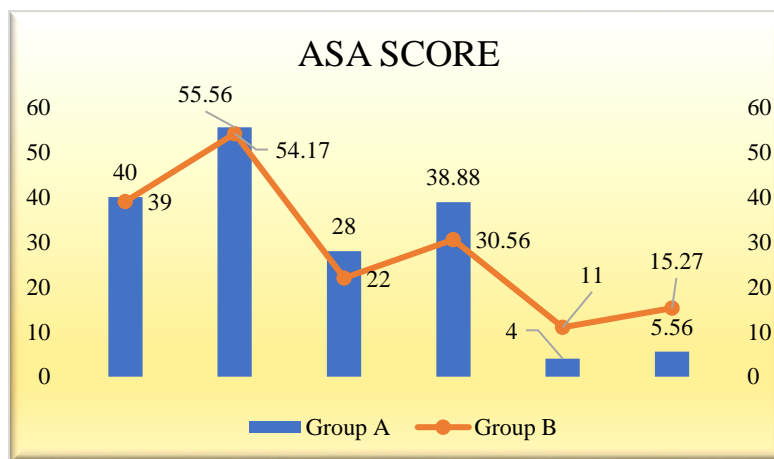
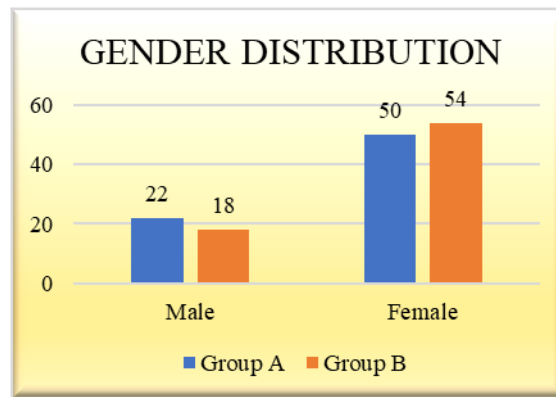
checkup. After the selection of 144 patients randomly from the surgical ward of the hospital, divided them into two equal groups named as group A and group B. Before anaesthesia induction, Group B given with 10ml isotonic saline intravenously and group A was given prophylactic cefuroxime 1.50g impaired into 10ml purified water. When the anaesthesia had been injected then area of skin which was required for the laparoscopic procedure made ready for surgical action by using povidone iodine solution. The technique that was used in the all cases was the three-port laparoscopic cholecystectomy technique but as per the requirement the fourth port technology was also applied on the specific cases. At the end of all surgical procedures the gallbladders along with stones were taken out from the umbilical port place. All the patients, for the safety, stopped from eating and drinking up to six hours. And on the next day all the patients were discharged from the hospital. Follow up of 02 weeks were made for all patients and monitoring was carried out to observe the SSIs and the improvement of the skin. SSI (Skin Structure Infection) referred as reddishness in the region of lesion, impetiginous, purulent discharge or it may be the definite infective discharge out from lesion. For the comparison of the complication created due to the infection in stipulations of Skin Structure Infection (SSI), we made the two groups. Analysis of data was made by using the SPSS-20.

**RESULTS:**

Study was randomized case controlled in nature and comprised on 163 cases presented for laparoscopic cholecystectomy. Only 144 patients out of these including males and females as 40 and 104 respectively were selected for study as per the inclusion criteria. Two randomized groups were made; every group was consisted of 72 patients. Age, gender, ASA score and BMI of all the patients of the both were compared and found no considerable difference as shown in table No 01 below.

Table No 01: Preoperative Demographics of the patients

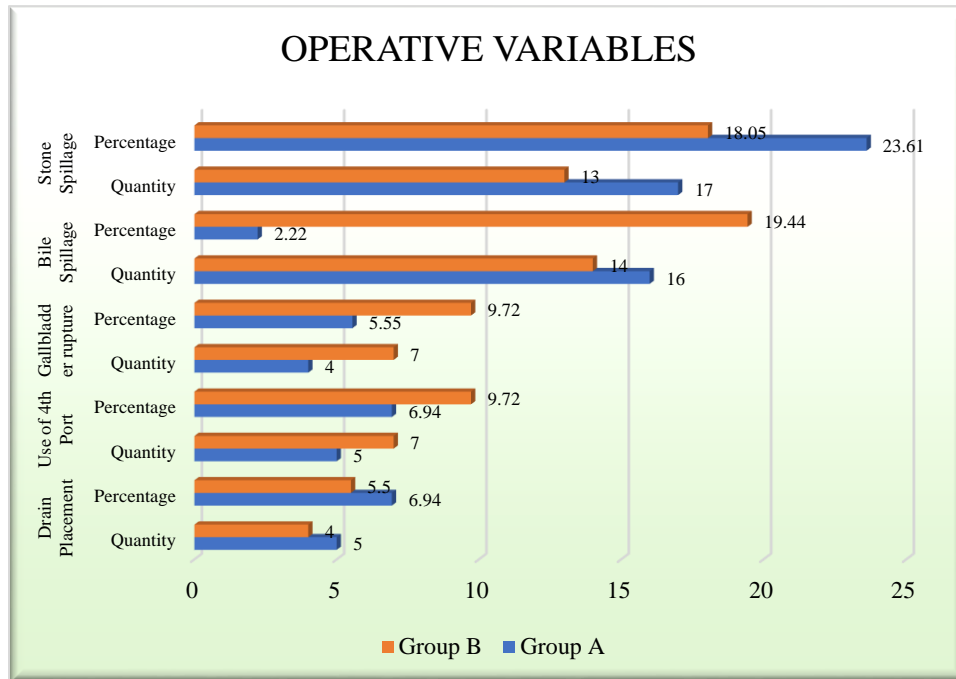
Variables		Group A	Group B
Age in Years	Mean±SD	49.20±7.60	52.30±6.30
Gender	Male	22	18
	Female	50	54
<b>ASA Score</b>			
I	Quantity	40	39
	Percentage	55.56%	54.17%
II	Quantity	28	22
	Percentage	38.88%	30.56%
III	Quantity	04	11
	Percentage	05.56%	15.27%
BMI	Mean±SD	24.30±4.30	24.90±5.10



Same as previous some variables during the operational procedure were also compared by using some statistical terms and here again found no considerable difference. All these variables of gallbladder ruptures, duration of surgery, stone spillage, bile spillage and postoperative hospital stay are shown in the table number 02 below.

Table No 02: Operative variables group A &amp; B

Variables		Group A	Group B
<b>Duration of Surgery in Minutes</b>	Mean±SD	52.30±23.50	48.50±18.60
<b>Drain Placement</b>	Quantity	05	04
	Percentage	6.94%	5.50%
<b>Use of 4<sup>th</sup> Port</b>	Quantity	05	07
	Percentage	6.94%	9.72%
<b>Gallbladder rupture</b>	Quantity	04	07
	Percentage	5.55%	9.72%
<b>Bile Spillage</b>	Quantity	16	14
	Percentage	22.20%	19.44%
<b>Stone Spillage</b>	Quantity	17	13
	Percentage	23.61%	18.05%



Three patients of group A(4.16%) fostered skin infection and skin structure infection. Whereas, two patients of group B (2.78%) resulted with skin infection and skin structure infection. With P-value equal to one, difference among both groups statistically wasn't significant.

#### DISCUSSION:

Derivation made from different studies that worldly by the invention of laparoscopic cholecystectomy LC

the results of surgical procedures gain unique benefits of less morbidity, less mortality, short recovery time, less hospital stays and less perioperative pain as compared to the traditional surgery procedures. By making the comparison of laparoscopic cholecystectomy LC and open cholecystectomy OC the infection complications are lesser in LC. Antibiotic prophylaxis plays a most important contribution in anticipation of infected complications so here arises a need to consider the contribution of

antibiotic prophylaxis in LC.

As for laparoscopic biliary surgery, several studies had been conducted in this aspect. In a randomized case control study Chouhdhary et al determined that in the sense of avoidance of total, casual, distant or major infections and decrease in stay of hospital, prophylactic antibiotics didn't bestow any advantage to the patients [6]. Moreover, in another study held in Italy by Tocchi et al found that antibiotic prophylaxis bestowed no benefit [5]. In this study, diabetic patients who had a history of renal colic and cholangitis after endoscopic intervention were not included in study. The same standards were assented in current study. Same findings were also reported by Koc et al in his RCT study [7]. Yan et al in his research found that antibiotic prophylaxis become a reason for lessening the duration of stay at hospital but it doesn't confer defenseas of infectious complications [8].

Renal colic history, jaundice presence and acute cholangitis history are the infection risks in bile surgery. There are obvious risks of infections while doing surgery in such a condition where due to above mentioned risky conditions intra luminal pressures of common bile duct is increased due to which sepsis process initiates. That is the reason when there are definite chances of intervention, antibiotics are very necessary to prevent the patients from infections. Diabetes is not only the independent risk factor for infectious complications but it also causes bile tract infections prone since it can alter the activity of the bile muscles. Because of this fact; we didn't included patients in the study who were having diabetics. The studies of Sharma N et al, Sattar I et al, Sanabria A et al and Catarci M et al indicates that in provisos of antibiotic prophylaxis, the wound may not necessarily get infection with the presence of infection [9,10,11,12]. Because of this, we did not included patients performing bile cultures in this study.

Patients at low risk were studied for complications of infection during this study but patients at high risk are still to be evaluated for prophylactic antibiotics. In short, the usage of prophylactic antibiotics was examined thoroughly in various meta-analysis and centers as the risk of complications regarding infections in LC was found much lower in comparison to OC. Many are agreed on the finding that risks of infective complications are not reduced through prophylactic antibiotics, while, use of such medicines will increase the cost and also might put the patient at the risk of side effects of these medicines.

### CONCLUSION:

We concluded in this study that in low risk patients who are going under the procedure of LC, prophylacticantibiotics don't minimize the hazard of infective complications. We examined patients at low risk for complications of infections during this study but patients at high risk are yet to be assessed for prophylactic antibiotics through detailed RCT studies.

### REFERENCES:

1. The Southern Surgeon's club. A prospective analysis of 1518 laparoscopic cholecystectomies. *N Engl J Med* 1991; 324:1073-1078.
2. McGuckin M, Shea JA, Schwartz JS. Infection and antimicrobial use in laparoscopic cholecystectomy. *Infect Control Hosp Epidemiol* 1999; 20:624-626.
3. Chuang SC, Lee KT, Chang WT, Wang SN, Kuo KK, Chen JS, Sheen PC. Risk factors for wound infection after cholecystectomy. *J Formos Med Assoc* 2004; 103:607-612.
4. Shea JA, Berlin JA, Bachwich DR, Staroscik RN, Malet PF, McGuckin M, Schwartz JS, Escarce JJ. Indications for and outcomes of cholecystectomy: a comparison of the pre and post laparoscopic eras. *Ann Surg* 1998; 227:343-350.
5. Tocchi A, Lepre L, Costa G, Liotta G, Mazzoni G, Maggiolini F. The need for prophylaxis in elective laparoscopic cholecystectomy: a prospective randomized study. *Arch Surg* 135: 67-70
6. Choudhary A, Bechtold ML, Puli SR, Othman MO, Roy PK. Epub 2008 Sep 9. Role of prophylactic antibiotics in laparoscopic cholecystectomy: a meta-analysis. *J Gastro in test Surg*. 2008; 12(11):1847-53.
7. Koc M, Zulfikaroglu B, Kece C, Ozalp N A prospective randomized study of prophylactic antibiotics in elective laparoscopic cholecystectomy. *Surg Endosc*. 2003; 17(11):1716-8.
8. Yan RC, Shen SQ, Chen ZB, Lin FS, Riley J. Epub 2011 Mar 28. The role of prophylactic antibiotics in laparoscopic cholecystectomy in preventing postoperative infection: a meta-analysis. *J Laparo-endosc Adv Surg Tech A*. 2011; 21(4):301-6.
9. Sanabria A, Dominguez LC, Valdivieso E, Gomez G. Antibiotic prophylaxis for patients undergoing elective laparoscopic cholecystectomy. *Cochrane Database Syst Rev*. 2010 Dec 08; (12): CD005265.
10. Catarci M, Mancini S, Gentileschi P, Camplone C, Sileri P, Grassi GB. Antibiotic prophylaxis in elective laparoscopic cholecystectomy. Lack of

- need or lack of evidence? Surg Endosc. 2004; 18(4): 638-41. Epub 2004 Feb 2.
11. Sharma N, Garg PK, Hadke NS, Choudhary D. Role of prophylactic antibiotics in laparoscopic cholecystectomy and risk factors for surgical site infection: a randomized controlled trial. Surg Infect (Larchmt). 2010; 11(4):367-70.
  12. Sattar I, Aziz A, Rasul S, Mehmood Z, Khan A. Frequency of infection in Cholelithiasis. J Coll Physicians Surg Pak 2007; 17(1):48-50.