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LAPAROSCOPIC CHOLECYSTECTOMY;

OPEN VERSUS LAPAROSCOPIC CHOLECYSTECTOMY IN CIRRHOTIC PATIENTS.

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ABSTRACT… Objectives: To evaluate the outcome of laparoscopic cholecystectomy as compared with open cholecystectomy in compensated cirrhotic patients. **Study Design:** Prospective randomized study. **Setting:** Department of Surgery, Liaquat University Hospital, Jamshoro. Liaquat University Hospital is Tertiary Care Hospital in the region of Hyderabad and Jamshoro. **Period:** Three years from January 2011 to December 2014. **Patients and Method:** Total172 patients presented with symptomatic gall stone disease and compensated cirrhosis were randomly divided in to two groups, open cholecystectomy group and laparoscopic cholecystectomy group. Study variables were age, sex, cause of cirrhosis, surgical time, blood loss during and after surgery, hospital stay and postoperative complications. After inform consent, data was collected on preformed proforma. For statically analysis SPSS 16 were used, statically significance were defined a P value < 0.05. **Results:** In patients for open cholecystectomy group cirrhosis was developed due to secondary infection hepatitis C in 56 (65.88%), hepatitis B in 21 (24.70%) and hepatitis B & C in 08 (9.42%). In laparoscopic cholecystectomy group patients cirrhosis was developed due secondary infection with hepatitis C in 62 (71.26%), hepatitis B in 15 (17.24%) and hepatitis B & C in 10 (11.5%). Laparoscopic cholecystectomy was done on 79 (90.80%) and eight (9.20%) patients converted in to open cholecystectomy due to difficult dissection in three patients and bleeding developed into five patients. The time of surgery was shorter in laparoscopic cholecystectomy group (60.15±15 min) as compared to 75.10±15 minutes in open cholecystectomy group. Oral diet was started early (08-18H) after laparoscopic cholecystectomy as compared to open cholecystectomy (24-12) hours. Hospital stay was also shorter in laparoscopic cholecystectomy group (1.5±1) days versus 03±01 day in open cholecystectomy group. **Conclusion:** Laparoscopic cholecystectomy is safe, more feasible, needless operative time and less postoperative complications in compensated cirrhotic patient as compare to open cholecystectomy but laparoscopic cholecystectomy needs more expertise and availability of instruments.

Key words: Laparoscopic Cholecystectomy, Open Cholecystectomy, Cholelithiasis, Cirrhosis, Hepatitis B and Hepatitis C.

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INTRODUCTION

Chronic hepatitis is more common in Pakistan due to viral hepatitis B and C and chronic liver disease secondary to these infections is one of the major health issues now a day's in our country big burden on country's economy. Research was done in Pakistan showed that 4.3% of the population were infected with hepatitis B surface antigen and 6% for hepatitis C antibody.[1] Gallstones disease is more common in cirrhotic patients as compare to normal population patients.[2,3] Gall stone can formed in cirrhotic patients due to haemolysis, increase size of spleen, decrease billiary acidity, reduce gall bladder function, metabolic liver function and increase in un-conjugated bilirubin secretion[4] due to more infection with viral hepatitis and chronic liver disease. With that problem number of patients with symptomatic gallstone and cirrhosis increased and need surgical intervention.[5]

Open Cholecystectomy can be performed in patients with cirrhosis but cannot decrease the risk of mortality and morbidity.[2,6] The peroperative

blood loss, ascites, wound infection, chest problems are main cause of poor outcome.[4,7] Now a day's laparoscopic cholecystectomy is a gold standard surgical option for symptomatic gall stone disease in the general population and is considered as relative contra indication for cirrhotic patients.[8,9] Recently more studies done in developing countries showed that laparoscopic cholecystectomy is more safe and can easily be performed in cirrhotic patients.[10,11] Results of many other studies also showed that laparoscopic cholecystectomy is more feasible, can safely be performed in cirrhotic patients as compared with open cholecystectomy.[12,13] Performing open Cholecystectomy in patients with symptomatic gall stone disease associated with compensated cirrhosis is more difficult and risky as compared with normal patients.[7,14] To assess the severity of cirrhosis in patients with cirrhosis by Child-Turcotte-Pugh (CTP) classification, is helpful in deciding which treatment option is more optimal. There is still controversy regarding which surgical option is more beneficial for cirrhotic patients.[15,16]

The objective of our study was to assess the safety and outcome of laparoscopic cholecystectomy in cirrhotic patients as compared with open cholecystectomy.

PATIETS AND METHODS

This study was conducted in the department of general surgery at the Liaquat university hospital Jamshoro. The period of study was three years from January 2011 to December 2014. Liaquat university hospital is tertiary care hospital in the region of Hyderabad and Jamshoro.

All the 172 patients were admitted through outpatient's department, relevant history was taken on predesigned Performa and focused examination were done and all relevant laboratory investigations done just like, complete blood picture, liver function test, serum urea, creatinine, electrolytes, HBsAg, Anti HCV, coagulation profile and ultrasound abdomen. The cirrhosis of liver was confirmed on ultrasound abdomen, severity of the disease conformed to apply the Child-Pugh classification system. Patients with Child C class were excluded from the study. Informed consent was taken from all patients for study. All patients were operated under general anesthesia, laparoscopic cholecystectomy was done with four port technique and open cholecystectomy was done with sub costal incision. Haemostasis was secured and abdominal drain was kept in all patients.

The surgical times was noted for both groups and per operative bleeding were noted and mostly it was less than 200 ml and not more than 300ml. Blood transfusion was given if more than 500ml was lost. Time was noted to start the oral diet post operatively. Postoperative pain was measured by visual analogue scale, pain measured on 1st, 2nd and 3rd postoperative day. Patients were followed up in outpatient department on weekly basis for one month. For statically analysis SPSS 16 were used, statically significance were defined a P value < 0.05.

RESULTS

Total 172 patients with symptomatic gall stone and compensated cirrhosis were randomly divided in two groups, open cholecystectomy group 85 patients, from which 45 were female (52.95%), 40 were male (47.05%) with the mean age group 42.5±10.5 years. Laparoscopic group included 87 patients, 48 were female (55.18%) and 39 were male (44.82%) with the mean age group 40.5 ± 8.3.The clinical presentation of patient in both groups is shown in Table-I. Not much difference observed regarding sex, age and clinical presentation. In open cholecystectomy group cirrhosis was due to secondary infection hepatitis C in 56 (65.88%), hepatitis B in 21 (24.70%) and hepatitis B & C in 08 (9.42%). In laparoscopic cholecystectomy group cirrhosis was due secondary infection hepatitis C in 62 (71.26%), hepatitis B in 15 (17.24%) and hepatitis B & C in 10 (11.5%). Laparoscopic cholecystectomy was done on 79 (90.80%) and eight (9.20%) patients converted to open cholecystectomy due to difficult dissection in three patients and bleeding into five patients. Table-II.

The time of surgery was shorter into laparoscopic cholecystectomy was (60.15 ± 15) in minutes in open cholecystectomy was more (75.10±15)

in minutes. The time to start per orally diet in laparoscopic cholecystectomy was early as compared with open cholecystectomy (08±18) hours and (24±12) hours respectively. Hospital stay was also shorter in laparoscopic cholecystectomy and was 1.5±1 days; in open cholecystectomy was03±01 days.

Pain was measured by analogue score chart on 1st, 2nd and 3rd postoperative day in Table-III.

Intra operative bleeding (200ml) was present in 63 (74.12%) patients in open cholecystectomy group and 48 (55.17%) patients in laparoscopic cholecystectomy group. Bleeding of 300ml more was present in 27 (31.04%) and 18 (21.18%) patients in laparoscopic and open cholecystectomy respectively. More than 500 ml blood loss was present in 04 (04.70%) patients in open cholecystectomy. Postoperatively blood loss was comparatively equal in both groups. In open cholecystectomy five (05.88%) patients required blood transfusion and in laparoscopic cholecystectomy none of patient required blood transfusion. Table-IV.

Two patients (02.30%) of laparoscopic cholecystectomy and four patients (04.70%) of open cholecystectomy were shifted to ICU due to respiratory embarrassment see further Table-V.

Patients	Open Cholecystectomy n (%)	Laparoscopic Cholecystectomy n (%)
Age	42.5 ± 10.5 years	40.5 ±8.3 years
Sex		
Female	45 (52.95%)	48 (55.18%)
Male	40 (47.05%)	39 (44.82%)
Presentation		
Chronic cholecystitis	68 (80%)	71 (81.60%)
Biliary colic	17 (20%)	16 (18.4%)

Table-I. Patient's clinical presentation and data.

Patients	Open Cholecystectomy n (%)	Laparoscopic Cholecystectomy n (%)
Class A	70 (82.35%)	68 (78.16%)
Class B	15 (17.65%)	21 (21.84%)
Class C	00	00
Hepatitis C+Ve	56 (65.88%)	62 (71.26%)
Hepatitis B+Ve	21 (24.70%)	15 (17.24%)
Hepatitis B and C+Ve	08 (9.42%)	10 (11.5%)

Table-II. Child-Pugh classification

	Open Cholecystectomy n (%)	Laparoscopic Cholecystectomy n (%)
Operative time	75.10 + 15 (60-90)	60.15 + 15 (50-75)
Hospital stay	3 +1 (1-4)	1.5 + 1 (1-2)
Diet started after	24 +12 (8-36)	08 + 18 (10-24)
Post operative pain		
1st day	6 + 1	5 +1
2nd day	4 + 1	3 +1
5th day	2 +1	1 +1

Table-III. Perioperative variable between two groups.

	Open Cholecystectomy n (%)	Laparoscopic Cholecystectomy n (%)
Operative		
200 ml loss	63 (74.12%)	48 (55.17%)
300 ml loss	18 (21.18%)	27 (31.04%)
500 ml loss	4 (4.70%)	00
Postoperative		
< 200 ml	58 (68.24%)	72 (82.76%)
200-300ml	22 (25.88%)	15 (17.24%)
Blood transfused	5 (5.88%)	00

Table-IV. Perioperative blood loss

Complication	Open Cholecystectomy n (%)	Laparoscopic Cholecystectomy n (%)
Chest infection	12 (14.12%)	7 (08.05%)
Disturbed liver function	16 (18.82%)	11 (12.65%)
Shifted to ICU	4 (4.71%)	2 (2.3%)
Ascitic fluid leakage	8 (9.41%)	5 (5.75%)
Bile leakage	6 (7.06%)	8 (9.20%)
Wound infection	14 (16.47%)	6 (6.90%)

Table-V. Post operative complications

DISCUSSION

In patients with liver cirrhosis gall stone disease more common as compared with general population. It is more prevalent in cirrhotic patients 29.4% and 12.8% in normal population without cirrhosis.[22] even Laparoscopic Cholecystectomy is gold standard for gall stone disease patients but it role in cirrhotic patients under discussion, Yerdelet al[15] wrote a first study in 1993 on cirrhotic patients. With the time, many more studies done and shows Laparoscopic Cholecystectomy be perform safely as compared to open cholecystectomy as the standard of care for Cholelithiasis. More improvements in operating skills and availability of equipment have gradually permitted the use of laparoscopic cholecystectomy in cirrhotic patients.

Over the years, with the more experience in Laparoscopic Cholecystectomy can be performed safely and easily in cirrhotic patients.[17]

With the time Laparoscopic Cholecystectomy became very famous, in the past it was considered a relatively contraindicated in cirrhotic patients.[2] The first Laparoscopic Cholecystectomy was reported in a cirrhotic patients in the 1993.[4] Since then, many evidences shown in the literature that Laparoscopic Cholecystectomy procedure has been more safe with the more expertise, so it is now safe procedure as compared to open cholecystectomy for patients with symptomatic gallbladder disease according to Child-Pugh classes A or B.[18,19] Patients with cirrhosis have doubled the chance to develop the Cholelithiasis as compared with general population.[20,21] In cirrhotic patients chances of morbidity (5-23%) and mortality (7-20%) after cholecystectomy to more blood loss during surgery, postoperative decrease liver function and sepsis.[22,23] with the increased chance of problems and risk in cirrhotic patients associated with symptomatic gall stone disease for elective Cholecystectomy surgery.[2]

Cirrhotic patients can get more benefit with the introduction of Laparoscopic cholecystectomy this less invasive surgical procedure associated with less hospital stay, postoperative time, and early recovery and decreased wound infection.[4]

In our study the time duration of laparoscopic cholecystectomy was 50-75 min as compare to other studies more than 96 min, study done by saleh-El-awadi,[25] Alessandra Puggioni[19] more than 100 minutes. Our results of conversion to open cholecystectomy from laparoscopic cholecystectomy were 9% same with the published in the literature.[26,27,28] It is not a complication of surgery but it can avoid the more serious complication like if bleeding point can't be seen or controlled properly and distorted anatomy of the calot's triangle.

During performing the laparoscopic cholecystectomy, special care should be taken in port formation to avoid injury to dilated abdominal wall veins. The subxiphoid ports was placed more to the right of the midline to avoid the falciform ligament and accompanying umbilical vein. We believe in meticulous care to maintain haemostasis so, blunt dissection was avoided to minimize bleeding once and variety of techniques other than electrocautary, including Ligasure is available.

The result of our study shows that laparoscopic cholecystectomy in cirrhotic patients is safe, feasible, with child classification class A and B with symptomatic Cholelithiasis, reduced hospital stay and early recovery.

CONCLUSION

In cirrhotic patients Laparoscopic cholecystectomy procedure is safer and less time consuming and has fewer complications as compare to open cholecystectomy. But still need the more expertise and availability of instruments that procedure can be done safely.

Laparoscopic cholecystectomy offers the more benefit to the patient decreased hospital stay, toxic effect of anesthetic drugs, shorter operative time, early recovery and early discharge from the hospital.

Procedure should be performed by trained laparoscopic surgeon or under supervision.

REFERENCES

1. Luby SP, Qamruddin K, Shah AA, Omair A, Pahsa O, Khan AJ, et al. **The relationship between therapeutic injections and high prevalence of hepatitis C infection in Hafizabad, Pakistan.** Epidemiol Infect.1997; 119 (3):349–56.

2. Aranha GV, Sontag SJ, Greenlee HB. **Cholecystectomy in cirrhotic patients: A formidable operation.** Am J Surg. 1982; 143(1):55–60.

3. Davidson JF. **Alcohol and cholelithiasis. A necropsy survey of cirrhotics.** Am J Med Sci.1962; 244:703–5.

4. Bloch RS, Allaben RD, Walt AJ. **Cholecystectomy in patients with cirrhosis.** A surgical challenge. Arch Surg. 1985; 120:669–72.

5. Stroffolini T, Sagnelli E, Mele A, Cottone C, Almasio PL. **Italian Hospitals' Collaborating Group. HCV infection is a risk factor for gallstone disease in liver cirrhosis: An Italian epidemiological survey.** J Viral Hepat. 2007; 14(9):618–23.

6. Schwartz SI. **Biliary tract surgery and cirrhosis: A critical combination.** Surgery. 1981; 90(4):577–83.

7. Kogut K, Aragoni T, Ackerman NB. **Cholecystectomy in patients with mild cirrhosis: A more favorable situation.** Arch Surg.1985; 120:1310–1.

8. **National Institutes of Health Consensus Conference statement on gallstones and laparoscopic cholecystectomy.** Am J Surg.1993; 165:390–8.

9. Cushieri A, Dubois F, Mouiel J, Mouret P, Becker H, Buess G, et al. **The European experience with laparoscopic cholecystectomy.** Am J Surg. 1991; 161:385–7.

10. Leone N, Garino M, De Paolis P, Pellicano R, Fronda GR, Rizzetto M. **Laparoscopic cholecystectomy in cirrhotic patients.** Dig Surg. 2001; 18:449-52.

11. Yeh CN, Chen MF, Jan YY. **Laparoscopic cholecystectomy in 226 cirrhotic patients. Experience of a single center in Taiwan.** SurgEndosc. 2002; 16(11):1583–7.

12. Yerdel MA, Koksoy C, Aras N, Orita K. **Laparoscopic versus open cholecystectomy in cirrhotic patients: A prospective study.** SurgLaparoscEndosc. 1997; 7:483–6.

13. Friel CM, Stack J, Forse A, Babineau TJ. **Laparoscopic cholecystectomy in patients with hepatic cirrhosis: A five-year experience.** J Gastrointest Surg. 1999; 3:286–91.

14. Carswell KA, Sagias FG, Murgatroyd B, Rela M, Heaton N and Patel AG: **Laparoscopic versus open left lateral segmentectomy.** BMC Surgery. 2009; 9:14.

15. Yardel MA, Tsuge H, Mimura J, et al: **Laparoscopic cholecystectomy in cirrhoticpatients: Expanding indications.** SurgLparosc. Endosc. 1993; 3:180-3.

16. Kokkalera U, Ghellai A, Vandermeer TJ (2007): **Laparoscopic hepatic caudate lobectomy.** J LaparaendoscAdvSurg Tech A. 2007; 17:36-38.

17. Jan YY, Chen MF. **Laparoscopic cholecystectomy in cirrhotic patients.** hepatogastroentrology. 1997; 44 (18): 1584–87.

18. De Paula AL, Hashiba K, Bafutto M, et al. **Colecistectomialaparoscopicaemcirroticos: Relato preliminary.** Goiania Cir Videolaparosc Braz. 1993; 69–72.

19. Puggioni A, Wong LL. **A metaanalysis of laparoscopic cholecystectomy in patients with cirrhosis.** J Am Coll Surg. 2003; 197 (6): 921–26.

20. Urban L, Eason G, ReMine S, et al. **Laparoscopic cholecystectomy in patients with early cirrhosis.** Curr Surg. 2001; 58(3): 312–15.

21. Bouchier IA. **Postmortem study of the frequency of gallstones in patients with cirrhosis.** Gut 1969; 10:705–10.

22. Tuech JJ, Pessaux P, Regenet N, Rouge C, Arnaud JP. **Laparoscopic cholecystectomyin cirrhotic patients.** Surg Laparosc Endosc Percutan Tech. 2002 Aug; 12(4):227-31.

23. Morino M, Cavuotin G, Migliettic C, Simone P. **Laparoscopic cholecystectomy in cirrhosis: Contraindication or privileged indications?** LaparoscEndosc 2000; 10:360–3.

24. Ji Wu, Li Ling-Tang, Chen Xun-Ru, Li Jie-Shou. Nanjing, China: **Application of laparoscopic cholecystectomy in patients with cirrhotic portal hypertension.** Hepatobilary Pancreat Dis Int 2004; 3:270–4.

25. El-Awadi S[1], El-Nakeeb A, Youssef T, Fikry A, Abd El-Hamed TM, Ghazy H, Foda E, Farid M. **Laparoscopic versus open cholecystectomy in cirrhotic patients: A prospective randomized study.** Int J Surg. 2009 Feb; 7(1):66-9.

26. Cucinotta E, Lazzan S, Melita G. **Laparoscopic cholecystectomy in cirrhoticpatients.** SurgEndosc 2003; 17:1958–60.

27. Schiff J, Misra G, Rendon J, Rothschild S, Schwaitzeberg. **Laparoscopic cholecystectomyin cirrhotic patients.** SurgEndosc 2005; 19:1278–81.

28. Ibrahim S, Hean TK, Ho LS, Ravintharan T, Chye TN, Chee CH. **Risk factors forconversion to open surgery in patients undergoing laparoscopic cholecystectomy.** World J Surg 2006; 30(9):1698–704.

FOLLOW YOUR DREAMS;
YOU MAY NOT MAKE MONEY, BUT WILL NEVER BE POOR.
FOLLOW OTHER PEOPLE'S DREAMS;
YOU CAN MAKE MONEY, BUT WILL NEVER BE RICH.

"Paulo Coelho"

AUTHORSHIP AND CONTRIBUTION DECLARATION

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2	Ashar Ahmad Khan	Conception, Study design and Interpretation.	
3	M. Anwar Memon	Conception and Data collection.	
4	Abdul Aziz Laghari	Review finalizing manuscript.	