



IJPPR

INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals

ISSN 2349-7203



Human Journals

Research Article

December 2018 Vol.:14, Issue:1

© All rights are reserved by Ridha Turki Jasim et al.

Gender as a Factor in Conversion from Laparoscopic Cholecystectomy to Open Surgery

			
Ridha Turki Jasim* , Mujtaba Salih Kuhdair, Amir K. Sultan			
<i>Department of general surgery, Imam Husain medical city Karbala, Iraq.</i>			
Submission:	21 November 2018		
Accepted:	26 November 2018		
Published:	30 December 2018		



HUMAN JOURNALS

www.ijppr.humanjournals.com

Keywords: Laparoscopic cholecystectomy, conversion rate, gender.

ABSTRACT

Background Laparoscopic cholecystectomy replaced open cholecystectomy gold standard procedure for the symptomatic cholelithiasis. Conversion from laparoscopic cholecystectomy to open procedure still required in many circumstances. **Aim of the study:** Evaluation of laparoscopic cholecystectomy in our center and clarify whether gender carries an increased risk for conversion to open cholecystectomy. **Patients and methods:** **Three hundred** cases of laparoscopic cholecystectomy candidates were prospectively followed at the time of surgery by obtaining a datasheet for the patient's age, gender, time from the introduction of ports till the decision of conversion and the cause of conversion in two years (2011- 2012). Finding in male and female patients was compared by using chi-square test. **Results:** From 300 laparoscopic cholecystectomy 11 conversions were obtained the causes are: dense adhesions and disturbed anatomy, 5 Hemorrhage : 1, empyema of the gallbladder 1, Technical difficulty : 1, liver tumor: 1, anomalous biliary anatomy:1, vascular variation: 1 and the percentage of conversion 3.6% five cases of the conversions are males from 40 male patients underwent laparoscopic cholecystectomy, 6 cases are females from 260 female patients underwent laparoscopic cholecystectomy so the percentage of conversion for male patients is 12.5% while for female patients is 2.3%. **Conclusion:** The conversion rate in this study is 3.6% and the common cause for conversion is dense adhesions, no biliary duct injury that need conversion and the rate for conversion is higher in male patients. Inflammation and fibrosis are more extensive in men than in women. These findings may explain why the rate of conversion to open surgery is higher in men than in women.

INTRODUCTION

Cholecystectomy was established as the surgical treatment for cholelithiasis in 1882, Carl Johan August Langenbuch was the first who performed the procedure. Open cholecystectomy became the gold standard for the treatment of cholelithiasis till the introduction of laparoscopic cholecystectomy in 1980, when Philip Mouret from France performed the first human laparoscopic cholecystectomy in 1987. There is no doubt that laparoscopic cholecystectomy replaced open cholecystectomy as a standard for the treatment of symptomatic cholelithiasis, the advantages of this procedure includes reduced postoperative pain, shorter hospitalization, earlier return to normal activity and definitely better cosmetics ⁽¹⁾. The spread of the procedure in almost all hospitals and the advancement in surgeon's experience and confidence has led to decrease the work with the open technique to be performed only in failures of the laparoscopically attempted ones⁽²⁾. Conversion from laparoscopic cholecystectomy to open cholecystectomy is still required in certain circumstances. Conversion is related to patient factors, surgeon factors and equipment failure factors but most are converted because of difficulty in delineating the anatomy clearly or complications arising during the procedure. ^(3, 4)

The aim of this study was for the evaluation of the laparoscopic cholecystectomy in our center as a sample for the work of laparoscopy in our locality comparing with other centers in the world and to find the main causes of conversion and the difficulties facing our surgeons in the procedure. In this study, we attempted to clarify whether gender carries a risk for conversion to open surgery during laparoscopic cholecystectomy.

PATIENTS AND METHODS

A prospective study about the incidence and causes of conversion in laparoscopic cholecystectomy. From January 2011 to January 2013, (300) cases were recorded in the study that carried out in Baghdad Teaching Hospital, all cases that included in the study were diagnosed as a symptomatic gallstones disease clinically and by ultrasonic examination. All patients have no previous upper abdominal surgery, those with previous upper abdominal surgery excluded from the study.

Cases that admitted for laparoscopic cholecystectomy were prepared preoperatively by the general investigations: Random Blood Sugar, Hemoglobin %, Renal function tests, Liver function tests, ECG, Chest x-ray usually done and abdominal ultrasound. Prophylactic

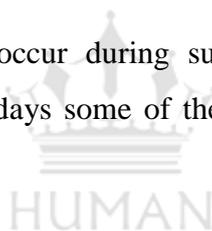
antibiotic used routinely. At the time of surgery, the following data were obtained: age, gender, time from introduction of ports till the decision of conversion and the cause of conversion. Datasheet was prepared and data recorded by the researcher with the help of other colleagues. Operations carried out by different teams of surgeons. A standard technique for laparoscopic cholecystectomy was practiced; nasogastric tube was not used routinely but occasionally.

After general anesthesia and positioning of the patient and draping insufflations achieved through a veress needle. Carbon dioxide used as the insufflations gas. 30 degrees camera used through 10 mm port.

Standard procedures done through four ports technique, but three ports technique also practiced by some surgeons.

L- Shaped cauterization tool, suction irrigation machine, Babcock, and Veress needle are frequently and mainly used for the procedures. Intraoperative cholangiogram is not available.

There was no major complication occur during surgery, all patients followed up and discharged from hospital within 1-2 days some of them discharged after 4 days. Mortality zero.



RESULTS

From 300 patients underwent laparoscopic cholecystectomy 40 patients were males (13.3%) and 260 cases were females (86.6%) 11 conversions were obtained (conversion rate is 3.6%) 5 conversion cases are males and 6 cases are females conversion rate for male patients from the total male cases is 12.5% and for female patients from the total female cases is 2.3% the average age for conversions is 47.5 years.as shown in table 1.

Table -1 showing age and gender distribution and conversion rate in laparoscopic cholecystectomy.

Total cases	Male (%)	Female (%)	Total conversions	Male conversions	Female conversions	Mean age of conv.
300	40 (13.3%)	260 (86.6%)	11 (3.6%)	5(12.5%)/40	6(2.3%)/260	47.5 years

The mean time needed from the introduction of ports till the decision of conversion is 27.5 minutes the longest time is 45minutes and the shortest time needed is 10 minutes.

The causes of conversions were obtained depending on the decision of the surgeon according to the difficulty faced during surgery or technical faults and other associated causes. The causes of conversion as in table -2.

Table 2. .Percentage and causes of conversion.

No.pt	Cause of conversion	Percentage
5	Dense adhesions	45.45%
1	Vascular variation	9.09%
1	Anomalous biliary anatomy	9.09%
1	Technical difficulty	9.09%
1	Empyema of the gallbladder	9.09%
1	Liver tumor	9.09%
1	Hemorrhage	9.09%

The most common cause for conversion in the study is disturbed anatomy due to dense adhesions with the difficulty to carry out a clear and safe dissection. There was no bile ducts injuries discovered during surgery.

Five cases of conversion were males the percentage is 12.5%. Six cases of conversion were females the percentage is 2.3%.

DISCUSSION:

Conversion to open procedure is required in a varying proportion of patients which ranges from 2 - 15% in different studies. ⁽⁵⁾

The gender of the patient has been discussed as a risk factor for conversion to open surgery, ^(6, 7, 8). One study that found a higher conversion rate among males suggested that gallbladder disease in males is a different entity. ⁽⁹⁾

The same study argued that males pay less attention to their health problems and permit them to be advance. Another study that found a higher conversion rate among males attributed it to greater incidence of gallbladder and biliary tree anatomic difficulties in males. ⁽⁶⁾

An inflammatory process can heal with little collagen accumulation and it can even heal without a scar. However, severe acute cholecystitis and chronic cholecystitis often involve massive collagen production and fibrosis.⁽¹⁰⁾

In our study, the conversion rate is 3.6% which is within the usual rates of conversion in different studies as shown in table 3.

Table 3. Conversion rates in different studies

STUDY	Rate of conversion
Georgia Baptist Medical Center (1989-1991)	2.3 %
Aga Khan University / Karachi/ Pakistan (1997-2001)	7.5 %
University of Texas, The National Hospital (1998 -2001)	5 %
Department of Surgery, Saint Barnabas Medical Center, Livingston, New Jersey (2008-2010)	4.9 %
AL-Jamhoory Teaching Hospital, Mosul City (2004-2005)	7.5 %
AL-Sadder Teaching Hospital in Basra City (2006-2007)	5 %
Our study (2011 -2013)	3.6 %

This approximate rate of conversion in our study with those from different studies may indicate increasing in the skills of our doctors and success in laparoscopic surgery in our center.

The results show higher rate of conversion in male patients and some previous studies considered male sex as a risk factor for conversion.⁽⁸⁾ The major cause of conversion in our study is dense adhesions and frozen triangle of Calot. 5 cases recorded to have dense adhesions, attempts to release adhesions by cauterization and dissection failed to ensure clear anatomy. Safe lyses of adhesions requires combination of skillful technique and attention to visual cues. If the line of tissue adherence can be recognized, it will provide the most expeditious path to follow, with the least chance of causing significant bleeding or visceral injury^(11, 12).

Principles of traction /counter traction are essential component of this phase of operation, and the surgeon may occasionally need to try with varying directions of pull on the tissues to clearly display the anatomy.^(13, 14)

For body wall adhesions, the combination of gravity pulling the tissues down while the distended abdominal wall moves in the opposite direction sometimes provide adequate stretch to allow the dissection to be done with only one working instrument. Hemorrhage in one case that the surgeon was not sure of complete clamping of the cystic artery leading to bloody field. Vascular variations are common in biliary system aberrant right hepatic artery, anterior cystic artery, replaced right and left hepatic arteries and unusual origin of cystic artery may need excessive care to avoid vascular injuries and clipping that may significantly compromise blood flow, in this case, aberrant right hepatic artery has been assumed and it was severely adherent to the gallbladder that conversion needed for safe surgery and outcome.

The third case of conversion had very long cystic duct with abnormal position of gallbladder in the most right lateral margin of the liver. The surgeon prefer shifting to open surgery because of doubt of the anatomy. Technical difficulty in one case is the cause of conversion due to inadequate visualization in presence of hepatomegaly and inadequate pneumoperitoneum. In another case empyema of the gallbladder was the cause for conversion with difficulty in grasping the gallbladder and risk of perforation during manipulation. A case of liver tumor discovered during one procedure and opening done. A case of liver tumor discovered during one procedure and opening done. To deal with the tumor and local resection done.

A study carried out in Georgia between 1989-1991 by Georgia Baptist Medical center, the conversion rate is about 2.3% also dense adhesion was the main cause of conversion.⁽¹⁵⁾ And they face no trocar injury or biliary ducts injury and consider dense adhesions as a technical cause.

In Another study Pakistan by Aga Khan Hospital in Karachi between 1997-2001, conversion rate is 7.5% and also dense adhesions were the main cause for conversion 56.3% and the second cause was empyema of the gallbladder.⁽¹⁶⁾

In USA, Texas a study carried out by Texas University and North Texas Health Center between 2003-2004, conversion rate was 5% and consider male sex, sever obesity and acute cholecystitis as the major risk factor for conversion.⁽¹⁶⁾

Another study in New Jersey carried out by Saint Barnabas Medical center between 2008-2010 from which the conversion rate is 4.9% the most common cause for conversion was

adhesion and the majority of those patients had a previous abdominal surgery. ⁽¹⁷⁾ Male patients and patients over 50 years had significantly higher likelihood of open conversion.

Another study in AL-Jamhory Teaching hospital in Mosul City between 2004-2005 conversion rate was 7.5%. Extensive adhesions and complicated cholecystitis are the most common indications for conversion.

Converted cases by experienced surgeon 4.5% and by junior surgeon 11.11%.

Another study in AL-Sadder teaching hospital in Basra city between 2006-2007 conversion rate was 5% and the most common cause for conversion was dense adhesions, the rate of conversion is higher in male patients.

CONCLUSION:

1. Major causes for conversions in the study is due to disturbed anatomy either from dense adhesions or anatomical variations, although this result is compatible with similar studies, facilities like intraoperative cholangiogram may be of help in dealing with this problem.

From the rate of conversion and the absence of vascular injury or biliary ducts injury during procedures included in the study, we can notice the rapid improvement of the technique in our locality and increasing the skills of our surgeons.

2. Conversion of laparoscopic cholecystectomy to open procedure is not a failure provided that it is decided on the appropriate time since early conversion prevent unwanted complications.

3. Male gender, Carry more risk for conversion.

4. Male gender is a risk factor for conversion attributed to greater incidence of gallbladder and biliary tree anomalies. The inflammation and fibrosis are more extensive in male than in female.

ACKNOWLEDGEMENT

We would like to express our great gratitude and appreciation to our teacher and supervisor professor Mr. Munthir A. A. AL-Obaidi for his kind help and valuable scientific guidance

throughout the conduct of this study. It is a good opportunity to show great thanks to our teachers and colleagues in Baghdad teaching Hospital.

REFERENCES:

- 1-Singh Kuldip, Ohri Ashish: Difficult laparoscopic cholecystectomy: A large series from north India, Indian Journal of surgery .2006; 68:|205-208.
- 2-Tang B, Cuschieri A. Conversion during laparoscopic cholecystectomy: risk factors and effects on patients' outcome. J Gastrointes. Surg. 2006; 10:1081-1091.
- 3-Sikora SS, Kumar A. Laparoscopic cholecystectomy –can conversion be predicted. World J surgery 2005; 5:858-860.
- 4-Ibrahim S, Hean TK, Ho LS, Ravintharan T, Chye TN, Chee CH .Risk factors for conversion to open surgery in patients undergoing laparoscopic cholecystectomy.World J Surg. 2006;30:1698-1704.
- 5-Sanabria JR, Gallinger S, Croxford R, Strasberd sm. Risk factors in elective laparoscopic cholecystectomy for conversion to open. J Am coll surg. 1994; 179:696-704.
- 6-Edward H. Livingstone and Robert V. Rege: A nationwide study of conversion from laparoscopic to open cholecystectomy, The American Journal of Surgery, vol. 88, 2004; 205-211.
- 7- Zucker KA, Bailey RW, Graham SM, Scovil W, Imbembo AL. Training for laparoscopic surgery. World J Surg. 1993; 17:3-7.
- 8- Karayiannakis AJ, Polychronidis A, Perente S, Botaitis S, Simopoulos C. Laparoscopic cholecystectomy in patients with previous upper or lower abdominal surgery. Surg. Endosc. 2004; 18:97-101.
- 9-Connor S, Garden OJ. Bile duct injury in the era of laparoscopic cholecystectomy. Br J Surg. 2006; 93:158-168.
- 10-Polychronidis A, Botaitis S, Tsaroucha A, et al. Laparoscopic cholecystectomy in elderly patients. J. Gastrointestin Liver Dis. 2008; 17:309-313.
- 11- Hawasli A, Featherstone R, Lloyd L, Voorhees M. laparoscopic training in residency program .J Laparoendosc. Surg. 1996; 6:171-174.
- 12- Lein HH, Huang CS. Male gender: Risk factor for sever symptomatic cholelithiasis. World J Surg. 2002; 26:598-601.
- 13- Bo hacek L, Pace DE. Advanced laparoscopic training and outcomes in laparoscopic cholecystectomy. Can J Surg. 2009; 52:291-294.
- 14- Ronald S. Chamberlain. Laparoscopic cholecystectomy conversion rates in two decades. Journal of the Society of Laparoendoscopic Surgeons.2010; 14: 476-483.
- 15-Russell JC, Walsh SJ, Reed-fourquet L, Mattie A, Lynch J.Symtomatic cholelithiasis: a different disease in men. Laparoscopic cholecystectomy Registry. Ann surgery.1998; 227; 195-200.
- 16- Abdulwahab, Adnan Y., Safwan A. Taha, and Salam T. Mutlak. "4-CAUSES AND INCIDENCE OF LAPAROSCOPIC CHOLECYSTECTOMY CONVERSION." *Basrah Journal of Surgery* 15.1 (2009): 20-24.
- 17- Zisman A,Gold-Deutch R,Zisman E,negri M,Halpem Z,Lin G,Halevy A.Is male gender a risk factor for conversion of laparoscopic cholecystectomy. Surg. Endosc.1996; 10:892-894