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Prevalence of Complications and Conversion Rate of Laparoscopic Cholecystectomy Among Operated Patients in Tibebe Gion Specialized Hospital; Facility Based Cross-Sectional Study

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**BAHIR DAR UNIVERSITY COLLEGE OF MEDICINE AND HEALTH
SCIENCES DEPARTMENT OF SURGERY**

**PREVALECE OF COMPLICATIONS AND
CONVERSION RATE OF LAPAROSCOPIC
CHOLECYSTECTOMY AMONG OPERATED
PATIENTS IN TIBEBE GION SPECIALIZED
HOSPITAL; FACILITY BASED CROSS-
SECTIONAL STUDY.**

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STUDY.

A THESIS PAPER SUBMITTED FOR APPROVAL TO BAHIR DAR
UNIVERSITY, COLLEGE OF MEDICINE AND HEALTH SCIENCES,
DEPARTMENT OF SURGERY, IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE SPECIALITY CERTIFICATE PROGRAM IN
GENERAL SURGERY.

BY

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DECLARATION

This is to certify that the thesis entitled; prevalence of complications and conversion rate of laparoscopic cholecystectomy among operated patients in Tibebe Gion specialized Hospital (TGSH) facility based cross-sectional study; a thesis proposal submitted for approval to Bahir Dar University, College of Medicine and health sciences, department of surgery, in partial fulfillment of the requirements for the speciality certificate program in general surgery, is a record of original work carried out by me and has never been submitted to this or any other institution to get any other degree or certificates. The assistance and help I received during the course of this investigation have been duly acknowledged.

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Approval of Dissertation/thesis for defense

I hereby certify that I have supervised, read, and evaluated this thesis/dissertation titled prevalence of complications and conversion rate of laparoscopic cholecystectomy among operated patients in Tibebe Gion Specialized Hospital; facility based cross-sectional study by Solomon Ayenew prepared under my guidance. I recommend the thesis/dissertation be submitted for oral defense (mock-viva and viva voce).

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SCIENCES DEPARTMENT OF SURGERY**

Approval of Dissertation/thesis for defense result

We hereby certify that we have examined this dissertation/thesis entitled prevalence of complications and conversion rate of laparoscopic cholecystectomy among operated patients in Tibebe Gion Specialized Hospital facility based cross-sectional study by Solomon Ayenew . We recommend and approve the dissertation/thesis.

Board of Examiners

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ABSTRACT

BACKGROUND: Cholecystectomy is the mainstay of management. Laparoscopic cholecystectomy is new advancement in the management of gallstone disease. Most of study done worldwide showed wide range of complication rates and conversion rates. There are few studies done in Africa but no study done in Ethiopia about laparoscopic cholecystectomy. We want to assess prevalence of complications and conversion rate laparoscopic cholecystectomy in our hospital.

OBJECTIVE: To assess prevalence of complication and conversion rate of laparoscopic cholecystectomy among a cohort of patients who undergone laparoscopic cholecystectomy.

METHOD: We used institution based Cross-sectional descriptive study.

All patients who were undergone LC in Tibebe Gion Specialised Hospital from September 1, 2019 to November 10, 2020 were used to collect data. We used patient's card to collect relevant data by prepared check list. We have used operation notes by surgeon, ward progress notes and one month postoperative follow up documentations from each patient card. The collected data was entered and has been analyzed using SPSS version 25 and a descriptive analysis has been done.

RESULTS: 85 clients were included in this study. Over all complication rates of laparoscopic cholecystectomy was 22.4% and conversion rate of 4.7%. Port site wound infection rate 14.1%, iatrogenic gall bladder perforation and contamination rate 9.4 %, persistent bile leak rate 2.4%, CBD injury rate 1.2%. The average hospital stay was 3.96 days.

CONCLUSION: The overall complication rate is slightly higher than most of studies. Port site infection was the major complication in our hospital. Conversion rate was 4.7 %. There was prolonged hospital stay due to different reasons. Wound infection is the only morbidity identified during the first month follow-up.

KEY WORDS: - cholelithiasis ,cholecystitis , laparoscopy cholecystectomy ,common bile duct injury ,bile leak , conversion rate

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ABBREVIATIONS

AC	Acute Cholecystitis
BDU	Bahir Dar University
ETB	Ethiopian Birr
ICT	Information Communication Technology
LC	Laparoscopic Cholecystectomy
SPSS	Statistical Package For Social Science
SSI	Surgical Site Infection
TGSH	Tibebe Ghion Specialized Hospital

CHAPTER ONE

1. INTRODUCTION

1.1. Back ground

Gallstone (cholelithiasis) is generally stone in gall bladder due to different causes. Gall stone disease is a problem related to cholelithiasis and is one of the most common diseases of gastrointestinal tract. Autopsy reports showed the prevalence of gall stone disease is in the range of 10% - 15% of adults. (1)

Despite the high prevalence of cholelithiasis, most patients will remain asymptomatic from their gallstones throughout life. For unknown reasons, some patients progress to a symptomatic stage. Because few patients develop complications without previous biliary symptoms, prophylactic cholecystectomy in asymptomatic individuals with cholelithiasis is generally not indicated (2). But once patients become symptomatic there will be repeated attack and leads to more severe forms of complications like acute cholecystitis, chronic cholecystitis, gallbladder empyema, emphysematous gall bladder, gall bladder perforation and others.

For the above reason the symptomatic cholelithiasis should be treated by medical or surgical management. Medical management includes oral and contact dissolution agents and shockwave lithotripsy. They are usually reserved for poor surgical candidates and those who refuse surgery. Unfortunately these management options are not generally successful and if successful there will be recurrence gallstone disease. cholecystectomy is safe, effective procedure that definitely treats symptomatic cholelithiasis (3).

The option of cholecystectomy includes open and laparoscopic cholecystectomy. Laparoscopic cholecystectomy (LC) offers a cure for gallstones with a minimally invasive procedure, minor pain and scarring, and early return to full activity. Currently, LC is preferred management option for symptomatic cholelithiasis and its complications. Absolute contraindications for LC include hemodynamic instability, uncontrolled

coagulopathy, or frank peritonitis. Conditions formerly believed to be relative contraindications such as acute cholecystitis, gangrene and empyema of the gallbladder, biliary-enteric fistulae, obesity, pregnancy, ventriculoperitoneal shunts, cirrhosis, and previous upper abdominal procedures are now considered risk factors for a potentially difficult cholecystectomy. While LC outcomes have steadily improved and has been shown multiple times to be safe and feasible, conversion to an open operation should always remain an option, and it is not a failure(4).

Generally the outcome of laparoscopic cholecystectomy is mainly dependant on intraoperative incidences and complications, post operative complications in ward and during follow up. One the major intraoperative incidents and complications are common bile duct (CBD) injury which can be during dissection, cautery use. The other can be bile leak due to iatrogenic gallbladder perforation or improper handling of the stapler or clamp. Others like bowel injury bleeding from the cystic artery or liver bed are there. There can be also conversion due to many reasons which is not taken as failure. LC has few complications in the post operative period like lower wound infection rate, less pain and early ambulation and early discharge as it is minimally invasive procedure. Some complication of LC may extend to the post operative follow up after discharge. These are wound infection, jaundice due to CBD stricture. The complication rate following laparoscopic cholecystectomy is getting improved by advancement of technology like intraoperative cholangiography but not feasible set ups like our country. Surprisingly, the literature is sparse concerning the perioperative complication rate and outcome following laparoscopic cholecystectomy.

There are many researches done in western medical practice to show complication rate, conversion rate and average hospital stay related to LC. The overall complication rate is <16 % and conversion rate is less < 5 % (5-8). But few studies are done Africa and no study done in Ethiopia. New institutions like ours need to compare themselves from the worldwide pattern of complication so that they can work on significant complications.

1.2. Statement of the problem

Laparoscopic cholecystectomy is not free of complications. Researcher show the major complication include CBD injury, wound infection ,iatrogenic gall bladder perforation and contamination ,persistent bile leak, bleeding from cystic artery and jaundice. Previous researchers show the commonest complication is iatrogenic gall bladder perforation and contamination. Average hospital stay in days also shows how successful LC was and most researchers use it as one element to assess the outcome of LC.

However, the few available western studies fail to show consistent result of complication rates and thereby outcome of LC. Studies done in Africa are limited by small sample size (<50) which is usually doesn't include the whole expected complications like intra operative bile duct injury. Based on different conducted studies, there is a wide range of complication rate like iatrogenic gall bladder perforation (5-13.5 %). There is huge difference in the conversion rate of laparoscopic to open cholecystectomy (1.9 - 24%) in different institution(5).

All these differences in complication rates and conversion rates may come from the reason that each institution may have different experience for this new advancement in the management of choleliathisis. We have tried to find study done in Ethiopia in this subject matter and we couldn't found any. Our institution started this laparoscopic surgery recently. This needs further investigation so that one can know outcome of LC for any specific institution.

Our aim is to assess prevalence of complications and conversion rate of laparoscopic cholecystectomy in our Hospital in terms of major complication rates, conversion rates and average hospital stay.

1.3. Significance of the study

. Laparoscopic cholecystectomy is young and continuously evolving modality of surgery which still is getting wide acceptance in every corner of the world. It's important to know what are the most significant complications and their rates so that we can cope with the world. Conversion rate is an indicator of how difficult the surgery was and tell us the experience of laparoscopic surgeon to handle the difficulty. The result of study will help us to know the most common complication so that efforts will be made to know the exact cause; there by to decrease its rate. There is no a research paper done on the subject matter in our country major referral centers. Hence the importance of an accurate data regarding outcome of laparoscopic cholecystectomy is undisputable. Furthermore, the output of this study can serve as a base line for further studies.

1.4. Objectives

1.4.1. General objective

- ❖ To investigate prevalence of complications and conversion rate of laparoscopic cholecystectomy among operated patients of symptomatic cholelithiasis in TGSB in 2020

1.4.2. Specific objectives

- ❖ To determine prevalence of complications related to laparoscopic cholecystectomy and clients' average hospital stay.
- ❖ To determine conversion rate of LC to open cholecystectomy

CHAPTER TWO

2. LITRATURE REVIEW

Gall stone disease is a challenge to health sector. In the year 2000, there were 2,624,111 admissions and 778,632 outpatient visits for cholelithiasis in the USA. There were 20.5 million affected patients between the ages of 20 and 74 years. Of this 6.3 million were men and 14.2 million were women. At an annual cost of \$6.5 billion, cholelithiasis is the most expensive digestive tract disorder today in the USA. Incidence of cholelithiasis and cholelithiasis-related surgeries in developed countries increasing. With an overall prevalence of cholelithiasis is 10% to 15% in developed countries, 0% to 10% in Africa and up to 60% to 70% in certain groups , such as Pima Indians; this may be due to differences in environmental, dietary, and genetic factors. The most common type of gallstones in developed countries are composed primarily of cholesterol, and the highest incidence is in the Native American population; moderate prevalence is seen in Hispanics, and the lowest prevalence is seen in black Americans, East Asians, and sub-Saharan Africans. Brown-pigmented stones are seen commonly in East Asians, reflecting a increased rate of biliary tract infections in this nations (9)

World Gastroenterology Organization, 2012 showed marked geographic variation in gallstone prevalence. About 20 million people in the USA (15% of the population) have gallstones. The Third National Health and Nutrition Examination Survey (NHANES III) showed gall stone disease more common in Mexican-Americans than in non-Hispanic whites, and much lower in non-Hispanic blacks. But there is a surprisingly very high prevalence was found in American Indians (specifically, the Pima tribe from Arizona). This organization also showed ultrasound studies done in Europe revealed a prevalence of 9 - 21% and an incidence of 0.63/100 persons/year. The studies which showed the trend of cholelithiasis prevalence and incidences in Europe and North America is by using necroptic and ultrasound studies. This trend has also been demonstrated in Japan. Here, a higher gallstone prevalence (10%) than that previously described as well as an

increased proportion of cholesterol stones has been documented by the Japan Gallstone Study Group. The prevalence gallstone in Africa is lower than above mentioned continents (10).

In Ethiopia study done at Gonder hospital, department of radiology, 2008; the prevalence of cholelithiasis was 5.2% from those who was scanned for other reasons. Of the patients with gallstone disease female to male ratio is 2:1. The study also found the ratio of symptomatic to asymptomatic cholelithiasis was 1:1 though it suggests different reason for this. Of patients with cholelithiasis, 22.1% had evidences for at least one the complications (11).

The complication of untreated symptomatic cholelithiasis are difficult to manage and have higher mortality even after proper management .For example one the study done to see the natural course of gall stone disease ;showed the overall mortality of acute cholecystitis is 9.4 % and those who under gone cholecystostomy for sever cholecystitis was 27.3% and cholecystectomy is 2% (12). This is high number but this study was done early. A study done in Bristol to see the mortality rate of gall bladder empyema when it is not surgically intervened is nearly 25 % (13). Currently it's difficult to find study about natural history of a cholelithiasis.

As laparoscopic cholecystectomy in newly emerging technology it's not free of complication. A retrospective study was done in 740 patients in Serbia and Montenegro 2016. The researcher found 97 (13.1%) complications which occurred during the procedure. The frequently occurred complication was iatrogenic perforations of a gallbladder which was 5.27%. This study also identified the top three common complications in the post operative period; which were bleeding in to the peritoneum (3.64%), biliary leaks (1.89%), and surgical site infection (SSI) (0.94%). The conversion rate to open cholecystectomy was (3.91%) (5).

Retrospective analysis done by society of laparoscopic surgery ,Romania in 2003, the commonest complication was iatrogenic perforation of the gallbladder (15.9%) the

other incidents encountered were hemorrhage which was seen in 2.3%, and CBD) injuries (0.1%). There was conversion to open cholecystectomy in 1.9% of patients, usually because of unclear anatomy as a result of acute inflammation. According to this study the main postoperative complications were bile leakage (0.5%), hemorrhage (0.15%), sub-hepatic abscess (0.1%) and retained bile duct stones (0.1%). Deaths were recorded (0.1%).(8)

Prospective study was done in India, 2013 to predict difficulty of laparoscopic cholecystectomy. There were total of 210 patients. Conversion rate from laparoscopic to open cholecystectomy was found to be 4.28%(7).

In 2019, 12 studies were undergone metanalysis and systemic review in the Department of General Surgery, Croydon University Hospital, and London, UK. The aim was to compare outcome of laparoscopic cholecystectomy in elderly (>80yr) and young. The elderly patients had severe and complicated gallbladder disease and also had more co-morbidities and a higher ASA grade. Also this group of patients had prolonged hospital stay. The younger group had lower morbidity and lower conversion rate to open cholecystectomy. There were no differences in mortality and bile duct injury rate in all except one study. From this study Laparoscopic cholecystectomy is safe and effective in the extreme elderly patients. Increased complication rates in elderly are mainly related to co-morbidities and more complex gallbladder disease in these group of patients . So this study concluded that elderly Patients should be carefully selected, and cholecystectomy should be performed at an earlier stage to minimize these problems(14).

Retrospective review of 204 patients was done from 1994-1999 in Jordan 2002, to see the effect of timing of surgery, type of inflammation, and sex on outcome of LC for acute cholecystitis(AC). According to this study Laparoscopic cholecystectomy is a reliable and safe option for the treatment of AC. LC was not associated with an increased incidence of bile duct injury in this series. It should be the choice of management before open surgery. This review identified factors for increased conversion rate to open. These were delay of surgery of > 72 hours (hrs) from the acute attack, certain pathology, like in

empyema and male sex. The conversion rate in male was 24% while it was 4% in female in this study (15).

A Meta analysis of 7 studies total of 1408 patients was done in Italy in 2008. The aim of this study was to evaluate surgical outcomes of laparoscopic cholecystectomy for gangrenous and empysematous acute cholecystitis defined as severe acute cholecystitis. The risks of conversion and overall postoperative complications were extremely higher in those with sever acute cholecystitis than those with non-sever types. According to this study there was no significant difference in local postoperative complications rates like wound infection. This study concluded that the place of laparoscopic cholecystectomy for sever forms acute cholecystitis is lower and the threshold to convert to open cholecystectomy should be minimal.(16)

Another study done in USA, 1995 a review of 1000 patients who undergone LC; to see impact of previous abdominal surgery in outcome of LC. This review showed Patients with history of upper abdominal surgery had significantly higher complication rates in all perioperative period. But this was not seen in patients with history of previous lower abdominal surgery. The study conclude that previous lower abdominal surgery had little impact on the outcome of patients undergoing LC while previous upper abdominal surgery was associated with increased morbidity(17).

The other study done in Greece in 2007, chart review of patients operated from 1992 to 2004; to see contribution acute cholecystitis, obesity, previous abdominal surgery on the outcome of laparoscopic surgery. This chart review found that obesity and previous abdominal surgery only affected the operation time whether they occur alone or found together in one patient. On the contrary, previous upper abdominal surgery alone and in combination with AC was associated with 3- and 17-fold relative odds of conversion, respectively. The combined presence of AC, obesity, and previous abdominal surgery yielded an odds ratio for conversion of 7.5 and for complications of 10.7, as well as a longer operation time and hospital stay. The presence of previous upper abdominal

surgery with AC and obesity had a substantial effect on conversion, with an odds ratio of 87.1 compared with the reference group. LC is safe in patients with AC, previous abdominal surgery, or obesity. However, the presence of inflammation alone or in combination with obesity and/or previous (especially upper) abdominal surgery is the main factor that influences the adverse outcomes of LC(18).

Study done in turkey 2019: randomized clinical trial; to see the effect of antibiotic prophylaxis on wound infections after laparoscopic cholecystectomy. There was no significant difference in the development of wound infection among those who took prophylactic antibiotics and those who didn't. Infection rate was 4.5%, in those who took prophylaxis while it was 4.2% in who didn't. The study suggests that antibiotics should not be given for prophylaxis before low-risk laparoscopic cholecystectomy as there is no statistically significant difference(19).

There no much studies in Africa regarding the field of laparoscopic cholecystectomy. Retrospective study was done in 42 patients which were operated from 2011 to 2013 in Iadan, south east Nigeria, 2013. The commonest complication identified was port site infection which was in 7 patients (16.3%). The average hospital stay these patients was 2.7 days and 27 (64%) patients were followed for 6 months post- surgery with no identifiable morbidity. There were three conversions (7%) to open cholecystectomy(6).

We couldn't find a research topic regarding LC in our country

Although the rate biliary injury during LC is decreasing still it is twice that of open cholecystectomy. Once these complications happened they are associated with significant mortality and morbidity. So different prevention strategies are being developed and surgeons should be familiar with these aspects of this culture of safety in cholecystectomy in an attempt to reduce the incidence of biliary/vascular injury during LC.(20)

CHAPTER THREE

3. METHODOLOGY

3.1. Study area

Bahirdar city is around 578 km north from center Addis Abeba and is the city of Amhara regional state. It's around 28 km² area and is at shore Lake Tana and Blue Nile. The current population size 750 991. It the home of Amhara ethnicity but there also 1% Oromo and Tigray. The Study will be conducted in Tibebe Gion Specialized Hospital, Bahirdar Ethiopia. TGSB is one of teaching hospital in Ethiopia which is under Bahir Dar University College of medicine and health sciences. It's one of the young University hospitals and started to function in around January 2019.

3.2. Study period

The data was collected from Patients who was undergone laparoscopic cholecystectomy from September 1, 2019 to November 10, 2020 at TGSB.

3.3. Study design

Institution based Cross- sectional descriptive retrospective study.

3.4. Source population

All general surgery patients admitted and operated from September, 1 2019- November 30, 30 2020 GC.

3.5. Study population

All general surgery patients diagnosed with symptomatic cholelithiasis and undergone laparoscopic cholecystectomy during September, 1 2019- November 30, 2020 GC.

3.6. Inclusion criteria

All patients diagnosed with symptomatic cholelithiasis clinically and radiologically who undergone laparoscopic cholecystectomy included in the study.

3.7. Exclusion criteria

- A. Patients with incomplete follow up.
- B. Patients with incomplete recorded data.

3.8. Measurement variables

3.8.1. Independent variables

1. Risk Factors (Prophylactic antibiotics, previous surgery, Comorbidities, timing surgery).
2. Clinical profile (history of admission , current acute cholecystitis ,gall bladder empyema , gangrene , pericolecystic fluid collection , gall bladder thickness,

3.8.2. Dependant variables

1. Complication rate
2. Average hospital stay day
3. Conversion rate

3.9. Sample size determination and sampling technique

All clinical records of patients who have been diagnosed to have symptomatic cholelithiasis for which laparoscopic cholecystectomy done at TGSB from September 1, 2019 to November 10, 2020 GC were used to collect data for achieving the objective of the study. A full Coverage survey of one year and three months records has been employed with available all cases.

3.10. Data collection procedure and instrument

The study was conducted at TGSB in the year of September 1, 2020 to December 10, 2020 at surgery unit. The list of clients was collected from OR log book. Patient's chart was used to see operation notes, progress notes and postoperative follow documentations. After data collection, each check list was checked for completeness based on the code

given during data collection. Data was entered in to SPSS version 25 statistical package. Coding of individual checklist was checked before data entry in to the SPSS version 25. Descriptive statistics like frequency tables, graphs and descriptive summaries has been used to describe the variables.

3.11. Ethical clearance

Letter of ethical clearance was obtained from Research Ethics Committee of BDU College of medicine and health sciences. This letter was given to CEO of TGSB and then we got another letter from CEO to the person in charge of patient card room. As we used patients card to collect data we only took oral consent from operation room head nurse, hospital ICT officers, ward head nurse and liaison officers. The information found in the patient chart has been kept secured confidential and the information was used only for this study purpose.

3.12. Dissemination plan of the study findings

The result of the study will be presented to BDU College of medicine and health Sciences Department of surgery, further attempt will be made to publish it on national and international scientific journals.

3.13. Operational definitions

In this study the complication rate of laparoscopic cholecystectomy will be explained by in terms of CBD injury, iatrogenic GB perforation and contamination, bleeding from cystic artery, persistent bile leak ,port site wound infection and jaundice.

The hospital stay in days will be counted from the day of operation up to day of discharge.

CHAPTER FOUR

4. RESULT

We have found 85 clients who meet our inclusion criteria and all were included in this study with response rate of 100 %. Sixty eight (80%) patients were female. Forty-four clients are from Bahirdar.

Table 1: sex and address distribution of clients who are participated in this study

Variables	Frequency	Percent
Sex		
Female	68	80%
Male	17	20%
Address		
Bahir dar	44	51.8%
Outside Bahir dar	41	48.2%

The age of clients range participated in this study from 20- 65 yrs old with mean age of being 41. 55 yrs.

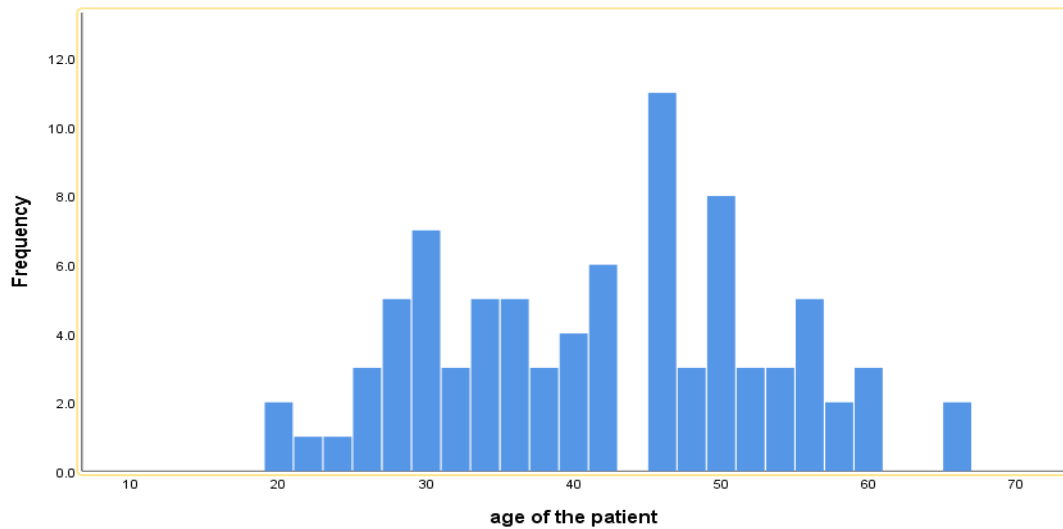


Figure 1: *pattern of age distribution*

Seventy eight (91.8%) clients did receive prophylactic antibiotics 30 minutes before cholecystectomy. No client with history of abdominal surgery was undergone laparoscopic cholecystectomy.

There were sixteen (18.8%) clients with one or more comorbidity.

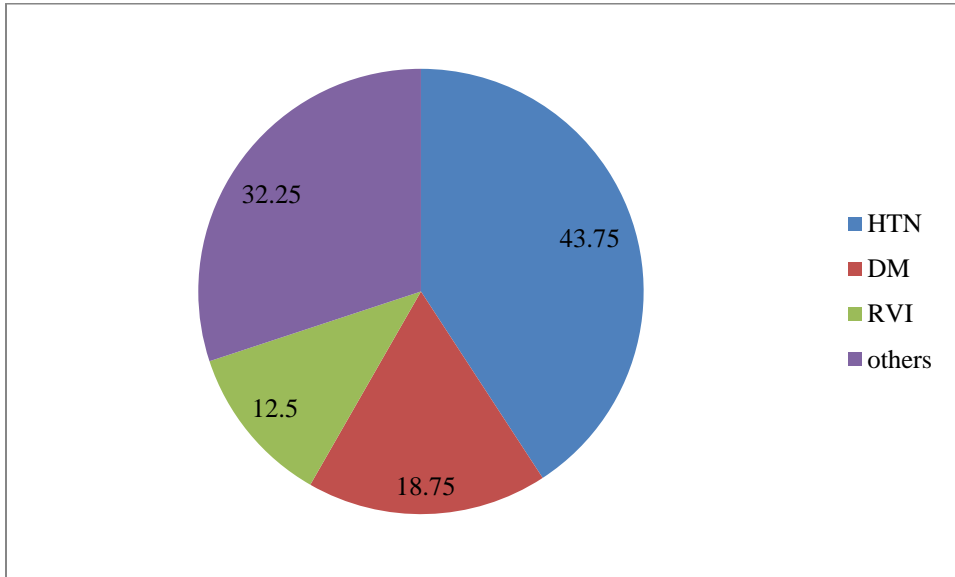


Figure 2: distribution of co morbidity among clients who have at least one

Fourteen (16.5%) clients were diagnosed with different degree acute cholecystitis with average gallbladder wall thickness of 6.26 mm. Five of them were operated within and nine of them after 72 hr of onset of symptoms. Of fourteen clients 5 of them had gallbladder empyema and 2 of them had pericholecystic fluid on ultrasound. No client was diagnosed with gangrenous gall bladder.

Table 2: number of clients who was operated for acute cholecystitis within and after 72 hrs.

	Acute cholecystitis		
	Simple cholecystitis	Gall bladder empyema	Total
Time of operation			
Within 72 hr	3	2	5
After 72 hr	6	3	9
Total	9	5	14

Five of the clients (5.9%) had previous history of admission for cholecystitis and another 5 clients(5.9%) had sign of chronic cholecystitis by both preoperative ultrasound and intra operative diagnosis by surgeon.

Nineteen (22.4%) had one or more complication related to the laparoscopic surgery up to the first month of follow up. Of these 15 (78.9%) was undergone as elective LC. Four (28.6%) out of 14 clients who was undergone emergency LC had complication.

The most identified complication was port site infection which was seen in 12 clients. Eight clients had intra operative iatrogenic gall bladder perforation and contamination, two clients had post operative bile leak and 1 client had CBD injury.

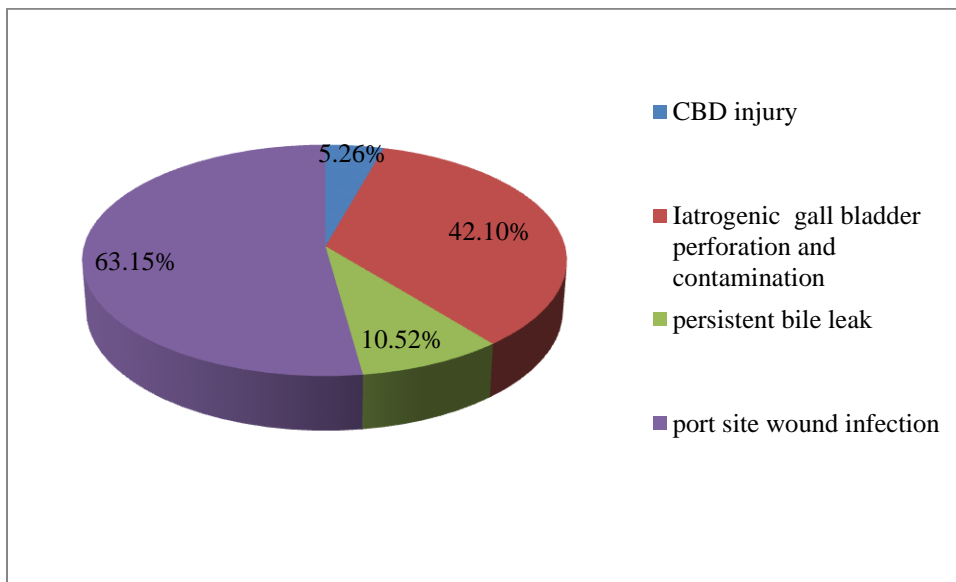


Figure 3: rate complications related to the laparoscopic cholecystectomy.

There was conversion of laparoscopic cholecystectomy to open cholecystectomy in 4 clients. The overall conversion rate was 4.7%. There was no conversion among the clients who were undergone emergency LC.

Table 3: frequency of conversion in clients who had either emergency or elective LC

	Elective	emergency	Total
Conversion			
Yes	4	0	4
No	67	14	81
Total	71	14	85

No client was complicated with hemorrhage from cystic artery, and didn't develop jaundice during one month follow up. There was no death among clients who undergo LC during this study period.

Clients' duration of hospital stay ranges 1 day to 32 days. But the average hospital stay is 3.96 days.

CHAPTER FIVE

5. DISCUSSION

The overall rate of complications in this study is 22.4 % (CI 14.1-31.8) which is slightly higher than the other studies(5). This slightly higher over all complication rate was due to increased complication rate of port site wound infection. Of all these complicated patients 78.9 % are done as elective base. Four out of 14 (28.6 %) clients who had undergone emergency LC had complications.

The most common complication was port site wound infection which occurred in 14.1% of all clients (CI 3.7-21.2). This result is consistent with study done in Nigeria in 2013(6). But this result is higher than study done in Serbia and Montenegro in 2016(5). Port site infection has no relationship with history of current cholecystitis , co morbidity , whether clients took prophylaxis or not and presence of intraop gall bladder perforation and contamination. This means wound infection rate related to LC is same as other African countries but higher than western countries. This higher prevalence of port site wound infection may be due to our sterility techniques in the operation theatre which need further study.

The next most common complication is iatrogenic gall bladder perforation and contamination which occurred in 9.4% of clients (CI 3.5-16.5). This result is consistent with study done in Romania in 2003 and Serbia and Montenegro in 2016 (5, 8). There is no relationship between iatrogenic gall bladder perforation rate and current acute or chronic cholecystitis, sex of the client.

There were 2 clients with persistent biliary leak which constitute 2.4 % (CI 1.6 % - 5.9%). The result is consistent with other studies. The first client was a 36 year old female who had iatrogenic gall bladder perforation and contamination. In this client there was conversion of LC to open cholecystectomy for difficult cholecystectomy due to

adhesion. This client was discharged after 30 days of ward stay. The second client was 53 year old female asthmatic who had CBD injury and was converted to open cholecystectomy for which drain was left and stayed in the ward for 32 days and discharged after leak stopped.

Only one client (1.2 %) sustained common bile duct injury (CI 0-3.5) that is mentioned above.

There is no haemorrhage from cystic artery, no jaundice during followup and no death among clients in this study. This may be due to few numbers of clients and poor documentation intra op findings.

There was 4.7% conversion rate of laparoscopic cholecystectomy to open cholecystectomy (CI 1.2-9.4). This was same with study done in Nigeria and India, Romania and Serbia (5-8). There was no significant difference in conversion rate among male (5.9 %) and female clients (4.4 %). There was no conversion among acute cholecystitis and those who have sign of chronic cholecystitis intra operatively. This result is much lower than previous studies and shows our institution have successfully managed acute cholecystitis patient well with LC (14).

The average hospital stay was 3.96 days which is slightly longer than study done in Nigeria. This may be due to 3 clients stayed for more than 2 weeks in the ward. But for the rest clients the average hospital stay was 3.18days.

CHAPTER SIX

6. CONCLUSION

The overall complication rate related to LC was slightly higher in TGSH. Port site infection is the major complication in our hospital. Conversions rate of laparoscopic cholecystectomy to open was 4.7 %. The average hospital stay was 3.96 days which was significantly affected by 3 clients who stayed more than 2 week.

LIMITATION OF THE STUDY

This study tries to determine rate of each major complication but fail to identify contributing factors for each complications. The other limitation of this study was being retrospective. Some rare complications like bleeding and jaundice would have been identified easily if it was prospective study.

RECOMMENDATIONS

Most of complication rate is comparable with worldwide trends. This tremendous achievement for new institution but we would like to give recommendations in the following area.

1. The OR team and ward team should do short survey to identify reason for increased risk for port site infection
2. Proper handling of the gall bladder has to be the trend for the surgeon to decrease iatrogenic gall bladder perforation and contamination
3. Future researchers should do prospective study in large number of clients.

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APPENDIX A:

Check list

BDU, College of Medicine and Health Sciences, Department of Surgery checklist prepared to collect data for prevalence of complications and conversion rate of laparoscopic cholecystectomy at TGSH, BDR, ETHIOPIA

Part I: Socio Demographic Characteristics

Serial No _____ Card No _____

Address: Bahir Dar _____ outside BDR _____

1. Age (in years) _____

2. Sex

2.1. Male _____ Female _____

Part II: Risk Factors for post op complication.

1. Prophylactic antibiotics yes-----

No-----

2. Previous abdominal surgery yes-----

No-----

If yes

upper abdomen-----

lower abdomen-----

3. Co morbidity yes -----

No-----

If yes DM-----

RVI -----

Asthma-----

HTN-----

Other specify-----

4. Current acute cholecystitis yes-----
 No-----
- If yes 1.gall bladder thicknes in mm -----
 2.perischolecysctic fluid yes-----
 No-----
 3.gall bladder emyema yes-----
 No-----
 4. Gangrenous gall bladder yes-----
 No-----
5. Timing of operation
 With In 72 hour -----
 After 72 hour -----
5. History of admission yes -----
 No-----
6. Chronic cholecystitis yes -----
 No-----

Part III: post operative finding

1. Bile duct injury
 Yes _____
 No _____
2. Iatrogenic gall bladder perforation and contamination
 Yes _____
 No _____
3. Conversion to open
 Yes _____
 No _____
- If yes reason for conversion-----

4. Hemorrhage from cystic artery

Yes _____

No _____

5. Bile leak

Yes _____

No _____

6. Day of hospital stay in number -----

7. Death related to LC

Yes.....

No.....

Part III: complications during 1 month follow up

1. Wound infection

Yes

No.....

2. Any jaundice

Yes.....

No.....

3. Other