



Comparative Study Of Open Vs Laparoscopic Cholecystectomy

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ABSTRACT::Background:- Gallstones are common in Indian population and its treatment has shown a decisive shift from open to minimally invasive route. There is no doubt that laparoscopy require longer and steeper learning curve and incur higher cost, especially in the absence of health insurance to majority of suburban and rural Indian population. However, preferences of patients are changing rapidly due to better level of awareness and availability of healthcare facility. The guidelines issued by Medical Council of India on laparoscopic training for postgraduate surgical residents has shown favorable results for patients.

Material and Method:-Study was conducted in Department of surgery of Rajendra Institute of Medical Sciences(RIMS), Ranchi from September, 2015 to September, 2017.During this period, patient suffering from gall bladder disease screened out. Out of them, one who were considered fit for either laparoscopic cholecystectomy or open cholecystectomy were included in this study.**Results:**In this series, 80 patients who were suffering from symptomatic gall stone disease with no other pathology and co-morbid condition underwent laparoscopic cholecystectomy and open cholecystectomy. Most of patients were of age between 31-50 years. The mean operating time was 67 minute in laparoscopic cholecystectomy 50 minute in open surgery and blood loss was less than 60 ml in 60% of cases.post-operative analgesic requirement was less and most patients were discharged on 3rd post- operative days in laparoscopic cholecystectomy. As compared to open surgery (5days).In the present series, mortality rate is zero(0%) with very minor complication in intra –operative period and post operative period. Significant bleeding occurred in 5% of cases ,in 2.5% cases, it was from cystic artery and and in rest 2.5% of cases,it was during dissection of calot's triangle.No bleeding occurred from major vessels, no bile duct injury occurred.Total conversion occurred in 5% of cases due to various reason.In post-operative period no major complication occurred.**Conclusion:** laparoscopic cholecystectomy in cholecystitis is ideal procedure for treatment of symptomatic gall stone disease.Although the cost of laparoscopic cholecystectomy is higher than that of open cholecystectomy method,it has greater acceptance due to improved cosmesis,less post–operative discomfort and complication,decreased period of hospitalization and faster recovery.It should be wise to treat these cases as early as possible in case of acute cholecystitis .it has less morbidity and mortality provided it is performed by experienced surgeon having liberal mind convert it to open method, when situation demand.Therefore laparoscopic cholecystectomy should be used as standard therapy for patient having cholecystitis with cholelithiasis

KEYWORDS:-Cholecystitis; ,open cholecystectomy; laparoscopic cholecystectomy.

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I. INTRODUCTION

Conventionally Cholelithiasis was treated by open approach as open cholecystectomy various modifications were made in the conventional approach,like small incision (mini lap cholecystectomy) but all are having its own limitation so not suitable for all the cases.With the advent laparoscopic cholecystectomy,it has altered the realms of general surgery. It has become the gold standard operation for cholelithiasis.

Laparoscopic cholecystectomy has revolutionized gall bladder surgery and resulted in marked reduction in hospital stay,faster recovery and return to normal duties and having less complication.

Acute cholecystitis is a bacterial inflammation of gall bladder which is characterized by right upper abdominal pain,fever, Nausea,vomiting and leucocytosis.It may complicate into mucocele,empyema of gall bladder,fistula,gangrene and perforation,ultimately leading to severe peritonitis and electrolytes imbalance.Mortality of patients with complication of acute cholecystitis is four times more than that of surgically treated uncomplicated acute cholecystitis. So the proper management is promptly instituted in optimal condition.

Definitive treatment of acute cholecystitis is cholecystectomy ,it is treated conventionly by open route.The traditional management of calculus acute cholecystitis is initially conservative. (iv antibiotic, fluid and electrolyte correction,nasogastric aspiration in case of vomiting and symptomatic treatment) in the anticipation that approx 70% of the condition will settle and later planned for elective cholecystectomy.

II. MATERIAL AND METHODS

Study was conducted in Department of surgery of RajendraInstitute of Medical Scienses(RIMS),Ranchi from September, 2015 to September, 2017.During this period,patient suffering from gall bladder disease screened out.Out of them,one who were considered fit for either laparoscopic cholecystectomy or open cholecystectomy were included in this study.

All the cases were selected from the patients in surgical ward of RIMS,Ranchi, on following criteria:-

Criteria for inclusion

(1) Patients presenting with symptoms and sign of acute cholecystitis.

- Right upper quadrant pain abdomen .
- Nausea and vomiting.
- Fever
- Leucocytosis

2) USG proven case of symptomatic cholelithiasis patients between 15 to 60 Years of age.

Criteria for exclusion

- Pregnancy.
- Major bleeding disorder.
- Cirrhosis with portal hypertension.
- Generalisedperotinitis.
- Patient not fit for general anesthesia.
- Suspected gall bladder malignancy.

Method of collection of data

Study subject: "Patient admitted to Department of Surgery, RIMS for elective cholecystectomy"

The method of study consist of-

- Detail history taking and clinical examination as per the Proforma.
- Patients were explained about type of surgeries available-laparoscopic or open cholecystectomy.
- Intra-operative events were documented
- Time taken for the procedure
- Documentation of any complication encountered during procedure
- Laparoscopic procedure converted to open cholecystectomy,reason for the same.

Postoperative Data Documentation

- Drain removal time,
- Post- operative hospital stay
- complication if occurred
- Patient of both groups will be followed regularly up to 3 months.

Methodology

The following investigation done after taking written informed consent.

1. Routine investigation for General Surgical process
- 2 .Other investigation: X-ray chest and abdomen,ultrasonography of abdomen.
3. In selected cases MRCP,ERCP,CT Abdomen

Postoperative investigation

- culture and sensitivity Of Discharge from wound site,Hb%,TLC,DLC.

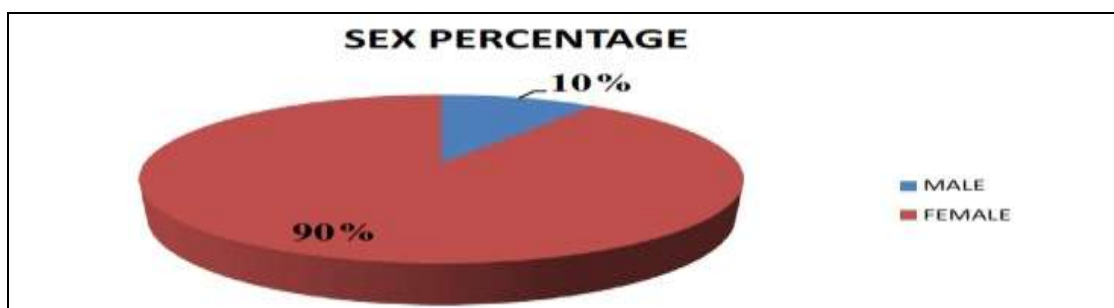
III. RESULTS

80 patients of diagnosed cholelithiasis 40 underwent laparoscopic cholecystectomy and 40 underwent open cholecystectomy were selected for the series and those with choledocholithiasis or gall bladder malignancy or bleeding disorder were excluded from this study and following observations were made.

TABLE – I..SHOWING SEX DISTRIBUTION

SEX	LAPAROSCOPIC		OPEN	
	NO	PERCENTAGE	NO	PERCENTAGE
MALE	4	10%	4	10%
FEMALE	36	90%	36	90%
TOTAL	40	100%	40	100%

In our study of 80 patients, 72 were female & only 8 were male, Female:Male ratio for laparoscopic cholecystectomy and open cholecystectomy is 9:1 this shows that female suffering from gall stone disease prefer laparoscopic Cholecystectomy more because of cosmetic reason.

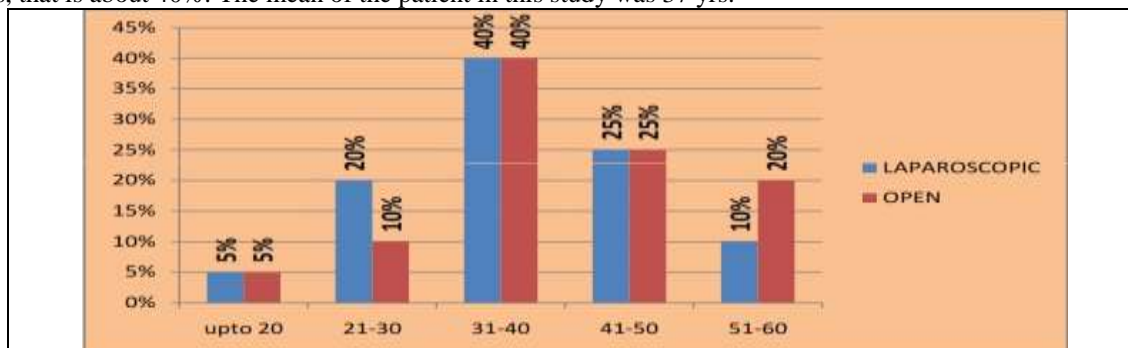


**GRAPH- I
SHOWING SEX DISTRIBUTION**

TABLE – II..SHOWING AGE DISTRIBUTION

Age in Year	LAPAROSCOPIC		OPEN	
	NO	PERCENTAGE	NO	PERCENTAGE
upto 20	2	5%	2	5%
21-30	8	20%	4	10%
31-40	16	40%	16	40%
41-50	10	25%	10	25%
51-60	4	10%	8	20%
Total	40	100%	40	100%

The youngest patient was a female of 16 yrs, who underwent open Cholecystectomy and 12 yrs male underwent laparoscopic cholecystectomy, eldest was a female of 68 yrs of age. In this study 65% of the patient belongs to age group 31-50 yrs and highest no. of patient in the group of 31-40 yrs, that is about 40%. The mean of the patient in this study was 37 yrs.



**AGE GROUP
GRAPH- II.SHOWING AGE DISTRIBUTION**

TABLE – III..SHOWING FREQUENCY OF PRESENTING COMPLAINTS

COMPLAINTS	LAPAROSCOPIC		OPEN	
	NO	PERCENTAGE	NO	PERCENTAGE
Pain abdomen	38	95%	38	95%
Fever	20	50%	20	50%
Nausea & Vomiting	24	60%	24	60%
Fatty food intolerance	10	25%	10	25%

Multiple symptoms were present in most of the patients but pain in the right hypochondrium was most common symptom (95%).

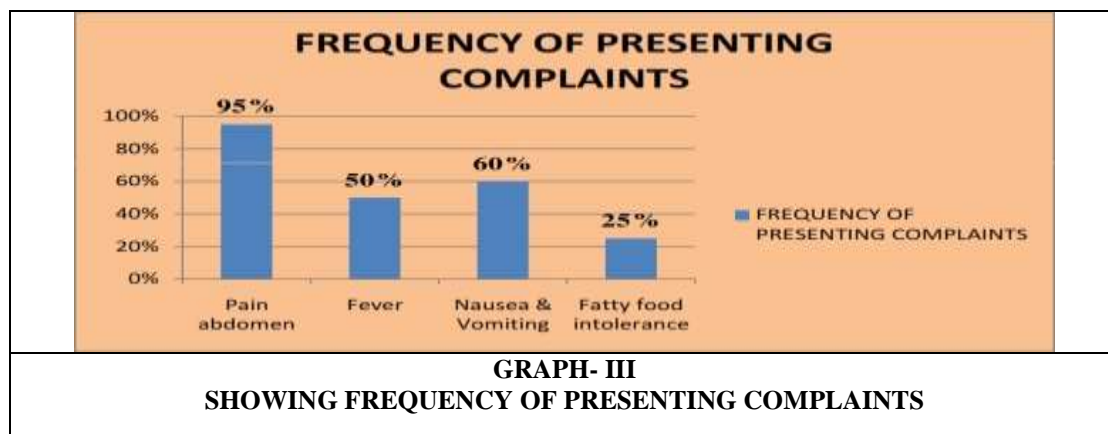


TABLE – IV..SHOWING OPERATIVE TIME

Duration (in minutes)	LAPAROSCOPIC		OPEN	
	NO	PERCENTAGE	NO	PERCENTAGE
31-40	1	2.5%	6	15%
41-50	3	7.5%	10	25%
51-60	6	15%	12	30%
61-70	12	30%	6	15%
71-80	8	20%	3	7.5%
81-90	4	10%	2	5%
91-100	2	5%	1	2.5%
101-110	2	5%	0	0%
111-120	1	2.5%	0	0%
>120	1	2.5%	0	0%
Total	40	100%	40	100%

In laparoscopic cholecystectomy and in open cholecystectomy about 75% of operation took about 41-80 minutes time. In few where complication occurred the operating time was more.

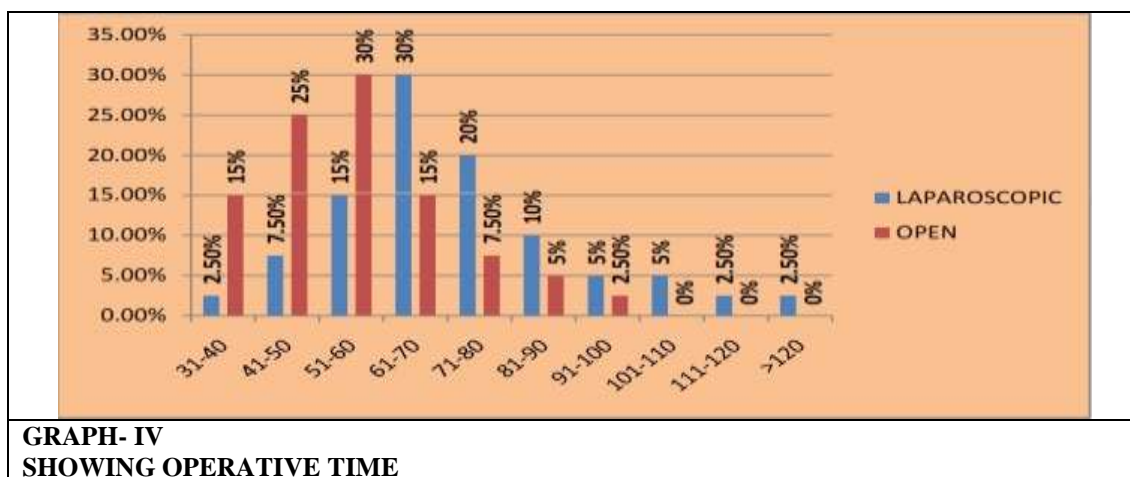
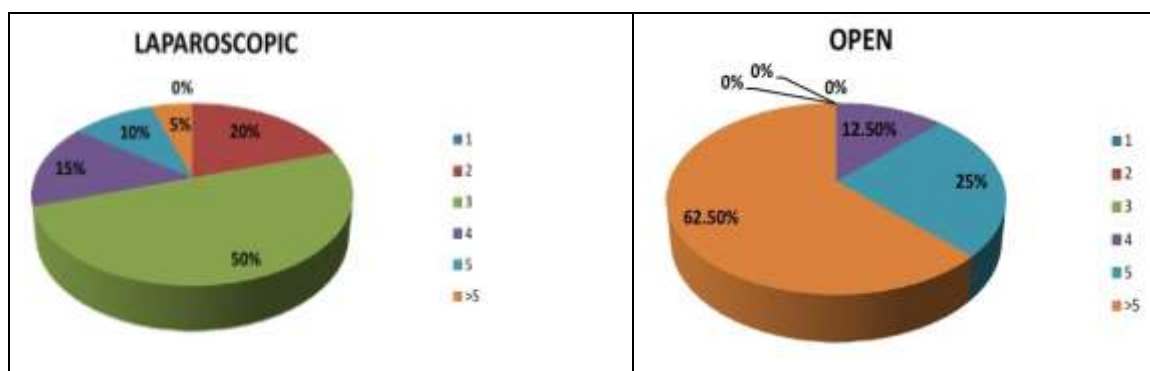


TABLE – V..SHOWING POST OPERATIVE ANALGESIC

(Parenteral)

Total No. of doses	LAPAROSCOPIC		OPEN	
	NO	PERCENTAGE	NO	PERCENTAGE
1	0	0%	0	0%
2	8	20%	0	0%
3	20	50%	0	0%
4	6	15%	5	12.5%
5	4	10%	10	25%
>5	2	5%	25	62.5%
Total	40	100%	40	100%

About 85% of laparoscopic cholecystectomy patients required >3 doses of parenteral analgesics, which is significantly lower than open cholecystectomy. This signifies that laparoscopic cholecystectomy causes less pain to patients.

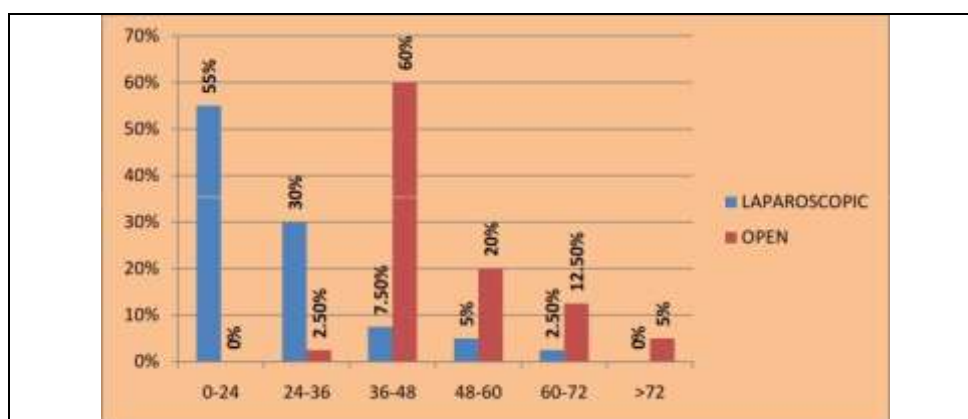


GRAPH-V
SHOWING POST OPERATIVE ANALGESIC (Parenteral)

TABLE – VI..SHOWING TIMING OF FIRST ORAL FEEDING

Timing (in hours)	LAPAROSCOPIC		OPEN	
	NO	PERCENTAGE	NO	PERCENTAGE
0-24	22	55%	0	0%
24-36	12	30%	1	2.5%
36-48	3	7.5%	24	60%
48-60	2	5%	8	20%
60-72	1	2.5%	5	12.5%
>72	0	0%	2	5%
Total	40	100%	40	100%

Most of the patient (85%) of laparoscopic cholecystectomy were allowed to take semisolid food within 24 hours postoperatively. This show faster recovery of patient and early movement of gut after laparoscopic cholecystectomy then open cholecystectomy.



GRAPH- VI SHOWING TIMING OF FIRST ORAL FEEDING

TABLE – VII..SHOWING TIMING OF AMBULATION

Time in days	LAPAROSCOPIC		OPEN	
	NO	PERCENTAGE	NO	PERCENTAGE
1 st	12	30%	0	0%
2 nd	20	50%	6	15%
3 rd	7	17.50%	25	62.5%
4 th	1	2.50%	7	17.5%
5 th	0	0%	0	0%
6 th	0	0%	1	2.50%
>6 th	0	0%	1	2.50%
Total	40	100%	40	100%

About 80% of patients who underwent laparoscopic cholecystectomy were ambulatory by the second postoperative day and 80% of patients who underwent open cholecystectomy were ambulatory by 3-4th days.

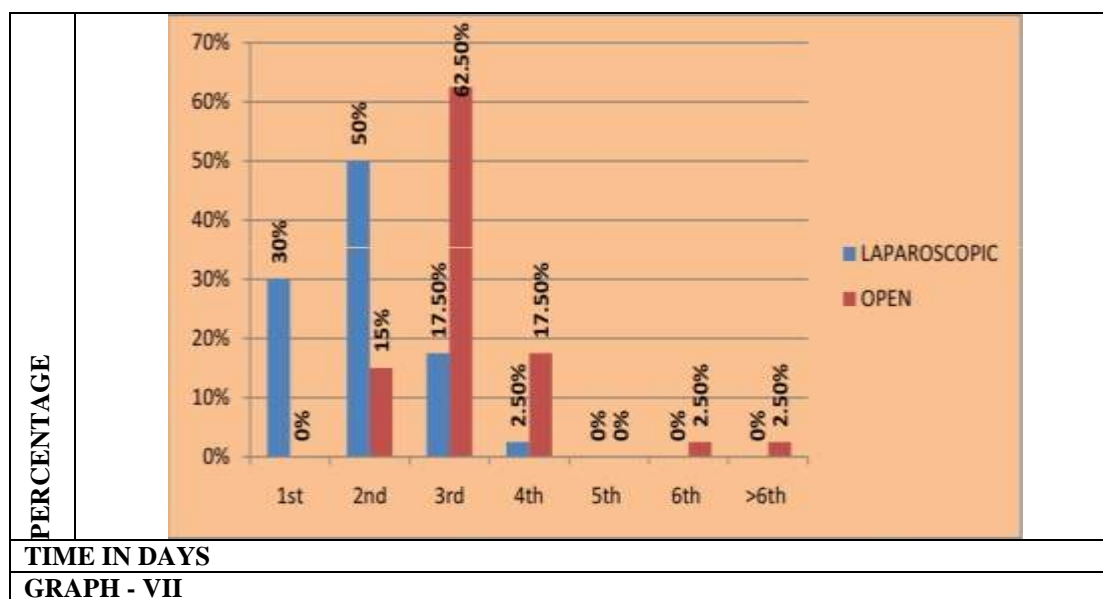


TABLE – VIII..DURATION OF POST-OPERATIVE STAY

Day (post-operative)	LAPAROSCOPIC		OPEN	
	NO	PERCENTAGE	NO	PERCENTAGE
1 st	0	0%	0	0%
2 nd	12	30%	0	0%
3 rd	22	55%	0	0%
4 th	4	10%	4	10%
5 th	0	0%	7	17.5%
6 th	1	2.50%	22	55%
>6 th	1	2.50%	7	17.5%
Total	40	100%	40	100%

Patients were considered dischargeable, when they were able to under take basic self-care in domiciliary environment. Most of laparoscopic patients (85%) were to fit for discharge by 3rd postoperative days and most of the open patients 82% were to fit to discharge by 5th postoperative days. Only one patient had to stay for more than 6 days, who had post operative biliary leakage which was managed by putting drain in subhepatic space, and keeping it of 10 days, biliary leak sealed itself.

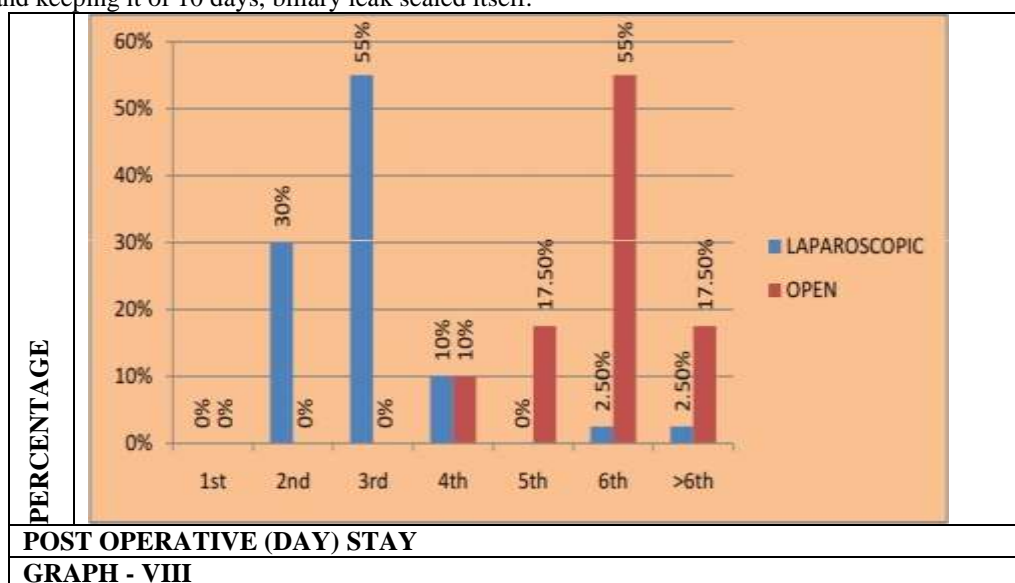


TABLE – IX..Amount of blood loss during the Cholecystectomy

Amount of blood less in ml	LAPAROSCOPIC		OPEN	
	No. of Cases	PERCENTAGE	No. of Cases	PERCENTAGE
< 40 ml	11	27.5%	2	5%
40-60 ml	13	32.5%	7	17.5%
60-80 ml	10	25%	14	35%
80-100 ml	4	10%	13	32.5%
> 100 ml	2	5%	4	10%
Total	40	100%	40	100%

In our study in about 80% of laparoscopic cholecystectomy blood loss was less than 80 ml which was significantly low. Only in 2 cases blood loss was more than 100 ml out of which in 1 cases bleeding was from cystic artery due to slippage of clip and in one case it was from liver bed and from injury to liver, which was controlled by cauterization of raw G. B. bed.

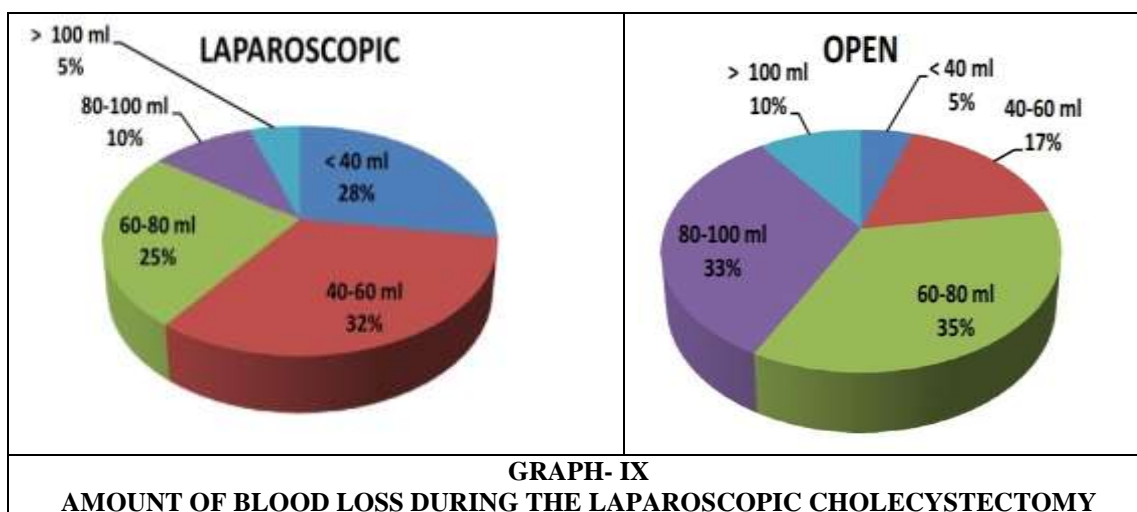


TABLE – X..SHOWING COMPLICATIONS OF CHOLECYSTECTOMY

Complication	LAPAROSCOPIC		OPEN	
	No of Cases	PERCENTAGE	No. of Cases	PERCENTAGE
Montality	0	0%	0	0%
Cardiac	0	0%	0	0%
Pulmonary	0	0%	0	0%
Urinary Tract infection	0	0%	0	0%
Post Operative Pancreatitis	0	0%	0	0%

TABLE – XI ..EARLY POST-OPERATIVE COMPLICATIONS

Complications	LAPAROSCOPIC		OPEN	
	No. of Cases	PERCENTAGE	No. of Cases	PERCENTAGE
Sever Wound pain	0	0%	5	12.50%
Shoulder pain	1	2.50%	0	0%
Biliary leakage	1	2.50%	1	2.50%
Prolonged ileus	1	2.50%	0	0%
D. V. T.	0	0%	0	0%
Respiratory tract infection	1	2.50%	0	0%
Port site infection	2	5%	0	0%
Bleeding due to clip slippage	0	0	0	0%

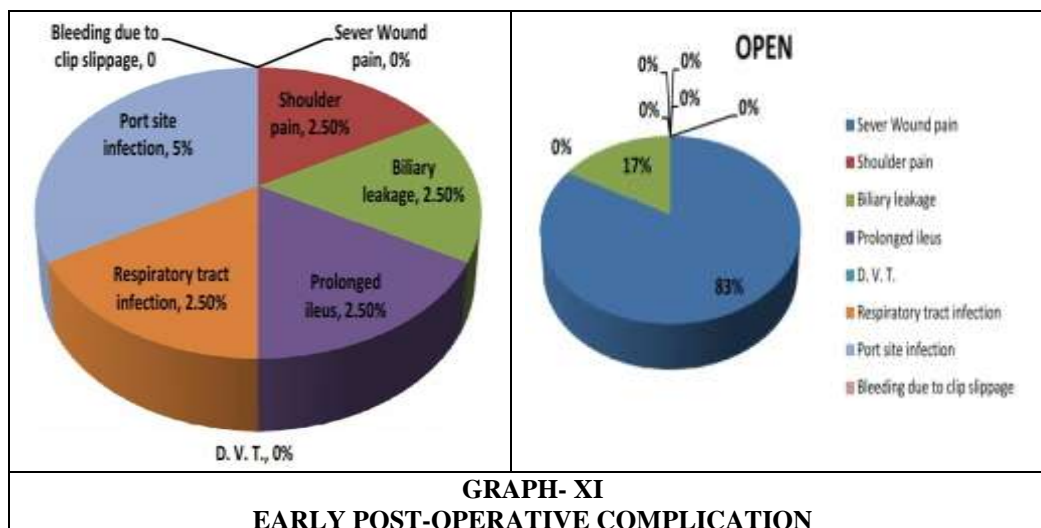


TABLE – XII..LATE POST-OPERATIVE COMPLICATION

Complication	LAPAROSCOPIC		OPEN	
	No. of Cases	PERCENTAGE	No. of Cases	PERCENTAGE
Port site hernia	0	0%	0	0%
Keloid	0	0%	0	0%
Jaundice due to bile duct stricture	0	0%	0	0%

There was no mortality either intra-operative or post-operative period, neither there were any cardiac, pulmonary complication.

IV. DISCUSSION

In the present study total no. of 80 patients in which 40 underwent laparoscopic cholecystectomy 40 underwent open cholecystectomy were selected with certain inclusion and exclusion criteria to evaluate the merit and demerits of laparoscopic cholecystectomy and open cholecystectomy and its complication to search out the cause complications and to formulate the guide lines to perform safe laparoscopic cholecystectomy and open cholecystectomy.

Age and Sex Distribution

Age and sex –in this study youngest patient who underwent laparoscopic cholecystectomy was 12 years old boys and oldest patient was 68 years old lady. Youngest patient who underwent open cholecystectomy was 16 years old girl and oldest patient was 70 years old male.

About 40% of the patient fall in age of 31-40 years. Mean age of the patients in this study was 37 yrs.

Spangenbergger, Klien et al (1990) and Mrksic MD, Farkas et al (1999) reported a mean age of 45 and 46 years respectively.

Mean age of the patients in this study was lower than the above two studies perhaps due to preference of laparoscopic cholecystectomy by younger patients for cosmetic reasons.

In this study most of the patients were female (about 90%). The Female:Male ratio is 9:1 which is higher than usual sex incidence of gall stone diseases including finding of Mrksic MD., Farkas et al (1999), where the Female:Male ratio was 4:1. Although the sex incidence in this study is not true reflection of the gall stone disease because cases were selected for a particular procedure and not only for cholelithiasis.

PRESENTING COMPLAINTS

In this study about 95% patients presented with a history of pain over right hypochondrium (biliary colic) of abdomen. About 60% of patients presented with nausea and vomiting. However, most of the patients presented with multiple symptoms. Almost similar description of presenting symptoms were reported by Nathansons, Shimi, J Wong, Cuschieri et al in their respective study from 1991 to 1996.

DURATION OF OPERATION

In this study, the mean operating time 67 minutes and about 72% of cases were operated between 41-80 minutes.

The maximum operative time in present series was 130 minutes and minimum operating time was 32 minutes.

In some cases where complication had occurred and it was converted to open procedure, the operation was completed in more than 2 hours.

However the cases where anatomy was normal and with minimum adhesion, the operating time was less than one hour.

Various authors reported a wide range of mean operating time for laparoscopic cholecystectomy in acute cholecystitis and showed the role of learning curve.

Coelho J.C., Vizzoto A.O. et al. (2000) found the operative time varied from 25-95 minutes, with an average of 42 minutes.

Gubrik VV et al (1999) and Wilson P, lease et al (1996) reported mean operating time of 50_+12 minutes and 55 minutes respectively.

In my study mean operating time was 67 minute for laparoscopic cholecystectomy in acute cholecystitis.

In this, study pain is graded according to the requirement of parental analgesics for each patient.

In our study about 70% of patient who underwent laparoscopic cholecystectomy required 5 or <5 doses parental analgesics only those patient who were converted to open procedure, have required > 5 doses of parental analgesics.

Hence, post operative pain was significantly less in patient undergoing laparoscopic cholecystectomy as compared to open cholecystectomy.

This report is consistent with with report of Jan YY et al (1999), Transden et al (2001) and Mc Mohan et al (2003).

Timing of first oral feeding

About 90% of the patients who underwent laparoscopic cholecystectomy were allowed to take semisolid food after 24 hours post-operatively but in open cholecystectomy were to allowed to take semisolid food after 48 hours.

Our finding are similar with finding of Mc Mohan et al (2003). The early return of peristaltic movement and tolerance of semisolid diet was probably less because of minimum handling of the gut during laparoscopic cholecystectomy.

Ambulation & Hospital Stay

In my series in laparoscopic cholecystectomy early ambulation within 24 hours started and mean hospital stay was 2.5 days. While in open surgery ambulation started after 48 hours and mean period of stay was 5 days.

Vogelhaeh and Rothenbutler (1998) reported the mean post-operative stay of 5 days.

Spangenberg (1997), Nathanson Shimi et al (1999) and Cushieri, Dubois, Novert et al (2001) reported a mean hospital stay of 3 days for laparoscopic cholecystectomy.

Our findings are similar with reports of Spangenberg; Nathanson, Shiimi et al and Cushieri, Dubois, Novert et al laparoscopic cholecystectomy in acute cholecystitis.

Blood loss during operation

In our series about 60% of cases amount of blood loss during operation was less than 60 ml, which was significantly low. Only in 5% cases blood loss more than 100 ml.

Bleeding from cystic artery occurred in 2.5% of cases and conversion was done to secure haemostasis. Bleeding from liver bed was stopped by cauterizing the liver bed, application of clip to the bleeder if needed.

In our series no bleeding occurred during insertion of veress needle or from injury to aorta, mesenteric vessel, omentum or gut.

In 2.5% case bleeding from liver injury occurred which was controlled by cauterization

In 2.5% cases bleeding during trocar insertion occurred, it was from epigastric port but the amount of blood loss was less and it stopped itself.

Dubois et al (1996) claimed uncontrolled bleeding from cystic artery in 6.2% of cases.

Z'Graggen K, Wehrli H et al (1998) reported bleeding as common intra-operative complication which significantly increased the risk of conversion.

Theodores E pavlidis (2005) reported vessel injury by trocar or veress needle in 0.3% and injury to aorta in 0.08%, bleeding from cystic artery in 0.8% and from G.B. bed in 0.8% of cases.

Conversion

In our study, 5% cases of laparoscopic cholecystectomy had to be converted into open cholecystectomy.

The conversion rate was different as reported by different authors.

Thompson M.H. Benger J.R. et al (2008) showed a conversion rate of 5.8%. compared to these studies in our study the conversion rate was 5.0% which is very close to that reported by Thompson M.H., Benger J.R. et al (2008) 5.8%.

Complications

Complications of laparoscopic cholecystectomy was divided into

- Intra-operative complications.
- Post operative complications.

In the present series rate of systemic complication was zero (00%),no mortality occurred during operation or in post-operative period,neither there was any cardiac or pulmonary complications.

Zero mortality rate in our study is similar with the study of Wilson p et al (1994), spangenberger et al (1996),Cushieri et al (1997), Grubnik V.V. et al(1999). However few studies have revealed mortality during Laparoscopic cholecystectomy. Mcstierry C.K.,Glennf. Et al (1994) reported 1.7% mortality rate. Linderg F. et al (1997) reported 0.08% mortality rate. Orlando Rocco,Russel JC et al(1993) reported 0.13% of mortality rate.

During intra-operative period no major complications occurred during creation of pneumoperitoneum, except for minor bleeding. Occurred during trocar insertion (00%).

In our study incidence of subcutaneous emphysema was 00%.Mrksic MB,FarkasEet al(1999) showed subcutaneous emphysema in 0.6% of cases.

During operation common bile duct injury does not occurred in any case (00%) however during operation rupture of gallbladder occurred in 5% cases with spillage of stone in peritoneal cavity occurred .While spillage of bile in peritoneal cavity occurred in (10%) cases. Injury to liver occurred in (5%) cases leading to small tear in the liver.

No burn injury to gut or other organ takes place. In (2.5%) cases G.B. stone lost in peritoneal cavity.

Parra –Davila E, Munshi IA et al (1998) reported retroperitoneal abscess formation secondary to retained gall stone. Kamal I.A., Gharabich et al (2002) reported G.B. Perforation in 31 % of the case. Spillage of stone in 12.2% of cases and missed stone in 3.3% of cases.

There was no major post operative complication except in (2.5%) cases where bile leakage leading to peritoneal collection of bile occurred.which was managed by already putting drain peritoneal cavity.bile leakage stopped spontaneously in a 10 days time.

2% patient developed respiratory tract infection in post operative period .Which was managed by intravenous venous antibiotics.

Minor shoulder pain occurred in 2.5% cases.Bleeding in postoperative period due to slippage of clip did not occurred.

In this study there was no patient who either developed DVT or prolonged ileus .Port site infection occurred in 5% cases.

In 2.5% case infection of epigastric port occurred, in 2.5% case infection of umbilical port occurred, which was managed by oral antibiotics and topical antibiotic ointments.

Mrksic MB,ForkasE et al(1999) Showed port site infection in about 1.6% of cases.

Due to lack of strong follow up no late complication laparoscopic cholecystectomy came to our notice like port site hernia (00%),hypertrophic scar (00%),or keloid formation (00%).

It was seen in the study that early laparoscopic cholecystectomy in acute cholecystitis within 7 days of onset of attack,was having lesser complication rate and shorter duration of operation .

Wide range of complication rate has been documented by various authors.Dubois et al (1990) reported a complication rate of 6% Najninger B et al (1997) reported serious complication rate of 2.9%.

The southern surgeon club (1997) reported complication rate of 5.1% and CBD or hepatic duct injury 0.5%.

Orlando Rocco,Russel JC et al (1998) documented over all complication rate of 8.6% mortality rate of 0.13% and CBD injuries in 0.3%.

RESULT OF COMPARATIVE STUDY OF OPEN VERSES LAPAROSCOPIC CHOLECYSTECTOMY		
	LAPAROSCOPIC CHOLECYSTECTOMY	OPEN CHOLECYSTECTOMY
DURATION OF SURGERY	MEAN- 67 MINUTE	MEAN- 50 MINUTE
HOSPITAL STAY	MEAN- 2.5 DAYS	MEAN- 5 DAYS
ANALGESIA	5 DOSE	7 DOSE
ANTIBIOTIC	4 DOSE	6 DOSE
POST OPERATIVE MORTALITY	00%	00%
POSTOPERATIVE COMPLICATION	5%	7.5%
RETURN TO WORK	3-5 DAYS	10 DAYS

V. CONCLUSION

In this series, 80 patients who were suffering from symptomatic gall stone disease with no other pathology and co-morbid condition underwent laparoscopic cholecystectomy and open cholecystectomy. Most of patients were of age between 31-50 years. The mean operating time was 67 minute in laparoscopic cholecystectomy 50 minute in open surgery and blood loss was less than 60 ml in 60% of cases. Post-operative analgesic requirement was less and most patients were discharged on 3rd post-operative days in laparoscopic cholecystectomy. As compared to open surgery (5 days).

In the present series, mortality rate is zero (0%) with very minor complication in intra-operative period and post-operative period. Significant bleeding occurred in 5% of cases, in 2.5% cases, it was from cystic artery and in rest 2.5% of cases, it was during dissection of Calot's triangle. No bleeding occurred from major vessels, no bile duct injury occurred.

Total conversion occurred in 5% of cases due to various reasons. In post-operative period no major complication occurred.

From above findings, it is quite clear that laparoscopic cholecystectomy in cholecystitis is ideal procedure for treatment of symptomatic gall stone disease. Although the cost of laparoscopic cholecystectomy is higher than that of open cholecystectomy method, it has greater acceptance due to improved cosmesis, less post-operative discomfort and complication, decreased period of hospitalization and faster recovery.

It should be wise to treat these cases as early as possible in case of acute cholecystitis. It has less morbidity and mortality provided it is performed by experienced surgeon having liberal mind convert it to open method, when situation demand.

Therefore laparoscopic cholecystectomy should be used as standard therapy for patient having cholecystitis with cholelithiasis.

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