

## TO ASSESS THE IDEAL TIME OF LAPAROSCOPIC CHOLECYSTECTOMY AFTER ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY IN CASES OF CHOLELITHIASIS WITH CHOLEDOCHOLITHIASIS

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### Abstract

**Background:** Aims of this study was assess the ideal time of laparoscopic cholecystectomy after endoscopic retrograde cholangiopancreatography in cases of cholelithiasis with Choledocholithiasis

**Methods:** The present study was carried out on 150 patients admitted in Department of General surgery National Institute of Medical Sciences and Research, Jaipur, diagnosed with cholelithiasis along with choledocholithiasis from 1st January 2019 to 30th June, 2020.

**Results:** In group 1 out of 75 patients 7 patients developed complications in post operative period compared to 35 patients out of 75 patients developed complications in group 2. The mean hospital stay (in day) in group 1 patients was 2.26, median 2 and the mean of group 2 was 5.26, median 5.

**Conclusion:** To conclude in our study there has been found significant advantage of early laparoscopic cholecystectomy following ERCP over the late group to minimize complications and promote early recovery of the patients.

**Keywords:** ERCP, Cholecystectomy, Endoscopic retrograde cholangiopancreatography

### Introduction:

Primary choledocholithiasis is generally from brown pigment stones, which are combination of precipitated bile pigment and cholesterol. Brown stones are more common in Asian population and are associated with bacterial infection of bile duct. The bacteria secrete an enzyme that hydrolyzes bilirubin glucuronides to form free bilirubin, which then precipitate<sup>1-3</sup>.

Two types of bile duct stones

- Pigment stones (40%)- These are mostly brown rarely black. Most frequently are formed de novo in the duct.
- Cholesterol stones (60%)- these usually develops with in the gall bladder and reach the duct after traversing the cystic duct.

Symptoms parallels the degree of obstruction, the length of time has been present, and the extent of secondary bacterial infection.

It can be asymptomatic or present with symptoms ranging from biliary colic to clinical manifestations of obstructive jaundice, such as darkening of urine, scleral icterus and lightening of the stools.

Jaundice with choledocholithiasis is more likely to be painful because the onset of obstruction is acute, causing rapid distention of bile duct and activation of pain fibers.

The pain is felt in right subcostal region, epigastrium, or even the substernal area. Referred pain to the pain of region of the right scapula is common.

The patient appear to be perfectly healthy or present with icterus, signs of toxemia with high grade fever and chills and tenderness in right upper quadrant, a constellation known as *Charcot's Triad*. This triad suggest ascending cholangitis and if untreated may progress to septic shock. The addition of hypotension and mental status changes, both evidence of shock, to charcot's triad is known as Reynolds pentad.<sup>4</sup>

### Material and Methods

**Type of study:**

Hospital based prospective randomised double blinded comparative study.

**Study Area:**

The study was conducted in the department of General surgery NIMS Hospital Jaipur.

**Sample size:**

**Time Duration of Study:**

This study was carried out from January 2019 to June 2020. Chi square test and difference in mean were analysed by using Students t- test.

### Inclusion Criteria:

All indoor patients diagnosed radiologically by ultrasonography of cholelithiasis with dilated common bile duct due to choledocholithiasis or sludge will be included in study.

**Exclusion Criteria:**

- Biliary Pancreatitis
- Pregnancy
- End stage liver diseases
- Coagulopathy
- Cardiovascular diseases
- Unfit for laparoscopic surgery

The present study was carried out on 150 patients admitted in Department of General surgery National Institute of Medical Sciences and Research, Jaipur, diagnosed with cholelithiasis along with choledocholithiasis from 1st January 2019 to 30th June, 2020.

Our study was done to assess and evaluate the effects of time interval between ERCP and Laparoscopic Cholecystectomy on surgery and surgical outcomes. The patients were randomized after successful ERCP into two groups:

Early (<72 hrs) Group – Group 1

Late (>72 hrs) Group – Group 2

**Statistical Analysis:**

Statistical analysis was done using computer software (SPSS version 20 and primer). The qualitative data was expressed in proportion and percentage and the quantitative data expressed as mean and standard deviations. The difference in proportion was analysed by using

**Results**

The socio-demographic variable in both groups were comparable.

**Table 1: Distribution according to method of extraction of stones in ERCP**

ERCP	Group 1		Group 2		Total	
	N	%	N	%	N	%
EST/Basket	46	61.33	44	58.67	90	60
EST+Basket+Balloon sweep	29	38.67	31	41.33	60	40
Total	75	100	75	100	150	100

Chi square value=0.11 ,df=1, P=0.74 NS

In group 1 EST/Basket was successful in 46 patients in 29 patients Balloon Sweep was also utilized as the method of stone extraction.

In group 2 EST/Basket was successful in 44 patients and in 31 patients Balloon Sweep was also utilized as the method of extraction. No significant statistical difference was observed according to stone extraction method among the groups.

**Table 2: Distribution of the cases according to Clearance of CBD Post ERCP by Cholangiogram**

Post Cholangiogram	Group 1		Group 2		Total	
	N	%	N	%	N	%
CBD Cleared	75	100	75	100	150	100
Total	75	100	75	100	150	100

After conducting ERCP Post Cholangiogram was done all the cases were cleared of CBD stones. So we achieved 100% clearance rate in both the groups.

**Table 3: Distribution of cases according to Intraoperative Complications among the groups**

I/O complications	Group 1		Group 2		P value
	N	%	N	%	
GB perforation	1	1.33	7	9.33	0.03 S
GB bed bleed	3	4	6	8	0.04 S
Gall stone spillage	2	2.67	10	13.33	0.01 S
Port site bleeding	2	2.66	3	4	0.03

**Table 4: Distribution of cases according to Operative time (in minutes) Among the Groups**

Group	N	Operating time( in min)					P value
		Mean	SD	Median	Min	Max	
Group 1	75	61.87	20.37	62	30	98	0.034 S
Group 2	75	56.12	18.98	60	30	98	

The mean operating time of group 1 was 61.87 Min, median was 62mins and mean operating time of group 2 was 56.12 mins and median was 60 mins.

As the p<0.05 operating time was found to be significantly high in group 2 compared to group 1.

**Table 5: Distribution of the cases according to Conversion Rate in Open among the groups**

Conversion rate	Group 1		Group 2	
	N	%	N	%
	2	2.67	9	12

In Group 1-2 (2.67%) patients needed conversion of laparoscopic cholecystectomy in to open cholecystectomy compared to group 2 total 9 (12%) patients needed conversion of laparoscopic cholecystectomy in to open cholecystectomy.

**Table 6: Distribution of the cases according to Post Operative Complications among the groups**

Post operative complications	Group 1		Group 2		P value
	N	%	N	%	
Wound infection	1	1.33	8	10.67	0.016 S
Pulmonary Atelectasis	2	2.67	9	12	0.028 S
Biliary leakage	1	1.33	8	10.67	0.016 S
Hemorrhagic Drain	3	4	10	13.33	0.04 s

In group 1 out of 75 patients 7 patients developed complications in post operative period compared to 35 patients out of 75 patients developed complications in group 2. As p<0.05 complications wound significantly higher in group 2.

**Table 7: Distribution of the cases according to Hospital Stay(in days) among the groups**

Group	N	Hospital stay (in day)					P value
		Mean	SD	Median	Min	Max	
Group 1	75	1.63	1.23	2	1	6	0.04
Group 2	75	2.32	0.95	2	1	6	NS

The mean hospital stay (in day) in group 1 patients was 1.63, median 2 and the mean of group 2 was 2.32, median 2. As  $p < 0.05$  the mean hospital in group 2 was found significantly high compared to group 1.

#### Discussion

Timing of Laparoscopic Cholecystectomy following Endoscopic Retrograde Cholangiopancreatography has always remained controversial issue. Proponents of early Laparoscopic Cholecystectomy following ERCP state that outcome is good in early group<sup>4</sup>

Major drawback of delay in Laparoscopic Cholecystectomy is incidence of Biliary complications, as high as 20%<sup>5</sup>

However, many studies are reverse claiming that late Laparoscopic Cholecystectomy post ERCP allows pericholecystic area to cool off and allows time to recover from acute inflammation.<sup>6-8</sup>

Donkervoort et al (2010)<sup>5</sup> reported that interval between ERCP and Laparoscopic Cholecystectomy failed to influence the outcome of surgery.

The outcome of LC following ERCP remains a controversial subject. According to recent study, if LC is achieved early (< 72 hours) then outcome is good.<sup>4</sup>

In modern era, management of common pathology like cholelithiasis and choledocholithiasis has been dramatically revolutionized by introduction of Laparoscopic Cholecystectomy, Endoscopic Retrograde Cholangiopancreatography and Laparoscopic Common Bile Duct Exploration.

In management of cholelithiasis with associated choledocholithiasis, Laparoscopic Cholecystectomy and ERCP is still the Gold standard. However, timing between Laparoscopic cholecystectomy and ERCP is still a matter of debate and controversial issue.

#### Conclusion

To conclude in our study there has been found significant advantage of early laparoscopic cholecystectomy following ERCP over the late group to minimize complications and promote early recovery of the patients.

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