

# A Comparative Study of Post Operative Cases of Obstructive Jaundice with Versus Without Nasogastric Tube Insertion

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**Abstract:** *Background: Obstructive jaundice which can be either due to intra-hepatic Cholestatic or extra-hepatic biliary obstruction is amenable to surgical treatment. Hence, it is also called surgical jaundice. It is the practice of many surgeons to routinely use nasogastric tube after biliary operations, but its usefulness has been questioned. This study designed to determine the usefulness of postoperative nasogastric intubation on gastrointestinal function in operated patients of obstructive jaundice.* **Aims and objectives:** To compare post-operative cases of obstructive jaundice with versus without Nasogastric Tube insertion in terms of nausea, vomiting, passage of flatus, respiratory complication, post-operative ileus, starting time of oral intake, post-operative pain, anastomotic leakage, wound dehiscence, wound infection, hospital stay, morbidity and mortality, patient compliance. **Methods and materials:** This study is a Randomised (Prospective & Interventional) clinical trial of 50 patients with the obstructive jaundice hospitalised in the Department of General Surgery, in our Hospital, between Oct 2015 to Oct 2017. **Results:** Age of Participants included in this study were above 20 year and Age of maximum participants were in between 40 and 60. Participants included were 37% male and 63% female. Patients underwent choledocholithotomy, choledochoduodenostomy and Choledochojejunostomy. While most of the participants underwent Choledochoduodenostomy. All participants experienced nausea on the day of surgery. The highest rate of vomiting occurred on the day of operation. The highest rate of passage of flatus was reported on the day of operation. The Mean length of hospital stay after surgery was equal in both control and experimental groups. **Conclusion:** Results of the study revealed that patients with no nasogastric intubation did not show any increased postoperative complications (including anastomotic leak) or prolonged hospital stay. On the other hand, the nasogastric tube postpones return of bowel sounds and the first passage of flatus; increase the incidence of nausea while does not affect the incidence of postoperative ileus. Therefore, routine nasogastric tube usage is not recommended after surgery of patients with the obstructive jaundice.

**Keywords:** Choledochoduodenostomy, nasogastric intubation, obstructive jaundice, Nausea, vomiting

## 1. Background

Obstructive jaundice which can be either due to intra-hepatic Cholestatic or extra-hepatic biliary obstruction is amenable to surgical treatment. Hence, it is also called surgical jaundice. It is the practice of many surgeons to routinely use nasogastric tube after biliary operations, but its usefulness has been questioned. This study designed to determine the usefulness of postoperative nasogastric intubation on gastrointestinal function in operated patients of obstructive jaundice. It is the practice of many surgeons to routinely use nasogastric tube after biliary operations, but its usefulness has been questioned. This study designed to determine the usefulness of postoperative nasogastric intubation on gastrointestinal function in operated patients of obstructive jaundice. In this Randomised clinical trial, 50 patients who underwent choledocholithotomy, choledochoduodenostomy and Choledocho-jejunostomy were randomly divided into two groups. Patients in the experimental group did not have the nasogastric tube, and in the control group the nasogastric tube is routinely applied after surgery. Gastrointestinal function compared in these two groups. Patients with no nasogastric intubation did not show any postoperative complications or prolonged hospital stay. Today, insertion of a nasogastric tube into the stomach is a common medical intervention indicated for a wide range of situations. Because many believe that postoperative ileus significantly

increases the risk of postoperative complications including nausea, vomiting, aspiration, wound dehiscence and infection, herniation, fascia adhesions, and late bowel function that may lead to a longer hospital stay, nasogastric intubation following laparotomy, as a prophylactic measure for the prevention of the associated complications, has been the standard of care in most medical centres. A Meta-Analysis of selective versus routine nasogastric decompression after elective laparotomy by Cheatham ML showed routine nasogastric decompression after elective laparotomy results in a significantly increased incidence of pulmonary complications (fever, atelectasis and pneumonia) and does not decrease the incidence of wound complications (infection and dehiscence). Although abdominal distension and vomiting are increased without nasogastric decompression, nasogastric tube insertion is required in only 5% to 7% of selectively treated patients, whereas nasogastric tube replacement is required in 2% of routinely treated patients.

## 2. Methods and Materials

This study is a Randomised (Prospective & Interventional) clinical trial of 50 patients with the obstructive jaundice hospitalised in the Department of General Surgery, in our Hospital, between Oct 2015 to Oct 2017.

**Sample size:** a total of 50 patients were studied and followed up closely.

**Study design:** Randomized control trial.

## 2.1 Methodology

The patients were randomly divided into experimental (25) and control (25) groups. Our institutional review board approved the study, and informed consent was obtained from all participants. Patients were randomly assigned to two groups using sealed envelopes and were unaware of their group assignment.

### Variables considered:

- The time to pass first flatus.
- The time to pass first stool.
- The time elapsed postoperative stay.
- Post-operative complications such as anastomotic leakage, wound dehiscence and infection, pulmonary infection, Intraoperative findings.

### Investigations:

CBC, Serum creatinine, S.urea, S.Bilirubin, SGPT, SGOT, S. ALP, S.Protein, ECG and Ca 19-9 were done when indicated.

### Imaging studies:

Commonly performed imaging studies included plain abdominal radiographs, Abdominal ultrasounds studies, Contrast Enhanced computed tomography (CECT) and Magnetic resonance cholangiopancreatography (MRCP) were done when indicated.

### Inclusion Criteria

- 1) Patient was having Obstructive Jaundice and operated by Choledocholithotomy, Choledochoduodenostomy, and Choledochojejunostomy
- 2) Pt willing to Participate in Study and give Informed Written Consent

### Exclusion criteria

- 1) Pregnant women.
- 2) Patients with diseases affecting gastrointestinal function (inflammatory bowel disease, chronic constipation, hypo or hyperthyroidism, extra biliary malignancy)
- 3) Those with a history of bowel obstruction.
- 4) Any intraoperative complications leading to the specific interventions.
- 5) Constant vomiting, excessive nausea and flatus after surgery necessitating Nasogastric intubation or Medical treatment.

## 2.2 Operative technique

- An upper midline incision may be used as an alternative.
- After a wide Kocher's manoeuvre, a choledochotomy is created.
- A variety of instruments can be used to extract the stones: irrigation catheters, balloon catheters, biliary scoops, stone forceps, Bakes dilators, and flexible choledochoscopes.
- After clearance of the CBD, the choledochotomy is closed over a T tube using absorbable sutures.

## 3. Results

This study is a Randomised (Prospective & Interventional) clinical trial of 50 patients with the obstructive jaundice hospitalised in the Department of General Surgery, in our Hospital, between Oct 2015 to Oct 2017. The results and observation are as follows.

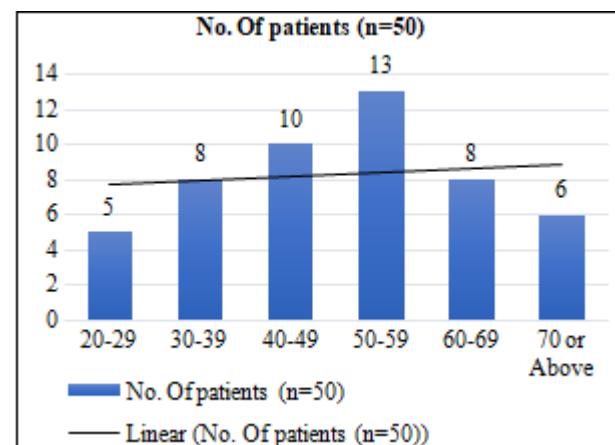
In Our study 50 patients were studied, out of which 25 patients underwent RT Insertion post operatively and rest of 25 patients not inserted RT from September 2015 to September 2017, were collected. Following parameters were observed and analysed. Information data was represented as charts.

### 3.1 Age Distribution

Age of Participants included in this study were above 20 year and Age of maximum participants were in between 40 and 60.

**Table 1: Age Distribution**

Age Group	No. Of patients (n=50)	Percentage (%)
20-29	5	10
30-39	8	16
40-49	10	20
50-59	13	26
60-69	8	16
70 or Above	6	12

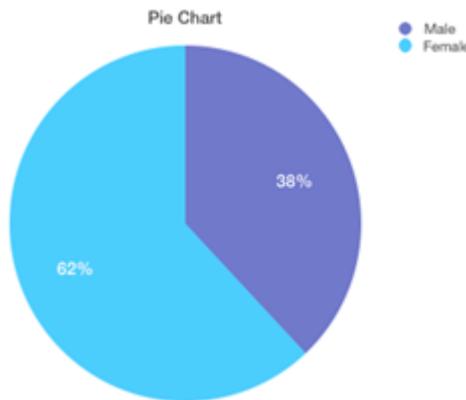


**Figure 1: Age distribution among participants**

**Table 2: Gender Distribution**

Sex	No. of Patients	Percentage
Male	19	38
Female	31	62

Participants included were 37% male and 63% female.

**Figure 2:** Age distribution among gender

### 3.2 Type of operation

In this Study patients underwent choledocholithotomy, choledochoduodenostomy and Choledochojejunostomy. While most of the participants (96% in experimental group and 92% in control group) underwent Choledochoduodenostomy.

**Table 3:** Type of operation

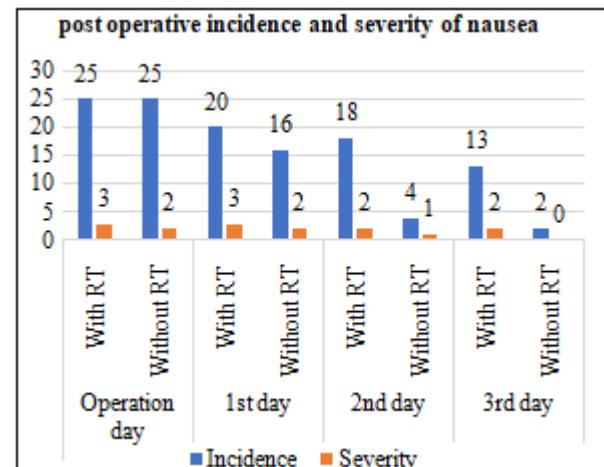
Type of operation	With RT	Without RT
Choledocholithotomy	1	0
Choledochoduodenostomy	23	24
Choledochojejunostomy	1	1

**Comparison of Nausea between both groups**

	Operation day		1 <sup>st</sup> day		2 <sup>nd</sup> day		3 <sup>rd</sup> day	
	With RT	Without RT	With RT	Without RT	With RT	Without RT	With RT	Without RT
Incidence	25	25	20	16	18	4	13	2
Severity	3	2	3	2	2	1	2	0

All participants experienced nausea on the day of surgery. The incidence rate of nausea on the day of operation and the first day after operation showed no significant difference between the two groups. In the control group(with RT) 72% on the second day and 52% on the third day reported nausea after surgery, while they were 16 and 8%, respectively, in the experimental group(without RT). There was a statistically significant difference between the groups in the proportion of patients reporting nausea in the second and third days after surgery.

We also compared the severity of nausea between the groups, which was more severe in the control group (with RT) than in the experimental group(without RT) on the second and third postoperative days.

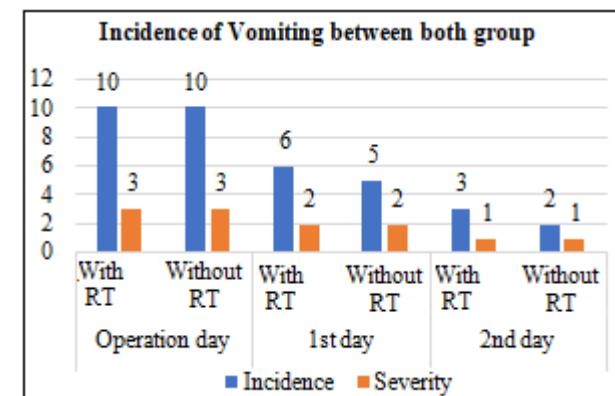
**Figure 3:** Incidence of Nausea between both groups

### Comparison of Vomiting between both groups:

The highest rate of vomiting occurred on the day of operation (40% in each group); there were no reports of vomiting since the third day after the operation. Statistically there was no significant difference between the two groups regarding incidence of vomiting on the day of surgery, the first and second postoperative days. Also, the severity of vomiting did not have significant difference between the two groups during these three days.

**Table 5:** Comparison of Vomiting between both groups

	Operation day		1 <sup>st</sup> day		2 <sup>nd</sup> day	
	With RT	Without RT	With RT	Without RT	With RT	Without RT
Incidence	10	10	6	5	3	2
Severity	3	3	2	2	1	1

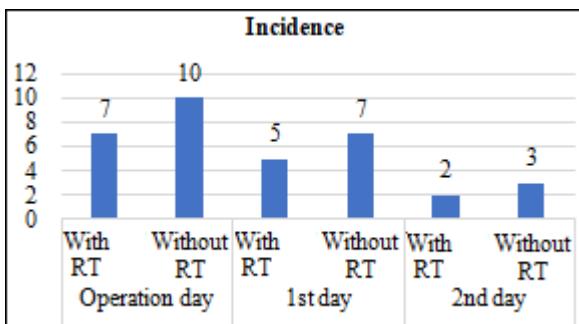
**Figure 4:** Comparison of Vomiting between both groups

### Comparison of Flatus between both groups

The highest rate of passage of flatus was reported on the day of operation [40% in the experimental group(without RT) and 28% in the control group(with RT)]. Statistically data showed no significant difference between the two groups regarding incidence of flatus on the day of surgery, the first day and 2 days after surgery.

**Table 6:** Comparison of Flatus between both groups

	Operation day		1 <sup>st</sup> day		2 <sup>nd</sup> day	
	With RT	Without RT	With RT	Without RT	With RT	Without RT
Incidence	7	10	5	7	2	3

**Figure 5:** Incidence of Flatus between both group**Incidence of post-operative complications:**

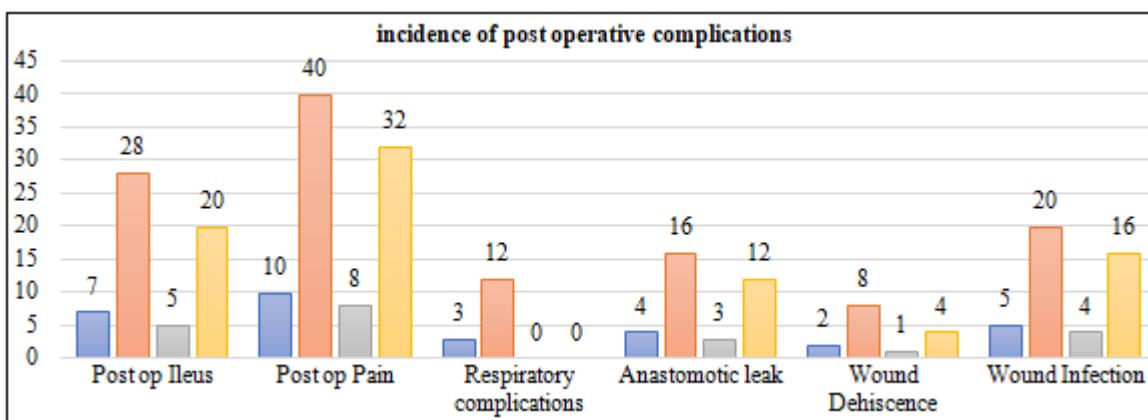
The highest incidence rate of post-operative pain[40% in control group(with RT) and 32% in experimental group(without RT)] reported among the postoperative complications.

Comparison of postoperative complications such as post op Ileus, post op Pain, Anastomotic leak, wound dehiscence and wound infection showed no significant difference between the two groups.

However Pulmonary complications such as Increased pulmonary secretions, the only complication, occurred in the control group (with RT).

**Table7:** Incidence of post-operative complications

Complain	With RT (n=25)	Without RT (n=25)	%	%
Post op Ileus	7	28	5	20
Post op Pain	10	40	8	32
Respiratory complications	3	12	0	0
Anastomotic leak	4	16	3	12
Wound Dehiscence	2	8	1	4
Wound Infection	5	20	4	16

**Figure 6:** Incidence of Postoperative Complications between both group**Comparison of Other parameters between both groups**

	With RT	Without RT
Mean length of hospital stay (day)	$6.05 \pm 2.74$	$6.15 \pm 1.98$

The Mean length of hospital stay after surgery was equal in both control and experimental groups.

**4. Discussion**

- 1) Age of maximum participants were in between 40 and 60.
- 2) Participants included were 37% male and 63% female. This is because of female predominance of gallstone diseases.
- 3) Most of the participants (96% in experimental group and 92% in control group) underwent Choledochoduodenostomy. Because ease of procedure.
- 4) All participants experienced nausea on the day of surgery. The incidence rate of nausea on the day of operation and the first day after operation showed no significant difference between the two groups.
- 5) There was a statistically significant difference between the groups in the proportion of patients reporting nausea in the second and third days after surgery.
- 6) The severity of Nausea was more in the control group(With RT) than in the experimental group(Without RT) on the second and third postoperative days.
- 7) The highest rate of vomiting occurred on the day of operation (40% in each group); there were no reports of

vomiting since the third day after the operation. Statistically there was no significant difference between the two groups regarding incidence of vomiting on the day of surgery, the first and second postoperative days. Also, the severity of vomiting did not have significant difference between the two groups during these three days.

- 8) The highest rate of passage of flatus was reported on the day of operation [40% in the experimental group(Without RT) and 28% in the control group(With RT)].
- 9) Statistically data showed no significant difference between the two groups regarding incidence of flatus on the day of surgery, the first day and 2 days after surgery.
- 10) The highest incidence rate of post operative pain[40% in control group(With RT) and 32% in experimental group(Without RT)] reported among the postoperative complications. Comparison of postoperative complications such as post op Ileus, post op Pain, Anastomotic leak, wound dehiscence and wound infection showed no significant difference between the two groups.
- 11) However Pulmonary complications such as Increased pulmonary secretions, the only complication, occurred in the control group(With RT).
- 12) The Mean length of hospital stay after surgery was equal in both control and experimental groups.

## 5. Summary and Conclusion

Results of the study revealed that patients with no nasogastric intubation did not show any increased postoperative complications (including anastomotic leak) or prolonged hospital stay. On the other hand, the nasogastric tube postpones return of bowel sounds and the first passage of flatus; increase the incidence of nausea while does not affect the incidence of postoperative ileus. Therefore, routine nasogastric tube usage is not recommended after surgery of patients with the obstructive jaundice.

It should be reserved as a tool for treating postoperative complications such as paralytic Ileus and acute gastric dilatation.

In case of early decompression post-operative nausea and vomiting were higher but not significant statistically. Early removal of Ryle's tube leads to less incidence of respiratory complications. Early removal of Ryle's tube leads to early resolution of postoperative paralytic ileus indicated by early appearance of bowel sounds and early passage of flatus and stool. Keeping Ryle's tube in situ for prolong periods is definitely not comfortable to every patient. As such there were no complications associated with insertion of nasogastric tube. Routine nasogastric decompression is not necessary in operated cases of obstructive Jaundice.

However, to establish this thesis we need further larger sample size study.

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## Abbreviations

- **CD** :- Choledochoduodenostomy
- **CJ** :- Choledochojejunostomy
- **CBD** :- Common Bile Duct
- **RT** :- Ryles Tube
- **NG Tube** :- Nasogastric Tube
- **MRI** :- Magnetic Resonance Imagine
- **CECT** :- Contrast Enhancing Computerised Tomography
- **ERCP** :- Endoscopic Retrograde Cholangiopancreatography
- **MRCP** :- Magnetic Resonance Cholangiopancreatography
- **SAP** :- SerumAlkalinePhosphate