



SPECIMEN RETRIEVAL AFTER LAPAROSCOPIC CHOLECYSTECTOMY WITH AND WITHOUT ENDOBAG A PROSPECTIVE OBSERVATIONAL STUDY

Dr Gautam Rajagopal	Post-Graduate Student, Department of General Surgery, Shridevi Institute of Medical Sciences and Research Hospital, Tumkur, Karnataka, India.
Dr Manonmani M. H	Professor, Department of General Surgery, Shridevi Institute of Medical Sciences and Research Hospital, Tumkur, Karnataka, India.
Dr. Shushma B	Assistant Professor, Department of General Surgery, Shridevi Institute of Medical Sciences and Research Hospital, Tumkur, Karnataka, India.
Dr Manoj Kumar*	Senior Resident, Department of General Surgery, Shridevi Institute of Medical Sciences and Research Hospital, Tumkur, Karnataka, India. *Corresponding Author
Mr Ninganagouda P	Statistician, Department of Community Medicine, Shridevi Institute of Medical Sciences and Research Hospital, Tumkur, Karnataka, India.

ABSTRACT **Background:** Laparoscopic cholecystectomy (LC) is the preferred treatment for symptomatic gallstones and cholecystitis. A common complication during LC is gallbladder perforation, which can lead to spillage of bile and stones, potentially causing serious complications such as intraperitoneal abscesses or port site infections. The use of an endobag during gallbladder removal can help prevent these issues, especially in cases of suspected gallbladder cancer, acute cholecystitis, and empyema, as it reduces the risk of contamination from bile or stones. However, in some developing countries, the routine use of endobags is not yet standard practice. This study aims to assess the benefits of using an endobag and determine whether its routine implementation should be mandated. If found necessary, institutional policies may be updated accordingly. **Materials And Methods:** A study was conducted on 40 cases of patients who underwent laparoscopic cholecystectomy at the Department of General Surgery, Shridevi Institute of Medical Sciences and Research Hospital, Tumkur, Karnataka, from January 2024 to August 2024. The patients were divided into two groups: Group A, in which the gallbladder (GB) was extracted using an Endobag, and Group B, where the GB was directly extracted without an endobag. Patients were followed up for a period of one week and development of any post-operative complications was noted. Findings were noted down for both group patients were compared and results were evaluated at the end of study. **Results:** Out of the 40 cases studied, 27 were female and 13 were male, with the majority of the population falling in the age range of 31 to 40 years. The most common indication for laparoscopic cholecystectomy was symptomatic gallstones (42.5%), followed by acute cholecystitis (32.5%). The mean operation time was comparable between both groups. However, intra-operative spillage occurred in 5% of cases in Group A, while a significant increase to 60% was observed in Group B. Similarly, port site spillage was seen in 5% of Group A cases but rose to 35% in Group B. No cases of port site infection, hematoma, or sinus formation were reported in Group A. In contrast, Group B showed 10% of cases with port site infection and sinus formation, and 5% of cases with port site hematoma. **Conclusion:** In cases where the endobag was used, port site infections were notably lower, and no spillage of gallstones or infected bile was observed. The use of an endobag for gallbladder extraction is both more effective and safer than direct extraction, offering a simple, cost-effective solution. In conclusion, gallbladder extraction with an endobag results in a lower rate of surgical site infections (SSI) and bile spillage, with similar outcomes in terms of post-operative port site infection or hematoma and sinus formation.

KEYWORDS : Endobag, Gall bladder extraction, laparoscopic cholecystectomy.

INTRODUCTION:

Laparoscopic cholecystectomy (LC) is considered the operation of choice and the standard treatment for symptomatic gall stones and cholecystitis [1]. Worldwide, it is the most frequent laparoscopic procedure performed [2]. Generally, it has the benefits of less postoperative pain, rapid return to daily activity, short duration of hospital stays, and tiny cosmetic marks [3]. One of the most common complications of LC is perforation of the gall bladder (GB) while dissecting it from the liver bed that leads to intraperitoneal spillage of bile and stones which may lead to serious complications such as intraperitoneal abscess or port site infection, and this can be avoided by the use of endobag [4]. Endobag is of great value also if used in suspected cases of GB cancer to minimize the incidence of tumor cell seedling [5] and in cases of acute cholecystitis and empyema of the GB to avoid contamination of the wound with infected bile or stones during retrieval of the GB [6,7]. As working in a developing country, we still do not routinely use endobag for retrieval of GB. The main objective of this work is to analyze its potential benefits and to determine whether or not the routine use of endobag for GB extraction is mandatory. If it is proven mandatory, we will work toward changing our local institutional policy in this regard [9-11].

Need For The Study

According to the "Guidelines for the Clinical Application of Laparoscopic Biliary Tract Surgery" of the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), the use of an endobag for specimen extraction is not mandatory and it is left at the discretion of the operating surgeon. During LC, complications such as perforation of the GB, may lead to spillage of bile and stone can lead to

complications such as port site herniation. Cases of Richters hernia have occurred at port site have with an incidence ranging from 0.2% to 3%. Spilled GB stones have been reported to be recovered after 2 years of surgery, presented as chronic discharging sinus. The motive of this study is to find out better method for extraction of gall bladder in laparoscopic cholecystectomy with lesser complications.

OBJECTIVES

- To determine short term outcomes – intra operative complications and operative time
- To determine the long term outcomes – port site infection, port site hernia, sinus formation

MATERIAL AND METHODS

Study Design

This was a prospective observational study which was carried out among 40 patients who underwent laparoscopic cholecystectomy at tertiary care hospital, department of General Surgery, Shridevi Institute of Medical Sciences and Research Hospital, Tumkur, Karnataka.

Duration Of The Study: 8 months (From January 2024 to August 2024).

Source Of Data: Patients who presented to the General Surgery Department with diagnosis of GB stones, either complicated or uncomplicated and underwent laparoscopic cholecystectomy at SIMS&RH Tumkur.

Inclusion Criteria:

- Patients willing to give written informed consent
- Patients undergoing laparoscopic cholecystectomy for all GB stone diseases including both acute and chronic calculous cholecystitis
- Age >18 years

Exclusion Criteria

- ASA grade beyond 3
- Those having concomitant CBD stones
- Empyema of GB
- Subtotal LC

Sampling Method: Simple random sampling method.

Method Of Collection Of Data:

Data of 40 cases of patients who underwent laparoscopic cholecystectomy was conducted at tertiary care center, Department of General surgery, Shridevi Institute of Medical Sciences and Research Hospital, Tumkur, Karnataka from the period of January 2024 to August 2024 was collected. Patients were divided into 2 groups

- Group A- Extraction of GB in Endobag
- Group B- Direct extraction of GB without Endobag

Findings were noted down for both group patients were compared and results were evaluated at the end of study

Statistical Analysis Of Data:

The data were revised, coded, and entered into a computer for analysis using the statistical software JAMOV (version 2.6.2). The Shapiro-Wilk test was applied to assess the normality of quantitative data, and appropriate analyses were conducted based on the data distribution. The Student's t-test was used to compare quantitative variables between two groups, while the paired t-test was employed for repeated measurements within the same group. A p-value of ≤ 0.05 was considered statistically significant.

RESULTS

The table shows endobag use and non-use across different age groups. The 20-30 age group had the least use, with 10%. The 31-40 age group had the highest participation, with 55% using Endobag. The 41-50 age group had the least, with 25% using Endobag and 20% not. The over-50 age group had an equal distribution of Endobag use. The study had 40 participants, each comprising 20 participants (Table 1). Majority of the patients presented with symptomatic cholelithiasis- of pain abdomen, nausea and vomiting. Acute cholecystitis is the second most common presentation.(Fig-2). The study shows a higher female representation in both Group A (with Endobag) and Group B (without Endobag), with 65% and 70% females, respectively, indicating a balanced gender distribution, with a slight increase in female participation (Fig 1, Table 2).The table compares operative time between Group A and Group B, with the Endobag group showing slightly higher operative time (44.5 minutes) but no significant difference. However, the Endobag significantly reduced intraoperative and port site spillage, with only one case in Group A and one in Group B, indicating its effectiveness (Fig 3, Table 3). The table compares the occurrence of complications between Group A (with Endobag) and Group B (without Endobag) in terms of port site infection, hematoma, and sinus formation. Results show no significant difference in the number of cases in Group A compared to Group B. The use of Endobag did not significantly reduce the occurrence of these specific complications, indicating no significant difference in the overall outcome (Table 4).

Table 1: Age-wise Distribution Of Patients

Age in years	(Group A) With Endobag(%)	(Group B) Without endobog(%)	Total (%)
20 – 30	2(10)	1(5)	3(7.5)
31 – 40	10(50)	12(60)	22(55)
41 – 50	5(25)	4(20)	9(22.5)
More than 50 years	3(15)	3(15)	6(15)
Total	20	20	40

Table 2: Gender-wise Distribution Of Patients

Sex	Group-A(%)	Group-B(%)
Male	7(35)	6(30)
Female	13(65)	14(70)

Gender Ratio

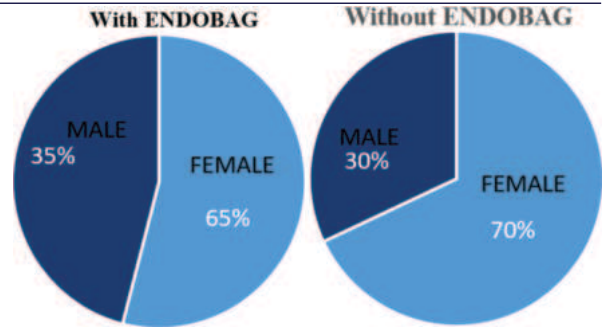


Fig 1: Gender-wise Distribution Of Patients

Pathology Of GB During Presentation

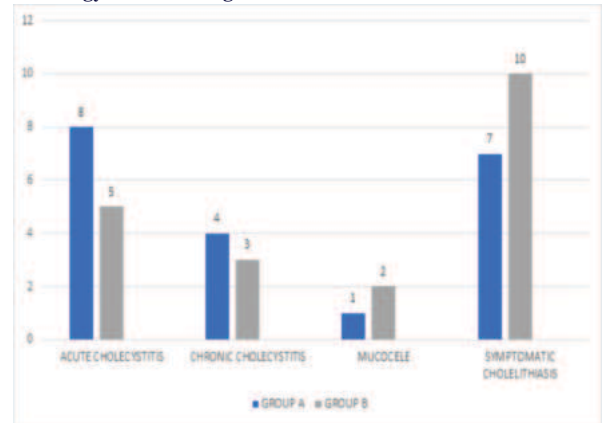


Fig 2: Pathology of GB during presentation

Table 3: Procedure Related Variants

Parameters	GROUP-A (With endobag)	GROUP-B (Without endobag)	P value	Result
Mean Operative time (mins)	44.5	43.1	0.2501*	Not Significant
Intraoperative spillage	01	12	0.0007**	Highly significant
Port site spillage	01	7	0.0298**	Significant

**Significant (p value <0.05) and Paired t-test

Table 4: Postoperative Variants

Parameters	GROUP-A (With endobag)	GROUP-B (Without endobag)	P value	Result
Port site infection	00	02	0.1625*	Not significant
Port site hematoma	00	01	0.3299*	Not significant
Sinus formation	00	02	0.1625*	Not significant

*Not significant (p value >0.05) and Paired t-test

Comparison Between Spillage And Port Site Infection

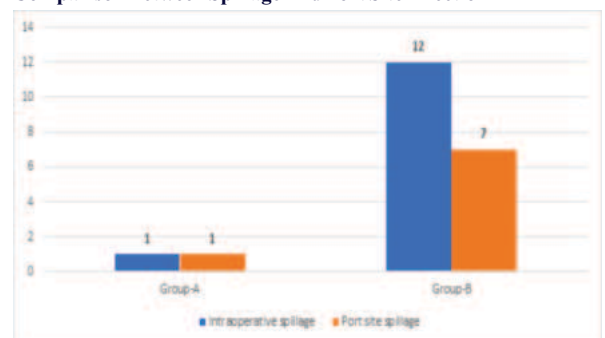


Fig 3: Comparison Between Spillage And Port Site Infection

CONCLUSION

Gall bladder retrieval with endobag has proven to be superior to direct extraction as it prevents spillage of bile and stones. It reduces incidence of port site infection and sinus formation without taking any additional time during surgery. Moreover, a simple drain bag can be used as an endobag as a cost-effective alternative.

DISCUSSION

In our study, port site infection in group B was 10% where as in group A it was nil. The results were comparable with Shindholimath W et al., and Kuldip Singh et al. studies^[11]. In a study done by Memon AI et al^[8]., port site sinus incidence was found to be <5% and results are comparable in our study as it is nil. Endobag utilization did not produce significant influence on the occurrence of post op complications like-port site hernia and hematoma. In the study Singh et al. port site hernia took place in 2% of patients without endobag use.

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