

Day Care vs Overnight Stay after Laparoscopic Cholecystectomy even with Co-morbidity and a Possible Second Surgery: A Patient's Choice

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ABSTRACT

Introduction: Laparoscopic Cholecystectomy (LC) has become the gold standard for symptomatic gall stone disease. It is being practiced as a day care procedure in healthy individuals in American Society of Anaesthesiologists (ASA) grade I and II. It is not yet established in presence of co-morbidity and when a second surgery is added. In most of the study, patient's choice and the psycho-social factors were not considered in deciding the day care procedure.

Aim: To find the safety of LC and a second surgery as day care in presence of compensated co-morbidity. To study the choice of the patient whether to stay in hospital or go home after declaring them fit for day care.

Materials and Methods: All the patients of symptomatic cholelithiasis with co-morbidity and associations were evaluated and made uncompromising for elective surgery. All the LC were

done at 8mmHg CO₂ pneumo-peritoneal pressure using harmonic scalpel as the energy source for dissection of gall bladder from the liver bed. Cases with conversion and placement of drain were excluded.

Results: A total of 1029 out of 1042 patients was included from Jan 2005 to Jan 2015. The age range was 38 to 91years (mean 44.65, SD 14.15). There were 634 females and 395 males. A total of 121(11.7%) of them had co-morbidity and associations. A total of 72(7%) had undergone a second surgery. Only 0.8% had real day care. A total of 95.7% had overnight stay even after fulfilling all the criteria. Only 0.2% needed re-admission in 30 days and one required intervention.

Conclusion: Patients like to stay over night in the hospital even if found fit for day care after LC. Overnight stay makes them happy, psycho-socially confident in developing nation and best suited for all patients including co-morbidity.

Keywords: Gallstones, Lap chole, Second surgery

INTRODUCTION

Laparoscopic Cholecystectomy (LC) is accepted as the treatment of choice where indicated [1]. It is the gold standard procedure for symptomatic gallstones [2] and is known for less pain and early recovery [3]. There is considerable controversy regarding whether it should be done as day-surgery or as an overnight stay surgery with regards to patients' safety [1].

Many studies on day care LC have inferred it to be feasible and safe in selected cases with minimal risk but without any psycho-social consideration [4-6]. In all these studies, gall stone disease patients were selected having no co-morbidities and only grades as American Society of Anaesthesiologists (ASA) grade I & II. A second surgery with LC was also not included in the day care procedure so far. The published study protocols give an impression as if all patients were discharged by evening (almost by force). In the present prospective study, patients undergoing additional surgery and with controlled co-morbidities were included. Role of antibiotics to the patients undergoing LC is a debatable subject. Many feel that antibiotics are not necessary. The authors' had conducted a study on 417 patients of LC to evaluate the role of antibiotics prophylaxis [7] and concluded that antibiotic prophylaxis is not needed for LC.

The fitness was decided after considering the co-morbidity, surgical, anaesthesia and psychosocial condition by 6:00 PM. Going home or staying in hospital was based on the choice of the patient. This amounts to total consideration for daycare vis-à-vis supreme choice of the patient.

MATERIALS AND METHODS

Cases of symptomatic cholelithiasis were evaluated on outpatient basis. Existing co-morbidity were brought to most stable condition. Emergency LC, conversion to open surgery, placement of drain, abandonment of the procedure was excluded. Elective LC was done under general anaesthesia using CO₂ pneumoperitoneum at 8mmHg pressure from 8:00 AM to 2:00 PM in most of the patients. Standard four ports were used for the surgery. A fifth port was placed at the left midclavicular line, when the Callot's triangle was getting obscured to retract the fatty omentum for proper visualization and dissection of cystic artery and duct. As indicated second procedure were done as per the willingness of the patients. After a general laparoscopy to exclude any trocar injury, the gall bladder was identified, all adhesion was released. The cystic duct and the cystic artery were clipped in a standard way and the specimen was dissected out using harmonic scalpel and the specimen removed after haemostasis. A total of 72 patients underwent a second procedure under the same anaesthesia. Before closure the port sites were infiltrated each with 2-4ml of 0.25% Bupivacaine.

The discharges were decided considering the anaesthesia, surgical, co-morbidity and psycho-social factors [Table/Fig-1] by 6:00 PM. None were sent against the wish of the patient or their relatives. The data were kept in an excel sheet with a comment added on each visit. Before leaving the ward they were given injectable analgesic (Diclofenac 75mg in patients < 50 years and Tramadol 50mg in patients > 50 years, to be continued SOS) and antiemetic (Ondesetron 4mg). The relatives were briefed about the possible

Anesthesia	Surgical	Psycho-social
Vital signs	Vital signs	Unwillingness to go home
Activity level	Soft abdomen	Distance from hospital more than 10 Km
Nausea vomiting	Oral tolerance	Unsuitable accommodation - far and common toilet
Pain	Tolerable post-operative pain	Not possessing any four wheeler vehicle
Chest condition	Urine output	Apprehension for any untoward happening during the night*
Surgical bleeding		No responsible person at home to look after

[Table/Fig-1]: Fitness criteria.

* almost every patient asked

Diabetes	31	Multiple co-morbidity [#]	28	Haemolytic anaemia	03
Hypertension	18	Treated Cancer*	03	Alcohol dependence	9
Hypothyroidism	09	Left sided GB**	02	Congenital hyperbilirubinemia [§]	02
BMI>27.5Kg/M ²	12	Psychiatry diseases	03	Rheumatic heart disease	01

[Table/Fig-2]: Associations and co-morbidity.

[#]Combination of two or more of Diabetes, Hypertension, Coronary disease, bronchial asthma, Glaucoma, * one each of ovary, cervix and breast, ** one situs inversus. [§] Gilbert and CriglerNaajar one each

re-admission procedure, place of reporting and the doctor to attend them on arrival with the mobile numbers of surgical team. All others received the same analgesics and medication for co-morbidity but observed in the wards overnight. All were advised sedative (Calmose 5mg) at bed time for a day and SOS thereafter and ranitidine 150mg twice daily for 7 days. Any re-admission after leaving the hospital till 30 days was noted.

STATISTICAL ANALYSIS

Data was collected prospectively. In the continuous data the mean with SD and percentages were calculated.

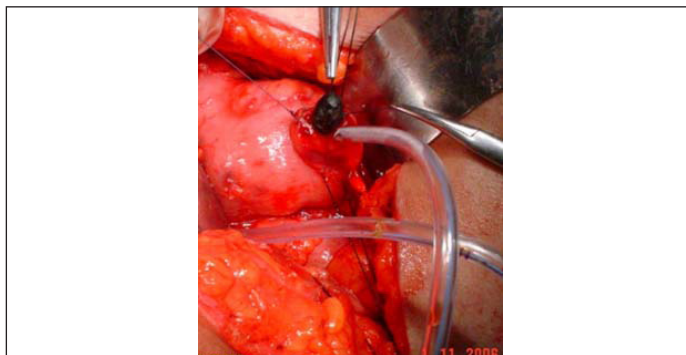
RESULTS

LC was attempted in 1042 patients during the study period of Jan 2005 to Jan 2015. Thirteen cases were excluded from the study (two ductal injury converted {0.191%} for hepatico-jejunostomy, one post-operative cystic artery bleeding at recovery room and required open surgery for haemostasis, one Mirizzi's syndrome, one LC was abandoned due to alcoholic cirrhosis with portal hypertension and 8 drain placement). A total of 1029 were included in this study. There were 634 females and 395 males. Age range was from 38 to 91years (mean 44.65, SD 14.15). A total of 121 patients (11.76%) had medical co-morbidity and few associations which can affect the surgical outcome [Table/Fig-2]. A total of 72 of the patient underwent a second surgery as their consented choice for their convenience of single hospitalization. (Laparoscopic tubectomy-37, vasectomy-1, liver biopsy-12, transcystic Common Bile Duct (CBD) stone removal-5, mesenteric lymph node biopsy-2 appendectomy-6, small liver tumour -1, liver cyst deroofing-2, ovarian cyst -1 and open minor surgery-5. The surgery time ranged from 20-94minutes (mean14.32, SD 16.03) and anaesthesia time was 26-185minutes (mean 51.35, SD 17 .67). Only 8 (0.86%) could go home by 6:00 PM and most of them were hospital staff [Table/Fig-3]. Majority preferred overnight stay. None came for re-admission for the first 14 days. Two (0.21%) cases required re-admission in 30 days. One patient had pain (Possibly biliary colic due to missed small common duct stone) on 15th day and became asymptomatic after 2 days of conservative therapy. The second patient presented with diabetic hypoglycaemic coma on 29th day with soft abdomen but re-laparoscopy revealed flecks of pus at the sub hepatic area and drained bile next day due to cystic ductal leak. This was because of a missed common bile duct stone or a slipped stone during LC [Table/

Timing-	Day care	>24 <48hrs	>48<72 hrs	>72hrs
Anaesthesia fit	1028*	1029	1029	1029
Surgical fit	1027**	1029	1029	1029
Psychosocial fit	08	1009	1009(98.05%)	1029
Co-morbidity fit	1021	1027^^	1029	1029
Actual discharge	08 (0.86%)	1009 (98.05%)	1009 (98.05%)	1029 (100%)

[Table/Fig-3]: Discharge fitness out of 1029.

*one hypothyroid with delayed recovery, ** Hypothyroid patient and one empyema GB with no urine output till 6:00 PM. * wanted to stay, ^^ tends to go < 70 mg% in Diabetics due to inadequate intake.



[Table/Fig-4]: Common bile duct stone during re-laparoscopy.

Fig-4]. The hypoglycemia possibly due to inadequate intake of food in presence of antidiabetic therapy, just a day before possibly due to impaction of the stone at the ampulla. This patient required another elective surgery for removal of common bile duct stone following failure of endotherapy. The stone was impacted at the ampulla and could only be removed via the trans-duodenal route [Table/Fig-4].

All the patients were followed up well beyond the end point of the study of 30 days. The follow-up protocol was 7-10 days for stitch removal with biopsy report, 6 weeks an USG abdomen and liver function test for any biliary compromise, and any collection and final follow up 6-12 months any symptoms related to biliary pathology.

DISCUSSION

Feasibility, safety and success of day care LC has been well established in advanced countries for symptomatic gallstones [4,8]. The same was found to be safe and effective on meta-analysis [8]. The success depends on appropriate patient selection and on well-trained staff and skillful operative technique together with safe anaesthesia. Most of the studies have taken only ASA grade I and II, two of these have taken age above 60 and 70 years respectively and one study with over 1132 cases included ASA grade I, II and III [9-12].

Seleem et al., had included only controlled diabetics and hypertensives without any complication [13]. The present study is the first one to include all the co-morbidity and re-admission details up to 30 days. Going home after LC under day care, traveling back to hospital in case of emergencies and getting a readmission for a second surgical intervention is troublesome for the patients and relatives. Though unacceptable, it might be unavoidable [5,6]. In the present study there were no re-admissions for the first two weeks.

No study has included the comprehensive psycho-social factors, which are incorporated in the present study. Most of the patient and relative had apprehension for any untoward happening during the night and no administrative or psychological force what so ever was applied at any time for the discharge. Hence our actual day care is so low. This is based on the choice of the patient, which we considered as supreme. The re-admission rates in different studies varied from 1.9-10% [4-6,10-12,14]. Two of our patient came during the day time on the 15th and 29th day. During day time, it was easier for the patient and the relatives to come back to the hospital and locate the treating doctors. Arranging an emergency surgery becomes smoother. Going home during evening time in an

Year	Author	n	selection	Day care%	readmission	EI	Psycho-social	Country
2003	Bal S [5]	383	a	92	3	0.64	nil	India
2004	Leeder PC [10]	257	a	85.7	1.9		b	UK
2005	Kaman L [4]	236	a,<70y	95.2	5.8		b	India
2006	Chauhan A [6]	287	a,<60y	96	2.96	1.1	bcd	India
2007	Proske JM [14]	211	e	91	nil			France
2010	Akoh JA-	258	e	69	Not given			UK
2010	Singh DR [11]	30	a	33	10			Nepal
2011	Seleem M [12]	210	a, HT, DM	98.5	nil			Egypt
2016	Present	1029	nil	0.86	0.323 (30 days)	0.1	[Table/ Fig-2]	

[Table/Fig-5]: Work of various authors as given in discussion.

a-ASA (American Society of Anesthesiologists) grade I&II, b-Responsible person in family c- one hour travel time d- Arrange accommodation outside hospital e- not available EI- Emergency intervention.

Indian city is difficult and accident prone due to heavy traffic and going home early morning is better, safer and less costly. Besides this, overnight stay, oral medication and feed make the patients and the relatives much more convinced. The day care success varies from 33-98.5% in various studies and it is directly related to the infrastructure of the country [Table/Fig-5]. If we include the discharge fit patient, who stayed back over night, the success rate will be higher rate than that of a developed country. Overnight stay not only makes the patients happy but also build up the confidence and avoid inconvenient. Authors have given distance of 205 to 10013 Kilometers from the hospital as one of the factor for day care LC. The travel time and the distance are equated to the road infrastructure. It is considered better to stay overnight in the hospital then to travel in term of economy and comfort more so on the initial post-operative day in the developing countries. Few authors have excluded obesity [12,15] as it is known to make the surgery difficult and takes longer time when the Body Mass Index (BMI) is more than 27.5Kg/sq. Meter [16]. But the obese patients were not excluded in the present study to make it a true homogenized group. However, one more 5mm port was added in these patients, where there was difficulty in dissecting the Callot's triangle. The 5th port was used a left sub-costal area to retract the duodenum/omentum for safe dissection of the cystic duct and artery with the same 8mmHg pressure, which is not describe so far. The safety of low pressure pneumoperitoneum has to be established [17]. Low intra-peritoneal pressure maintained better haemodynamics from the anaesthesia monitoring. Even though, the exact pressure to label it as a low pressure for LC is not yet established, possibly 8mmHg pressure LC has given good result with minimal pain due to limited stretching of peritoneum in spite of various co-morbidity and virtually no shoulder pain. In few diabetic patients, the blood sugar was the lower side with the pre-operative dose of anti-diabetic therapy. One of the diabetic patients, who reported the hospital, was in fact due

to hypoglycaemic state. After this lesson we started using lower dose of anti-diabetic therapy for initial 2-3 days and advised them to monitor the blood glucose till the patients start taking their usual diet.

CONCLUSION

Day care LC is safe even with co-morbidity and an indicated second surgery. In spite of fit for day care most of the patient choose to stay back due to psycho-social cause and went next day morning. Overnight stay makes them happy, psycho-socially confident in developing nation and best suited for all patients including co-morbidity. LC at 8mmHg pressure possibly reduced peritoneal stretch pain, shoulder pain and helped early recovery even in presence of cardio- respiratory co-morbidity.

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