

# Is Short Stay Surgery a Viable Option in Open Cholecystectomy?

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## Abstract

Short-stay surgery has lately become an increasingly important part of elective surgery. Moreover, new trends and improvement in the health care system allow choosing short hospital stay even for major surgical operations. A committed effort was tried in this regard for clinical evaluation of short hospital stay surgery as a viable option in open cholecystectomy considering the fact that laparoscopic cholecystectomy is still not accessible to the masses, particularly in a developing country like ours.

## INTRODUCTION

Cholecystectomy is one of the most common major general surgical procedures performed worldwide<sup>1</sup>. Morbidity associated with conventional cholecystectomy includes postoperative pain, prolonged hospital stay and prolonged recovery time. Awareness of morbidity as a major surgical constraint has led the surgical fraternity to proceed from conventional cholecystectomies to the less invasive minilap cholecystectomies and then to the more recent laparoscopic cholecystectomies. But developing countries still lack the availability of infrastructure and expertise for widespread use of minimal access which is accessible usually to the urban areas. Open cholecystectomy still continues to be the more widely used method of cholecystectomy, requiring us to change the focus of attention from length of incision to other strategies to decrease the morbidity.

Cost containment is also one of the most pressing problems facing the medical profession today. One of the best ways to cut the cost of medical care is to reduce the length of hospital stay. Short-stay surgery is the current trend in surgical practice.

In an effort to reduce morbidity associated with standard open cholecystectomy, we planned to evaluate efficacy of short hospital stay in patients undergoing cholecystectomy, particularly with regard to postoperative complications like nausea, vomiting, wound pain, early enteral feeding, infection and early return to work.

## PATIENTS AND METHODS

The study has been carried out on 50 proven patients of gall stones (ultrasonographically) from September 2005 to January 2008 admitted in the surgical ward of Pt. B. D. Sharma PGIMS, Rohtak. A detailed clinical health evaluation was done in all patients.

It was ensured that the patients in the study group were residing within a distance of 10km from our institute, had a telephone connection (mobile/landline), had adequate arrangements for transportation and had a responsible person for domiciliary care. The patients with history of jaundice, body mass index >30, associated choledocholithiasis, deranged liver function tests, recent acute attack, coagulopathy or any severe co-morbidity were excluded from the study.

Surgery with short hospital stay was organized within the hospital structure in the same way as with other elective patients admitted in the general surgical ward. Prior to admission, proper screening along with preanaesthetic check up was done on outpatient basis. The patient was fully informed about the procedure and its complications and was included in the study only after his/her written consent. The patient was then sent home and called back on the day of surgery and was given preanaesthetic medication as advised by the anesthesiologist.

All patients were operated upon by the same surgeon. All patients received a single shot of 1g Cefotaxim at the time of induction of general anesthesia. Cholecystectomy was performed through a 5 to 7cm right upper quadrant transverse abdominal skin incision. After injecting 10-20ml

of 0.25% bupivacaine hydrochloride (Marcaine®) in the anterior rectus sheath, wound closure was carried out in layers without drainage. Intravenous fluids were not prescribed postoperatively as a routine but were given only when indicated.

Analgesics and antiemetic injections were routinely given soon after surgery and additional doses were prescribed on demand. The patients were allowed liquids orally 4-6 hours after surgery. After overnight stay, the patients were routinely subjected to an abdominal ultrasonography early in the morning to rule out any collection in Morrison's space. They were discharged after meeting the following criteria:

1. Vital signs including BP, heart rate, respiratory rate and temperature are normal.
2. Tolerable pain with no nausea or vomiting
3. Normal fluid intake and output
4. No collection in Morrison's space (confirmed by ultrasonography)
5. Normal ambulation and mental status

Patients were given discharge instructions, particularly with regard to wound care and resumption of early physical and routine activity. They were advised to come for follow-up and stitch removal strictly after one week and to intimate telephonically if there is any problem prior to it. Thereafter, follow-up of all patients up to 2 weeks was done.

### **OBSERVATIONS**

The present prospective study was conducted in the Department of Surgery, Pt. B.D.Sharma PGIMS, Rohtak to evaluate short hospital stay in open cholecystectomy.

The study group comprised 50 proven cases of cholelithiasis (ultrasonographically) of any age. Patient age ranged from 19 to 70 years. The maximum number of patients was in the age group of 31-40 years. Females outnumbered males (F:M ratio: 7.2:1). The operative time was calculated from skin incision to last skin stitch. It was less than 30 minutes in the majority of cases i.e., 38 cases out of 50 (76%). Mean duration of surgery was 27.9 minutes.

No postoperative intravenous fluids were prescribed to the patients in the present study. They were prescribed intravenous fluids only on demand. Five out of 50 cases required additional postoperative intravenous fluids (2-3

bags) because of persistent feeling of nausea and vomiting. One patient did not accept oral feed till next day evening due to unbearable pain and severe vomiting, so he was prescribed 8 additional bags of intravenous fluids postoperatively. The majority of cases (92%) did not require any additional intravenous fluids postoperatively.

All the patients in the present study were encouraged for early enteral feeding as soon as they had recovered from the effects of anaesthesia. The majority of patients tolerated enteral liquid feeding in 4-6 hours (82%). Mean duration of tolerating enteral feeding was 7.3 hours.

All the patients were subjected to USG of the abdomen (for fluid in Morrison's space) the morning after surgery as per study protocol. Postoperative complications like nausea, vomiting, pain and subhepatic collection were observed in all the patients till they were discharged the next day (Table I). The majority of patients (86%) did not have nausea or vomiting postoperatively. Two out of 50 cases (4%) had unbearable pain requiring extra analgesic injections while two out of 50 cases had a mild subhepatic collection when ultrasonography was performed in the morning of the next day. They were discharged on the 3rd postoperative day in a stable condition.

None of the patients was subjected to drainage in the present study. The majority of cases (88%) were discharged on the first postoperative day after ultrasound. Mean hospital stay was 1.1 days. One out of 50 cases (2%) had wound infection on the 7th postoperative day at first follow-up which was treated by antiseptic dressings and antibiotics.

Mean duration of return to normal physical activity and routine work was 7.48 days with the majority (94%) returning to routine work within 12 days. Two patients out of 50 got readmitted during the convalescence period due to unbearable pain. One female patient was managed conservatively and the other one with complaints of abdominal distension, pain and vomiting needed to be reexplored. A drain was kept in Morrison's space, draining 300 ml of bilious fluid.

Most of the patients (92%) were highly satisfied with surgery, postoperative period and early discharge while 2 patients had a marginally lower satisfaction level and 2 (the ones who got readmitted) were not satisfied. Hundred percent of the patients attended follow-up to the 3rd week. Growing literacy and good communication might be one of the responsible factors.

### DISCUSSION

Short hospital stay is an increasingly important part of elective surgery. New trends and improvements in the health care system allow choosing short hospital stay even for major surgical operations<sup>2</sup>. Reduced length of stay has no negative influence on medical standards<sup>3</sup>. Improvement in anesthesia and pain control, minimally invasiveness and changing attitude of patients to recover after surgery have all contributed towards the success of this concept<sup>4</sup>. The prospects of advances like reduced cost, high patient satisfaction, reduced thromboembolism and hospital-acquired infection, minimal disruption to patient life, early return to work and normal activities made the short hospital stay more popular and have shifted an “in-hospital” postoperative care to a domiciliary care as it is said to be associated with faster recovery.

The application of day surgery principles (pre-assessment, day of surgery admission and protocol-driven discharge) to the short-stay surgeries for elective procedures offers substantial bed day savings and cost cutting, when applied to high-volume procedural centers.

The duration of hospital stay kept on shortening without any untoward complications or sequelae as the technology advanced, literacy increased and effective communication was achieved. Upgrading success of this strategy tried to convince the patient for early discharge and made it acceptable to the society. An effort to reduce the hospital stay in open cholecystectomy through minimal incision started in 1982 when Dubious described minilaparotomy cholecystectomy<sup>5</sup>. Goco and Chambers, in 1983, reported nationwide cost savings of \$ 270,000,000 if mini-cholecystectomy was to be used whenever possible<sup>6</sup>.

Continuing the same efforts later on led to the development of laparoscopic cholecystectomy. The rationale for laparoscopic cholecystectomy is based on good cosmetic results, rapid resolution of postoperative pain and a reduction of hospitalization with the ability to early return to work after surgery.

The mean operative time for cholecystectomy in the present study protocol was 27.9 minutes. The majority (90%) of the patients did not require any intravenous fluids in the postoperative period. The patients were given oral liquid feeding after recovery from the effect of anaesthesia. The mean duration for tolerating enteral feeding was 7.3 hours. These results were in close conformity with earlier studies which highlighted that 92% of the patients tolerated enteral

feed within 9 hours of surgery<sup>78</sup>.

Pain is the most unpleasant feeling experienced by the patient in the postoperative period which inhibits early mobilization and shorter hospital stay. Forty-six cases out of 50 (92%) experienced only mild pain and could be mobilized in the evening and discharged the next day. Salyzstein et al.<sup>9</sup> conducted a prospective study on 500 consecutive patients undergoing open cholecystectomies from January 1988 to February 1990, and concluded that early discharge from hospital within 24 to 48 hours of cholecystectomy is safe and cost-effective. In this group of patients, there was no evidence of any complications related to early postoperative discharge. Treen et al.<sup>10</sup> (1991) were of the opinion that outpatient cholecystectomy can be performed without jeopardizing patient safety and comfort and substantial savings can be realized.

In our present study only one case out of 50 (2%) had wound infection at first follow-up for which the patient had to continue dressings and antibiotics for another 4 days; these results are in accordance with previous studies<sup>111213</sup>. The majority of patients (96%) did not have pain after discharge and could return to their routine work within a period of two weeks postoperatively which is in conformity with world literature<sup>1415</sup>. Early return to work also decreases the days lost in employment and is thus a viable proposal for the patient.

The management of cholelithiasis has undergone a lot of transition during the recent years with the advent of better technology, better antibiotics and good operating and anaesthetic facilities. In older days, the surgeons were scared even to discharge the patients before stitch removal but now with a clear understanding of the disease process, better drugs and good transport and communication facilities, one can treat cases with high and sincere discretion. So, when other pathologies like perforation and peritonitis, pancreatitis, diverticulitis, etc. are seeing a change in management policy, why should “open cholecystectomy” not witness such a change! Instead of being aggressive and operating all types of gall stones leading to direct morbidity and mortality or following a traditional path of management thus being rated as old-time surgeon rigid enough not to change his policies, the present study has adopted a mid-path regime taking advantages and shirking disadvantages of both approaches.

### CONCLUSION

Progressive and meaningful changes are always welcomed

in the developing world and are in fact a demand of time. Maximum output with minimal inconvenience is desirable in making any strategy widely acceptable. Conventional cholecystectomy causes considerable discomfort to the patient and requires hospitalization for about a week and loss of work up to a month. Adapting principles of day-case surgery to the more conventional cholecystectomy have led to short-stay open cholecystectomy, which has helped by decreasing the usual morbidities. In this and in other series no added risk of complications has been found in short hospital stay open cholecystectomy and indeed there is definitely a lower risk of thromboembolism, thrombophlebitis, pulmonary complications and hospital-acquired wound infection, besides a major long-term benefit in terms of hospital economics, particularly in a developing country like India. As a concluding word of caution this approach seems to be safe, economical and modern in outlook in the hands of experienced surgeons, particularly in a country like ours where facilities and expertise of laparoscopic surgery is not available everywhere.

To conclude the whole study, it may be suggested that each type of surgeon has his own preference for a particular type of surgery (laparoscopic/open) and it is not the purpose of the study to alter it. The main point to be considered is that a great majority of surgeons have prejudice against early enteral feeding and early discharge and this study will at least lessen this prejudice.

### Figure 1

Table 1: Postoperative complications

Postoperative	Number of patients	Percentage (%)
Complications		
Nausea/Vomiting	7/4	14/8
Unbearable pain	4	8
Subhepatic collection (USG)	2	4

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