

## **LAPAROSCOPIC CHOLECYSTECTOMY, TRUE OUT-PATIENT PROCEDURE (Is it possible to shorten the hospital stay?)**

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### **Abstract**

Laparoscopic cholecystectomy is currently considered the gold standard for the management of gallbladder stones. Many hospitals have employed short stay wards for monitoring patients after surgery. The meaning of the early discharge as true outpatient surgery is controversial. To achieve this objective there is a need to shorten the hours of hospital stay by: Appropriate selection criteria and discharge protocol, Peroperative technical modification and manipulation, Procedures to control pain, nausea and vomiting. This study was carried at Endosurgery Centre, Ibensena University Hospital, Sirte, libya.

### **Introduction**

Since the major breakthrough in Operative endoscopes by the introduction of the miniature solid state camera in 1986 and the first successful laparoscopic removal of gall bladder by (Philippe Mouret) soon after, the laparoscopic removal of gall bladder became the procedure of choice in the following years<sup>1</sup>.

The practice of outpatient laparoscopic cholecystectomy probably started in the late 80s<sup>2</sup>.

Since that time, trials were made to change the procedure from one day case into real outpatient one by reducing time of patient's hospital stay, i.e. changing the overnight into several hours stay and then to only few hours<sup>3-10</sup>.

To achieve this, there was a need to design a protocol and criteria for patients selection and discharge after surgery; more than one was designed to fulfill the requirements. The points which are common for patient's exclusion are: patients with scar of upper abdominal

surgery, co-morbid diseases, extreme age. (The American society of Anesthesiology (ASA, class III), body mass index (obesity), deranged liver function, long duration of surgery, attacks of cholangitis and CBD stones<sup>11-17</sup>.

The aim of these trials is to ensure making the outpatient procedure safe. Before that, it was found that only a quarter of patients with laparoscopic cholecystectomy required admission provided they were evaluated pre-operatively<sup>18</sup>.

The success of patient's discharge also depends on appropriate protocol<sup>19-21</sup>. Proper patients instruction, appropriate selection, convert patient into inpatients status when the situation warrants, control of pain, nausea & vomiting and early ambulation are among the factors influencing the discharge<sup>22-25</sup>.

### **Patients and Methods**

Two hundreds and eight patients (males and females), aged between (18-72

years) were subjected to laparoscopic cholecystectomy for cholelithiasis in the outpatient department during the period between Dec.2000-Nov.2003. Cholelithiasis was diagnosed by clinical as well as ultrasonic examination. Pre-operative workup was carried in the outpatient department. Our selection criteria were:

1. Those who react positively with the procedure.
2. Those with accommodation not far from the centre.
3. Low threshold to convert patient into inpatient status when needed.
4. No age limit.
5. No scar of upper abdominal incision
6. No morbid obesity
7. No co-morbid diseases
8. No recent episode of acute attack of cholecystitis
9. No history of cholangitis or pancreatitis
10. No dilated common bile duct or common bile duct stones.

Prophylactic antibiotic and metochlopramide were given with the premedication routinely to every patient included in the study. Naso-gastric tube was inserted to all patients prior to surgery to put bowel at rest during the procedure. Patients were extubated after recovery from anesthesia.

The pressure monitor on the insufflator is adjusted to less than 10mm Hg (usually around 8), this low level pressure of CO<sub>2</sub> will reduce the adverse effect of pneumoperitonium on the viscera. Bipolar and not monopolar diathermy was used in all procedures to reduce the tissue affection by the heat. Gentle tissue manipulation and as minimal as possible of tissue dissection was used. The field was generously irrigated to reduce the pain after surgery by eliminating the carbonaceous debris. A small suction drain was inserted usually on Morrison's pouch. After recovery from the anesthesia another dose of

metachlopramide might be given again (Table VII). I.M. dose of diclofenac (non-narcotic analgesia) is ordered. We did not start surgery after 12 mid day<sup>13</sup>. Time of surgery ranged between 20-40 minutes (30 minutes average). Each list contained 5 cases. Any abdominal wall hernia was repaired after completion of laparoscopic cholecystectomy.

## Results

From the 208 patients scheduled for outpatient laparoscopic cholecystectomy, 148 (95.2%) were clinically in a stable and satisfactory condition and discharged 3-5 hours after anesthetic recovery. Bowel movement return was checked before sending patients home (Table V). Six patients were kept for few hours more and four patients kept overnight because of refractory pain, nausea and vomiting in spite of the given remedy (Table III). From the ten patients with extended stay, one came back later because of pain and mild abdominal distension, physical and ultrasonic examination revealed moderate hemobiliary collection (Table IV), diagnostic laparoscopy showed collection from bed of gall bladder, the material aspirated and another small drain ( suction drain ) was inserted for couple of days. In outpatient follow up, three patients had mild to moderately severe wound infection. Most of patient had smooth postoperative hours with mild pain, nausea and vomiting; few required analgesia and antiemetic. Eight patients had refractory pain and vomiting, for that admission was ordered for few hours or overnight (Table VI).

## Discussion

One of the factors which decide the severity of postoperative pain, nausea and vomiting and subsequently the early discharge, is the recovery of bowel movement. The earlier the bowel recovered the less severe nausea and vomiting and even pain justifying discharged.

**Table I: Number of patients included in the study.**

Total patients numbers	Females	Males
208	188	20

**Table II: Conditions associated with cholelithiasis.**

Diabetes	Hypertension	Umbilical Hernia	Abdominal scar( lower )	Bronchitis (smokers)	Total
6	4	12	29	4	55

**Table III: Time of hospital stay after surgery.**

3-5 Hours	6-7 Hours	Overnight stay
198	6	4

**Table IV: Follow up of the 10 patients with delayed discharge**

Reporting to the outpatient (collection)	Regular follow up ( wound infection )	Recovered and discharged
1	3	6

**Table V: Monitoring of bowel recovery after surgery.**

Patients number	After 2 Hours	After 3 Hours	After 4 Hours	Late recovery
208	20	36	127	25

**Table VI: Significant refractory pain, nausea and vomiting after procedures.**

Pain responding to drug (Diclofenac)	Nausea and vomiting responding to drug (Metochlopramide)	Refractory pain and vomiting	Total
21	37	8	66

**Table VII: Prophylactic and therapeutic regime.**

Prophylactic drugs	Postoperative
I .V antibiotic (Ceftazidime 1 gram)	diclofenac I.M (75 mg)
I .V metochlopramide (20 mg)	metochlopramide I.V? ? (20mg)

CO<sub>2</sub> pressure during surgery of around 15<sub>mmHg</sub> gives better exposure and facilitates the procedure<sup>26</sup>, in our study we lowered this to less than 10 (around

8<sub>mmHg</sub>) we didn't meet problems in the field exposure with this low pressure. The high CO<sub>2</sub> pressure induces some tension on the bowel and probably

traction effect on the mesentery with interference with the blood supply and adverse effect on bowel motility<sup>27</sup>. Pressure adjustment to lower than 10mm Hg minimizes this unwanted effect and helps in resuming bowel motility early.

The metochlopramide (a dopamine receptor antagonist) used as antiemetic helping in prevention and treatment of nausea and vomiting after surgery, also it has pharmacological effect on stimulating bowel motility<sup>30</sup>.

Using narcotic analgesic (like morphine or pethidine) as pain killer to abolish the pain after surgery exaggerates the nausea and vomiting and delay the patients discharge<sup>24</sup>. The diathermy used in the surgical procedure is of two types, monopolar and bipolar one, the former one may coagulate tissue much beyond the field and spark may propagate to affect tissues away from that dissected or fulgurated. In addition spark may pass through recently coagulated tissue to damage virgin tissue and this will add more to the postoperative bowel ileus. The bipolar diathermy coagulates tissue between the 2 jaws of the diathermy forceps and usually there is no spark propagation<sup>28</sup>.

Gentle work in dry field is golden rule within open as well as laparoscopic surgery and extensive tissue dissection and manipulation play an important factor in delayed recovery of bowel.

The carbonic material left in the field because of tissue fulguration and coagulation together with CO<sub>2</sub> may irritate the diaphragm causing shoulder or neck pain in addition to the abdominal pain<sup>29</sup>. Irrigation of the operation field together with the CO<sub>2</sub> evacuation from the peritoneum reduces the postoperative pain. The insertion of suction drain (close drainage) will help in draining the field from the residual fluid, blood and debris. Diclofenac is an effective pain killer and has no side effect like nausea and vomiting which are not uncommon when using narcotic analgesic. Surgery start time is also an important factor in the discharge protocol; we did not operate after 12 mid-day, in order to have enough time to assess the patient postoperatively.

### **Conclusion**

Outpatient laparoscopic cholecystectomy can be done on ambulatory setting. To convert the procedure from day case into real outpatient one there is a need to shorten the hospital stay after completion of surgery. To achieve this proper election criteria, technical modification and good discharge protocol is needed.

The early discharge is rewarding for the patients quick return to normal life, and it is a merit to the surgeon and to the hospital by decreasing the cost.

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