Combined Procedures with Laparoscopic Cholecystectomy

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Abstract With advancement in laparoscopic surgery a number of surgical procedures can be performed combined with laparoscopic cholecystectomy in a single surgery. We evaluate the safety & efficacy of such surgeries. A retrospective review of all patients who had undergone combined procedures with laparoscopic cholecystectomy during January 2005 to June 2009 was performed. 3144 laparoscopic cholecystectomies were performed in the period from January 2005 to June 2009. Of these, 401 cases were combined with another procedure. The mean operative time was 80 min (range 50–270 min). The mean hospital stay was 3.2 days (range 1–5 days). The mean no. of days injectable analgesics was required was 2 days (range 1 day–4 days). Combined procedures provide patients with all the benefits of minimal invasive surgery and also give the benefit of single time anaesthesia without adding to post operative morbidity & hospital stay.

Keywords Combined procedures · Laparoscopic cholecystectomy

Introduction

Laparoscopic cholecystectomy has not only superseded open cholecystectomies as the preferred method of gall bladder removal but has also inspired surgeons to apply laparoscopic technique for the treatment of numerous other conditions [1]. The laparoscope provides an excellent view

of the entire abdomen, opening up the possibility of combining two or more procedures in a single surgery.

Combining procedures result in longer operating time, longer anaesthesia, and risk of increased blood loss. Minimal access surgery has the advantages of decreased hospital stay less post operative pain and morbidity, early return to work & better cosmesis [12]. Here we evaluate the safety & efficacy of a number of surgeries combined with laparoscopic cholecystectomy.

Patients & Methods

In a retrospective study from January 2005 to June 2009 we analysed the data for 401 patients who underwent procedures combined with laparoscopic cholecystectomy. Demographics, case notes, operation records & follow-up data of these patients were analysed.

Patients had undergone all basic investigations for laparoscopic cholecystectomy including Liver Function Tests and USG abdomen. Patients with suspicion of CBD stones underwent intraoperative cholangiogram and CBD exploration if needed. Patients with appendicitis or adhesions did not have any additional investigations. Patients with gynaecological pathologies also had thorough gynaecological examination and relevant biochemical investigations such as serum Ca-125 for ovarian mass and Papanicolaou tests prior to hysterectomy. Patients undergoing urological surgery such as TURP underwent uroflowmetry and PSA estimation. Patients undergoing obesity surgery had pulmonary function tests, and UGI endoscopy, thyroid function tests, lipid profile. Sleep study was done in patients with history of sleep disturbances or snoring.

The most common procedure was CBD exploration performed in 153 patients. Appendectomy was performed

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Fig. 1 Case mix

in 83 patients. Adhesiolysis was performed in 25 cases. Hysterectomies were performed for dysfunctional uterine bleeding or for symptomatic multiple fibroids. The adrenal mass was a myelolipoma for which adrenalectomy was done. 5 patients with severe obesity underwent concomitant gastric bypass in 4 and sleeve gastrectomy in 1 patient. (Fig. 1). Table 1 details the various procedures.

In all cases cholecystectomy was done first followed by the second procedure except for cases of TEP repair of

inguinal hernias where TEP was performed first. Any variation in the port placement and extra ports were made according to the coexisting pathology. In procedures that required working in the pelvis extra ports were made.

401 patients who had undergone laparoscopic cholecystectomy during the same period were randomly selected and their patient demographics, operation records and follow-up data were analyzed for comparison.

Results

There was no mortality in our series. The mean operation time was 65.29 min. The longest times were taken for the patients who underwent laparoscopic gastric bypass (250 min). (Table 2). The pain experienced in the post operative period was measured based on the requirement for injectable analgesics. Most patients required injectables for 2 days. The mean hospital stay was 3 days. Oral intake was started after a mean of 18 hours. Oral intake was resumed after CBD exploration on the 2nd POD. Oral liquids were started on the same day in patients who underwent hernia repairs, appendicectomy, diagnostic laparoscopy, cystoscopy and TURP. Patients of hysterectomy

Table 1 Combination of various procedures with laparoscopic cholecystectomy

Procedures	No. of patients
Laparoscopic cholecystectomy with CBD exploration	153
Laparoscopic cholecystectomy with Appendicectomy	83
Laparoscopic cholecystectomy with Adhesiolysis	25
Laparoscopic cholecystectomy with Ligation	8
Laparoscopic cholecystectomy with Ovarian drilling	10
Laparoscopic cholecystectomy with Ovarian cystectomy	13
Laparoscopic cholecystectomy with Oophorectomy	7
Laparoscopic cholecystectomy with TLH	6
Laparoscopic cholecystectomy with Myomectomy	2
Laparoscopic cholecystectomy with Gastric bypass	4
Laparoscopic cholecystectomy with Sleeve Gastrectomy	1
Laparoscopic cholecystectomy with TAPP	11
Laparoscopic cholecystectomy with TEP	12
Laparoscopic cholecystectomy with Incisional Hernia repair	9
Laparoscopic cholecystectomy with Umbilical hernia	14
Laparoscopic cholecystectomy with Femoral hernia repair	1
Laparoscopic cholecystectomy with Adrenalectomy	1
Laparoscopic cholecystectomy with Liver biopsy	6
Laparoscopic cholecystectomy with Abscess drainage	6
Laparoscopic cholecystectomy with Liver cyst aspiration	2
Laparoscopic cholecystectomy with Lymph Node biopsy	6
Laparoscopic cholecystectomy with Diagnostic laparoscopy	16
Laparoscopic cholecystectomy with Cystoscopy	2
Laparoscopic cholecystectomy with TURP	2
Laparoscopic cholecystectomy with UGI endoscopy	1

Table 2 Mean operative times

Procedures	Mean operative time
Laparoscopic cholecystectomy with CBD exploration	65 min.(range 50–80 min.)
Laparoscopic cholecystectomy with Appendicectomy	60 min.(range 50–70 min)
Laparoscopic cholecystectomy with LAVH/ TLH	100 min. (range 80–120 min)
Laparoscopic cholecystectomy with Hernia repair	85 min. (range 50–95 min)
Laparoscopic cholecystectomy with Adrenalectomy	150 min
Laparoscopic cholecystectomy with Gastric bypass	250 min. (range 230–270 min)
Laparoscopic cholecystectomy with others	65 min. (range 55–80 min)

tomy and adrenalectomy were started on oral intake on the first POD. After gastric procedures for obesity, on 2nd day water soluble gastrograffin test was done to check for leakage and then oral liquids was started.

5 patients developed port site hematoma, 3 patients developed post operative fever, 6 patients had minor wound infection and 18 patients had urinary retention. Urinary retention was seen more in patients who underwent pelvic procedures. There were no cases of recurrence in the patients who underwent hernia repairs. The bariatric patients had satisfactory excess weight loss and reported an improved quality of life. None of the patients require an extended hospital stay.

Discussions

Its more than 2 decades since Muhe performed the first laparoscopic cholecystectomy in 1985[1]. Laparoscopy has come a long way since then & today myriad procedures are performed laparoscopically. Each of the procedure performed laparoscopically benefits from decreased post operative pain, early ambulation, and early return to oral feeds, early discharge and early return to work [12]. Patient benefits from the single exposure to anaesthesia, single hospital stay, and single break from work. The procedures when combined have proved equally safe & efficacious as when done singularly. Warren et al in their study found that incidental appendicectomy during a cholecystectomy resulted in increased incidence of wound infections when compared to cholecystectomy alone [2]. Voitk and Lowry in their review of elective appendicectomies during cholecystectomies and abdominal hysterectomies found no increase in operative time, fever or infectious complications [3–5]. Our study showed no increase in the postoperative

wound infection compared to control patients. In fact, we had no case of umbilical port infection which we use for appendix extraction. CBD exploration with cholecystectomy is fast becoming the procedure of choice for CBD stones in expert hands [6]. Of the gynaecological procedures, patients who underwent oophorectomy, ovarian drilling, and tubal ligation had no additional morbidity compared to cholecystectomy only patients but those who underwent hysterectomy had more postoperative pain [7,8]. Many bariatric surgeons routinely perform cholecystectomy along with gastric exclusion surgery due to the high incidence and severity of postoperative biliary disease [9]. Cholecystectomy does not add to the morbidity of the procedure [10]. The post operative course of the patient followed that of the more morbid procedure. Although umbilical and incisional hernias caused some difficulty in port placement, the subsequent mesh repair and postoperative course remained uneventful. We had no recurrence of the hernias during our follow up period (range 3months to 3years)[11]. Wadhwa et al in their study had a mean operative time of 62 mins for laparoscopic cholecystectomy and ventral hernia repair [12] We require 70 mins for the same. Their time for laparoscopic cholecystectomy with hysterectomy was 80 mins while ours was 100 mins. Post operatively they resumed oral liquids after 3–4 hrs and normal diet on the first POD. We started oral liquids 6 hrs post operatively and normal diet on the first POD. The mean hospital stay for laparoscopic / endoscopic procedures in their study was 2.9 days while the mean hospital stay in our study was 3.2 days. Our mean operating times and mean hospital stay were slightly longer compared to their study but their case mix was different from ours. The most common procedure in their study was laparoscopic cholecystectomy and ventral hernia repair while ours was laparoscopic

Table 3 Comparative study of single and combined procedures performed by minimal access surgery

	Laparoscopic cholecystectomy	Laparoscopic cholecystectomy with other procedure
Mean operative time (min)	35	65.29 min (50–270)
Resumption of oral intake	6 hours	18 hours(6 hrs–36 hrs)
Requirement of injectable analgesia	1 day	2 days(1–4 days)
Mean hospital stay (days)	1 day	3.2 days(1–5 days)

cholecystectomy with CBD exploration. The post operative pain, resumption of oral intake and the mean hospital stay was dependent on the more morbid procedure (Table 3). Wadhwa et al found that the length of convalescence in these patients was no different than in those who had undergone single procedures. We have found no significant increase in the hospital stay or post operative complications in the combined procedures. Combined procedures follow the trend of the more extensive procedure with regard to the postoperative course and postoperative pain.

Conclusion

In addition to the benefits of minimal access, patient gets the additional advantage of single hospital stay and single anaesthesia exposure. Thus it is more convenient for the patient and also more cost effective.

In effect, procedures combined with laparoscopic cholecystectomy ‘kills two pathologies with one scope’.

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