

## Cholecystectomy and Hysterectomy: A Least Invasive Approach

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### Abstract

**Objective** The study is to promote the least invasive approach that combines cholecystectomy and hysterectomy

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at the same operative sitting so as to provide maximum benefits to women.

**Method** A series of 45 women between 40 and 75 years age from year 2001 to 2014 from the private practice of author and colleague surgeons in Mumbai were in need of hysterectomy as well as cholecystectomy for gynecological indication and symptomatic gallstones, respectively. Cholecystectomy was performed laparoscopically by general surgeon and was combined with hysterectomy with or

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without bilateral salpingo-oophorectomy (BSO) via vaginal route by gynecologist.

**Result** The average surgical time was 40 min for laparoscopic cholecystectomy and 32 min for hysterectomy and 40 min for hysterectomy with bilateral salpingo-oophorectomy to 64 min when uteri needed heavy debulking. Total blood loss was approximately less than 50–100 ml for hysterectomy and up to 250 ml for hysterectomy needing fair amount of debulking. Blood loss for laparoscopic cholecystectomy was 10 ml to maximum of 80 ml.

**Conclusion** Lesson for both, gynecologists and the surgeons, is to combine these two when required and possible. This provides maximum advantages through minimizing risk of anesthesia and time duration, hospital stay, cost-effectiveness.

**Keywords** Hysterectomy · Cholecystectomy · Laparoscopic · Vaginal

## Introduction

In women undergoing hysterectomy, it is not uncommon for a gynecologist to find abdominopelvic sonography showing gallbladder stone(s) or disease. If the gallbladder also needs to be dealt with surgically, combining these two major operations at one operative session is largely possible. Otherwise, in past performing cholecystectomy and hysterectomy abdominally through separate incisions was not uncommon. A much less is to combine the two and perform cholecystectomy abdominally and hysterectomy by the vaginal route.

Important is that both surgeon and gynecologist should be aware that additional contralateral surgery is required and should step forward to consider that they be done at the same surgical session in the best interests of woman harboring both pathologies.

Cholecystectomy laparoscopically has revolutionized the treatment of gallstone disease. Laparoscopy has ushered in a wave of innovative effort, and this effort has contributed remarkable noteworthy progress in a short time. In India, it is 25 years since the first laparoscopic cholecystectomy was performed by Udawadia in 1990. As for vaginal hysterectomy, the American College of Obstetrics and Gynecology Committee [1], Cochrane database evidence and other studies have concluded that vaginal hysterectomy is associated with better outcomes and fewer complications than laparoscopic or abdominal hysterectomy and is a preferred technique when it can be safely done.

## Materials and Methods

A series of 45 women between 40 and 75 years age from the private practice at Mumbai from year 2001 to 2014 were diagnosed with uterine pathology with or without adnexal pathology needing hysterectomy with or without salpingo-oophorectomy and symptomatic gallstones, requiring cholecystectomy by a surgeon. All 45 women underwent vaginal hysterectomy with or without bilateral salpingo-oophorectomy as a rule immediately after laparoscopic cholecystectomy was completed at the same surgical session except in two women in whom vaginal hysterectomy was as “trial vaginal hysterectomy” with chance of needing laparoscopic assistance or even opening the abdomen. Therefore, in those two women laparoscopic cholecystectomy was planned to be performed soon after the attempt of vaginal hysterectomy or as required. Trial VH was successful vaginally, and thus, all 45 hysterectomies with or without salpingo-oophorectomy were performed vaginally. When laparoscopic cholecystectomy was performed, gynecologist (SSS) remained present from the time anesthesia was given, performed examination under anesthesia (EUA) for careful assessment and had a look at the pelvic findings particularly for uteri larger than 14–16 weeks and/or with adnexal pathology.

Parity varied from nulliparity to 5th para and uterine size varied from 8-week size to 20-week size or volume of more than 120 up to 900 cm<sup>3</sup>. None of the patients had uterine prolapse. Uteri were with fibroids and/or adenomyosis with normal tubes and ovaries or with small endometriotic ovarian cyst in four women, ovarian teratoma in one and hydrosalpinx in two additional cases. The preoperative workup to determine the etiology included Pap smear, hysteroscopy with endometrial curettage, when required, and abdominopelvic sonography besides routine preoperative workup. They were all assessed for surgical fitness through clinical examination, laboratory and imaging investigations and fully counseled by both the surgeon and the gynecologist for the combined procedure. Blood was kept available for surgery, though not utilized in a single case. All women were carefully assessed under anesthesia just before the start of laparoscopic cholecystectomy.

All women had biochemical studies performed, and a history of acute pancreatitis and stone-related jaundice was excluded. Under general anesthesia, a laparoscopic cholecystectomy was first performed by surgeon through the usual four punctures. On completion of cholecystectomy, woman was immediately put in lithotomy position for hysterectomy via vaginal route except in two, who were not easy for vaginal route, i.e., they were for trial vaginal

hysterectomy in which laparoscopic cholecystectomy was performed after hysterectomy so as to keep laparoscopic assistance available for hysterectomy. Histopathology of gall bladder was suggestive of chronic cholecystitis with multiple gall stones.

During vaginal hysterectomy, in 12 women, who had one or two cesarean deliveries in past, the uterocervical broad ligament space was used to access the vesicouterine fold of peritoneum for separation of bladder. Vaginal hysterectomies were performed without any difficulty though in 20 women, uterine debulking little or heavy was required for the completion of hysterectomy. In 20 women, after necessary counseling, prophylactic or therapeutic oophorectomy in the form of bilateral salpingo-oophorectomy was performed. In seven, it was after necessary adhesiolysis and aspiration of ovarian cyst in two to reduce the ovarian size and exteriorize it, and in 13 it was prophylactic salpingo-oophorectomy without any adnexal pathology. Laparoscopic assistance was not used in a single woman out of 45. Two different approaches were used for both surgeries as laparoscopic hysterectomy cannot be done through the same holes used for laparoscopic cholecystectomy. Each woman was given prophylactic cephalosporin intravenously 30 min or more before the induction of anesthesia. A self-retaining catheter was kept in place for 24 h postoperatively. The postoperative period was uneventful, with liquid diet and ambulation to walk on the same evening and freely as possible from the second day.

## Result

Duration of anesthesia for both surgery averaged 2 h 10 min. The average surgical time was 40 min for laparoscopic cholecystectomy, 32 min for hysterectomy and 40 min for hysterectomy with bilateral salpingo-oophorectomy to up to 100 min when uteri needed heavy debulking. Average time for hysterectomy needing uterine debulking was 64 min. Total blood loss was approximately 50–120 ml, mainly after hysterectomy with bilateral salpingo-oophorectomy (Table 1) and less than 50–100 ml for hysterectomy without BSO and up to 250 ml for hysterectomy needing fair amount of debulking. Blood loss for

laparoscopic cholecystectomy was 10 ml to maximum of 70 ml. Blood transfusion was not needed in any woman. Intraoperative or postoperative complications of any significance were absent.

Forty women were discharged from the hospital within 48 h including 6 after 24 h and five women stayed up to 72 h for their personal reasons. Women stayed for longer than 36 h although they were ambulatory and without complication; it was because of their convenience and for peaceful mind. Some women feel somewhat insecure for going home within 24 or even 48 h after the major surgery, particularly when two major operative procedures are combined in one session as often elderly relatives insisted on longer stay. Combination of two operations was successful in all 45 women, and none required abdomen to be opened for the completion of the cholecystectomy or laparoscopic assistance for the completion of hysterectomy.

All 45 women were normal at follow-up visits at 1-week, 4-week and 6-month intervals after the operation. They were seen by gynecologist and surgeon at their convenience. They returned to routine within 2–4 weeks of surgery, in contrast to women where cholecystectomy and/or hysterectomy was performed by opening the abdomen, who usually return to routine after 3–8 weeks.

## Discussion

Cholecystectomy and hysterectomy both performed by least invasive technique at the same operative session was first reported in 1997 by Sheth and Bhansali [2, 3]. Gallbladder surgery by the conventional method requires anesthesia and hospital stay of greater duration, and may require blood transfusion in addition to being associated with a greater degree of morbidity. In past, laparotomy for cholecystectomy was something studded with extra care, anxiety and tension. In a series of patients undergoing cholecystectomy and abdominal hysterectomy, febrile morbidity was reported as 13.5%. Open cholecystectomy and abdominal hysterectomy also reported febrile morbidity of one in 21 patients (4.7%). There is no iota of doubt that laparoscopic cholecystectomy is preferred

**Table 1** Surgical details

| Operation   | No | Time taken for surgery (min) | Blood loss (ml) |
|---|----|------------------------------|-----------------|
| I. Vaginal hysterectomy                                       | 45 |                              |                 |
| (a) Vaginal hysterectomy                                      | 20 | 32 (20–40 min)               | <50–100 ml      |
| (b) Vaginal hysterectomy with debulking                       | 15 | 64 (30–100 min)              | 50–250 ml       |
| (c) Vaginal hysterectomy with bilateral salpingo-oophorectomy | 10 | 40 min (30–50 min)           | 50–120 ml       |
| II. Laparoscopic cholecystectomy                              | 45 | 40 min (30–70 min)           | 30 (10–80)      |

operation and not opening of the abdomen. When comparative study between abdominal and laparoscopic cholecystectomy was put forward to ethics committee of Royal College of Surgeons, after necessary deliberations it was rejected as there was nothing noteworthy against lap chole or nothing noteworthy in favor of abdominal cholecystectomy and compare the two. Not giving advantage of laparoscopic cholecystectomy, when possible, is unjust and unfair to patient.

In some cases, laparoscopic cholecystectomy may not be feasible, and this must be anticipated. Population-based studies show that 90% of all cholecystectomy is performed by laparoscopy and laparoscopic cholecystectomy can be used in 80–95% of patients with symptomatic gallstone diseases. Thus, 5–20% of women need cholecystectomy, laparoscopic method is either contraindicated or failed, and they will require cholecystectomy by the conventional method, i.e., opening of the abdomen.

Not only it is essential but vital to understand that laparoscopic-assisted vaginal hysterectomy cannot be a replacement or alternative to vaginal hysterectomy, but it is designed to replace and reduce the number of abdominal hysterectomy. To perform abdominal hysterectomy for uterus less than 18 weeks is wrong and unscientific, and women are being “short changed” [4], whereas laparoscopic assistance is boon but only when uterine size and or pathology contraindicates its removal vaginally and is required to spare opening of the abdomen. Thus, when vaginal hysterectomy is not possible, laparoscope is used to spare the opening of abdomen.

If prophylactic salpingo-oophorectomy is required, it can be done concomitantly at vaginal hysterectomy without laparoscopic assistance. Davies et al. report a 97.5% success rate of ovarian removal via the vaginal route, and Hefni and Davies report successful oophorectomy without laparoscopic assistance via the vaginal route in all their 82 patients with the use of endoloop and help of Sheth’s clamp. Although an endoscope was required in a few patients, Kammerer-Doak et al. report an 84% success rate of bilateral oophorectomy at vaginal hysterectomy with laparoscopic assistance necessary in 10% of attempted oophorectomies at VH. Surely, the percentage of gynecologists performing oophorectomy at vaginal hysterectomy, as well as their success rate, will rise. Author strongly feels it can be done at vaginal hysterectomy in more than 95%, up to 97–98%.

Authors strongly feel that at laparoscopic hysterectomy or laparoscopic-assisted hysterectomy, invasion of the patient’s tissues, duration of operation, anesthesia and exposure to carbon dioxide and theater occupancy duration though minimally invasive, in actuality they are much more when compared with the least invasive vaginal hysterectomy [5]. More importantly for women’ and relatives’ mind, there are no cuts on abdominal wall and by all

calculations least invasion. Besides all above, invasion on purse is heavier and that counts heavily in many geographical areas, particularly India.

No doubt, it is distinctly clear that hysterectomy via vaginal route and laparoscopic cholecystectomy are less invasive than laparoscopic hysterectomy or LAVH and laparoscopic cholecystectomy or cholecystectomy by opening the abdomen. Table 1 shows how cholecystectomy by the open abdominal or laparoscopic method can be combined with hysterectomy with or without oophorectomy by using one out of six methods. The laparoscopic cholecystectomy can be done by the surgeon choice of number and site of trocar placement, and done by the standard four-port method [3]. It is now the preferred operation for patients with symptomatic gall stone and many use it in more than 90% of patients.

Laparoscopic total hysterectomy is not always easy for many gynecologists and is with higher risk to ureter and bladder trauma. Alternatively, leaving the cervix is not without risk, unscientific and not desirable.

For all patients, gynecologists and surgeons, if laparoscopic cholecystectomy can be combined with hysterectomy with or without oophorectomy via vaginal route, it is the least invasive and with most minimal access site technique. Advantages given are (1) a single hospitalization; (2) single time anesthesia; (3) shorter duration of surgery; (4) no opening of the abdomen; (5) reduction in multiple invasions; and (6) reduction in convalescence time by 50% and hospital stay by 50–75%.

Thus, in day-to-day clinical practice, surgeon performing cholecystectomy needs to exclude a gynecologic pathologic condition, and vice versa, and therefore, both must ask for full abdominopelvic sonography. This also brings surgeon and gynecologist closer as team. In fact, besides hysterectomy, ovarian cystectomy or prophylactic salpingo-oophorectomy or even tubal sterilization can be easily combined with surgery for hernia repair, appendectomy, etc. by less invasive approaches.

Unfortunately, laparoscopic cholecystectomy and hysterectomy with or without salpingo-oophorectomy via vaginal route are less done at one session and reported. Surgeons and gynecologists do need to combine these two operations when required and advance to provide benefits to patients, their families and operating surgeons.

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**Compliance with Ethical Standards**

**Conflict of interest** None.

**Informed consent** As it is a retrospective study, all subjects were author's patients who needed surgeries and informed consent was obtained from all individual participants included in the study.

**Human statements and animal participants** This article does not contain any studies with animal performed by any of the authors.

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