

Day Care Total Laparoscopic Hysterectomy: Make it a Habit

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Abstract: Day care Total Laparoscopic Hysterectomy (TLH) could lead to significant cost savings, but some fear the effects of what could be premature postsurgical discharge. We sought to estimate the safety of TLH as a day care procedure for benign gynecologic conditions. We report a prospective, consecutive case series of 500 day care TLHs performed for benign gynecologic conditions. All 500 were discharged home the day of their surgery. Readmission rate was 'Zero'. Indications for hysterectomy were mainly leiomyomas (58%), menorrhagia (28%), and pelvic pain (9%). Mean estimated blood loss was 60 mL and mean uterus weight was 240 g, with the heaviest uterus weighing 1.2 kg. At 3 months, unplanned consultation, complication, and readmission had occurred in 0.8%, 0%, and 0%, respectively. Same-day discharge is a feasible and safe option for carefully selected patients who undergo an uncomplicated TLH.

Keywords: Daycare surgical procedure, Hysterectomy, Laparoscopy, Safety

1. Introduction

Advances in surgery and anaesthesia have allowed hysterectomy to be performed in an ever less invasive manner. Formerly, hysterectomies that could not be completed vaginally were performed by laparotomy. More recently, laparoscopy has become an alternative for a challenging uterus and has shown several advantages over laparotomy, including fewer infections, less postoperative pain, and faster recovery time.¹Laparoscopy is also associated with a shorter hospital stay,¹ to a point where hysterectomy can now be a day care procedure.²

Although day care hysterectomies could lead to significant cost savings, some experts fear the effects of what could be premature postsurgical discharge. Decreased length of stay has been associated with increased readmission rates after procedures such as cholecystectomy and vaginal delivery.³ However, it has been suggested that proper selection of candidates could help ensure a safe same-day discharge.⁴

A few case series of day care laparoscopic hysterectomies, mostly subtotal, have been published supporting it is a safe practice.^{2, 5-12}

The objective of this study was to estimate safety of TLH as a day care procedure for benign gynecologic conditions. We looked at the proportion of TLHs attempted and performed as day care procedures and the frequency of unplanned postoperative readmission, consultation, and complication up to 3 months. As a secondary outcome, we looked at the predictors of adverse outcomes.

2. Materials and Methods

We report a consecutive case series of TLHs performed from December 1, 2015, through January 1, 2018, in a tertiary hospital by one gynaecologist with 20 years in practice. All women scheduled for TLH were prospectively identified for further chart review of medical records, to

assess eligibility and perform data abstraction. We included all patients who underwent TLH and were discharged home before 10 pm on the same day. We excluded operations performed for malignant disease, as they are associated with different risk and morbidity profiles.¹

The women were routinely offered day care TLH as long as they met the following preoperative selection criteria:

- 1) Adequate motivation and understanding.
- 2) Age <60 years.
- 3) ASA (American Society of Anaesthesiologists) class 1 or 2, with no sleep apnea.
- 4) Presumed benign disease.
- 5) No anticipated surgical complications.

The operations were performed in patients under general anaesthesia, with a 5-port laparoscopic technique (port size range, 5–11 mm). No single-port or robot-assisted surgeries were performed. Residents and fellows routinely participated in most cases. A Enseal device (Ethicon Endo-Surgery US), conventional bipolar and unipolar were used in all procedures. Morcellation, when needed, was performed laparoscopically with a power morcellator or vaginally. Intracorporeal knot-tying technique was used to achieve laparoscopic closure of the vaginal vault. A Clermont Ferrand was used for uterine manipulation and ensured further maintenance of pneumoperitoneum. Cystoscopy was routinely performed in all cases, to assess the ureteral jets and bladder integrity. In the absence of contraindication, preoperative medication included acetaminophen, an anti-inflammatory drug, a 5-HT₃ antagonist, a first-generation cephalosporin, 800mcg of Misoprostol 4 hrs before the surgery per vaginally and low-dose heparin. Given the growing evidence that prophylactic salpingectomy reduces the risk of ovarian cancer¹³ without increasing morbidity,¹⁴ bilateral salpingectomy was progressively offered to most of the patients during the course of the study. After surgery, a hemoglobin assay was performed approximately 6 hours after the operation. The women had

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to meet the following discharge criteria; otherwise, they were admitted:

- 1) Surgery performed without complication.
- 2) Minimal postoperative observation of 6 hours, after which the patient:
 - a) had adequate pain control,
 - b) tolerated oral liquids without significant nausea,
 - c) could ambulate with support,
 - d) had a soft abdomen and unremarkable wounds, and
 - e) showed a decrease in hemoglobin of less than 2 g/dL.
 - f) Pulse oximetry reading < 100 beats/min

Discharge medications included oral anti-inflammatory drug, and second generation cephalosporin. The women were given an appointment next day after the operation to remove Foley's catheter and dressing. They were asked to refrain from intercourse for 8 weeks and informed of the warning signs that should prompt them to ask for a physician's advice or a consultation at the emergency department. These recommendations were also detailed in a handout.

Medical records of all the women scheduled for TLH were reviewed. We looked at unplanned admissions, clinic and emergency department visits, and complications during the first 3 postoperative months. We also recorded pre- and perioperative characteristics. Operative time was defined as the period from incision to complete closure, excluding room and anaesthesia time. Blood loss was estimated by suction container contents with irrigation fluid subtracted. The data from medical records were collected by 2 of the authors.

All statistical analyses were conducted. Means (\pm SD), frequencies (%), and range were used to describe population characteristics and outcomes. Missing data and aberrations were investigated and corrected. Logistic regression analysis was used to determine predictors of adverse outcomes, defined as an unplanned admission, consultation, or complication within 3 months. $P < 0.05$ was considered significant.

3. Results

500 consecutive TLHs were performed during the study period. 500 were scheduled as Day care surgeries and all were actually discharged the same day.

Knowing the fact that urinary retention is the most common reason for readmission, we used to send our patient home with Foley's and used to remove it on next day. To our surprise, Readmission rate was 'Zero'.

The characteristics of the women who underwent day care TLH are presented in **Table 1**. Their average age and weight were 45 years and 68 kg, respectively. Most were nonsmokers and parous (95%). More than half (54%) had undergone 1 or more abdominal operations.

Table 1: Preoperative Characteristics

Variable	Mean +/- SD (Range) or n (%)
Mean age, years	45 +/- 5 (34-59)
Mean weight, KG	68 +/-15 (40-105)
Parous	475(95)
Comorbidities ^a	125(25)
Previous abdominal operations ^b	230(46)
None	185(37)
1	60(12)
2	25(5)
3	
Hysterectomy Indication	
Leiomyomas	290(58)
Menorrhagia	140(28)
Pelvic pain	45(9)

^a Including diabetes, cardiovascular disease, obesity, chronic obstructive pulmonary disease, hypertension, and dyslipidemia.

^b Including laparoscopy and laparotomy.

Indications for hysterectomy were mainly leiomyoma (58%), Menorrhagia (28%), and pelvic pain (9%). **Table 2**. Endometriosis and adhesions were found in 30% and 25% of the cases, respectively. 40% of the women underwent concomitant oophorectomy. Mean estimated blood loss was 60 mL and mean uterus weight was 240 g, with the heaviest uterus weighing 1.2 kg. The procedure lasted 94 minutes, on average.

Table 2: Perioperative Characteristics

Variable	Mean +/- SD(Range) or n (%)
Estimated blood loss,ml	60 +/- 80
Endometriosis	150 (30)
Adhesions	125(25)
Oophorectomy	200(40)
Duration of surgery, min	94+/-30 (60-180)
Uterus weight, gm	240 +/- 150 (50-1.2kg)

Unplanned consultation and readmission were 'Zero' in the first 72 hours. At 3 months, unplanned consultation, complication, and readmission had occurred in 0.8%, 0%, and 0%, respectively). 4(0.8%) women came with complaints of Spotting Per vaginally after 15-20 days.

4. Discussion

This study describes a series of day care TLHs performed for benign gynecologic conditions. We observed that TLH is feasible in a day care context. In fact, in our study, 500 women who were scheduled for TLH were eligible and agreed to a day care procedure. All were discharged the day of the surgery. This proportion is Larger than the one reported 34 % for TLH,¹¹ suggesting that advances in technology and the increasing experience of gynecologists will continue to expand the proportion of TLHs performed in a day care setting.

Although day care TLH can be planned in a large number of women, some of them will have to be admitted after the operation. The 3 most common reasons were urinary retention, nausea and pain. The key to minimizing admissions is most likely the optimal use of pain and nausea prophylaxis. In addition to medication, simple techniques, such as reduction of the pneumoperitoneum in the Trendelenburg position were shown to be effective in

decreasing postoperative pain and nausea. Moreover, to avoid admission in cases of urinary retention, we started discharging Patients with a Foley's catheter and remove it on next day.

We established clear pre- and postoperative criteria to select appropriate candidates who could safely undergo day care TLH. The operations had to be uncomplicated; however, there was no limitation in uterus weight or the duration and complexity of the surgery. In the literature, a heavy uterus (>500 g) was not associated with increased morbidity⁵ or a higher readmission rate¹¹ after laparoscopic hysterectomy. In our study, the heaviest uterus in an day care TLH was 1.2 kg. Patients were discharged home the same day, despite the presence of leiomyomas, adhesions, and endometriosis in 58%, 25%, and 30% of cases, respectively. In fact, the day care setting is now used for hysterectomies that are increasingly challenging. A recent case series reported its use in laparoscopic radical hysterectomy for severe endometriosis.¹⁷

In a reassuring finding, we observed ZERO emergency department visits and readmissions in the first 72 hours after the operation. Unplanned consultations occurred in 0% of cases, compared to the 6% reported by Perron-Burdick et al.¹¹ We also observed a readmission rate of 0 % at 72 hours, which is almost similar to the rate reported by the same authors¹¹ for TLH (0.4%) and subtotal hysterectomy (0.7%). Finally, unplanned consultation, complication, and readmission at 3 months occurred in proportions that are much lesser than the range observed in the literature for total and subtotal hysterectomies.^{8,12,18,19}

The surgical technique for TLH is constantly changing, to improve efficiency and patient safety. The practice of morcellation has recently raised concerns about the potential for dissemination of undetected malignant disease.²⁰ At present, the risk is difficult to define, but it should be included in the informed consent.²⁰ Laparoscopy-assisted minilaparotomy, tissue removal through a vaginal incision, and manual morcellation within an endoscopic bag have been proposed as alternatives, but the risks and benefits of such techniques have still to be clarified.^{20,21} By increasing the technical difficulty of the procedure, we have to make sure that women are not exposed to a higher risk of complication than that of dissemination of an occult cancer. Finally, the increased operative time and morbidity (eg, minilaparotomy) of those techniques could undermine the success of day care operations.

In our hospital, we routinely removed our specimens through vagina and we also opt for the routine use of cystoscopy for early detection of urinary tract injury. However, this practice has been debated, given the low incidence of such injuries and the potential disadvantages of cystoscopy, including increased operative time, procedure cost, and incidence of complications, such as bladder trauma, urinary tract infection, and reactions related to the intravenous dye.²² Nevertheless, selective use of cystoscopy in more complex cases or when the integrity of the ureters or bladder is of concern seems reasonable.

This study was observational and clearly differentiated TLH from other types of laparoscopic hysterectomies. We defined day care as discharge home before 10 pm on the day of the surgery rather than a stay of less than 24 hours. The study was not designed to compare day care and inpatient procedures but to describe outcomes of day care TLH. Complications may have been underestimated if patients presented to outside institutions for treatment. However, these complications could then be documented at the routine postoperative visit scheduled at our hospital. Finally, some studies have reported a high satisfaction rate with day care laparoscopic hysterectomies ($\geq 90\%$).^{6,7,12} Patient satisfaction should be assessed in further studies, as it is an important consideration.

5. Conclusion

Same-day discharge is a safe option for carefully selected patients who undergo uncomplicated TLH. It can be performed in a large proportion of women, even in the presence of leiomyomas, severe adhesions, or endometriosis. Continuing growth in the number of outpatient TLHs is certain to lead to the positive financial impact of substantially decreased hospital costs and Patient satisfaction.

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