

Outpatient Laparoscopic Hysterectomy: Evaluation of Pain

Joseph Gauta, MD

ABSTRACT

Background and Objectives: The purpose of this study was to assess the differences in patient pain postoperatively, comparing 2 types of outpatient hysterectomy procedures.

Methods: This is a nonblind, nonrandomized, prospective study of surgeries performed at 1 ambulatory surgery center by 1 surgeon over 14 months. Patient pain was assessed using a visual analog scale before and after laparoscopically assisted vaginal hysterectomy and total laparoscopic hysterectomy. Patients were followed through a 2-week postoperative period.

Results: Nineteen laparoscopically assisted vaginal hysterectomies and 17 total laparoscopic hysterectomies were performed. The 2 groups were similar in age, BMI, uterine weight, and surgical time. Comparing the 2 groups, there were no statistically significant differences in pain throughout any time points of the study.

Conclusion: There were no statistically significant differences in pain during the postoperative period between the 2 groups. Outpatient hysterectomy is a safe procedure that may improve patient satisfaction surgically and financially, and either approach is well tolerated by patients.

Key Words: Outpatient, Ambulatory pain, Total laparoscopic hysterectomy, Laparoscopically assisted vaginal hysterectomy.

INTRODUCTION

Minimally invasive laparoscopic surgery has been the foundation of many surgical practices for years. Despite the move to minimally invasive surgeries throughout the world, many procedures that could be performed in less expensive ambulatory surgery centers (ASC) are still commonly performed in hospitals with overnight stays. Whiteman¹ reported that gynecologic disorders accounted for 7% of all inpatient hospitalizations among reproductive age women, that uterine leiomyoma was the most common diagnosis, and that 80% of women who were hospitalized for uterine leiomyoma, menstrual disorders, or endometriosis underwent hysterectomy. Overall costs and Medicare coinsurance rates are lower in ASCs.² Hospital admissions as a result of complications following ambulatory surgery are rare,^{3,4} and infection rates are historically low.⁵ The purpose of this nonblind, nonrandomized, prospective study was to evaluate the reported pain by patients undergoing 2 commonly performed procedures, laparoscopically assisted vaginal hysterectomy (LAVH) and total laparoscopic hysterectomy (TLH), during a 14-month period and to evaluate the safety record of these cases. Patients, physicians, and insurers will all benefit as more of these procedures are performed in the ambulatory setting. Our hypothesis is that LAVH will produce more pain than TLH due to the traction and compression placed on the vaginal and pelvic tissues during the procedure.

MATERIALS AND METHODS

All established patients of Especially for Women, Naples Florida, who were expected to undergo outpatient, elective hysterectomy between January 2009 and March 2010 at the ASC were asked to be part of the study. All 56 patients accepted and signed written consent forms. Twenty study patients were not included in the final analysis due to varying amounts of missing data, 7 TLH and 13 LAVH, missing one or more pain reports at any time. Because this was a quality improvement project to assess outcomes, IRB approval was unnecessary. Patients were counseled about the risks and benefits of the 2 types of procedures and were scheduled to have one or the other procedure performed based on caliber of the vagi-

Naples Day Surgery, Naples, Florida, USA and the offices of Especially for Women, Naples, Florida, USA

The anesthesiologists and certified nurse anesthetists of Collier Anesthesia, PA in Naples, Florida were responsible for the administration of all anesthetics during this study. They also gathered all the intraoperative data. Pamela Kurth, RNFA assisted on all the surgical cases. Gail Collins-Nocco, RNC gathered all the pain data after discharge from the ASC. Anne Wilson, RNC compiled and organized all the data for the study.

Address correspondence to: Joseph Gauta, MD, Chairman, Division of Gynecologic Surgery, Especially for Women and the Florida Bladder Institute, 1890 SW Health Pkwy, Suite 205, Naples, Florida 34109, USA. Telephone: (239) 592-1388, Fax: (239) 593-3356, E-mail: drgauta@especiallyforwomen.net

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nal vault and if concomitant procedures were needed (nonrandomization). Counseling and informed consent included an explanation of the type of hysterectomy and all known risks associated with hysterectomy. Patients were not made aware of our hypothesis. Patients were made aware that pain is always recorded by the nurses, regardless of the patient's participation in the study. All surgeries were performed by the same surgeon and at the same facility, Naples Day Surgery Center in Naples, Florida. All procedures were performed with 3 abdominal trocar sites, including the laparoscope site. Nineteen patients received an LAVH, and 17 patients received a TLH. Patients who needed additional procedures like oophorectomies, colporrhaphies, or cystoscopies were included in the study. Using a visual analog pain scale (VAS) from 0-10 (no pain to excruciating pain) at the ASC, patients were asked to rate their pain preoperatively, in phase I of the recovery room, in phase II of the recovery room, on their first postoperative day (POD1) via telephone or in person, and lastly at their 1-week or 2-week postoperative office visit. Baseline preoperative pain score was subtracted from all other pain scores. The VAS values were grouped into the following categories: 0 to 1=no pain, 2 to 4=mild pain, 5 to 7=moderate pain, 8 to 9=severe pain, 10=excruciating pain. All statistical analysis was performed using the unpaired *t* test with *P*<.05 indicating statistical significance.

Within the ASC, a certified registered nurse asked the pain questions. The same group of physicians and CRNAs, Collier Anesthesia, provided all anesthesia services. The

same RN performed all in-office pain assessments. Patients could either point to the number corresponding to their perceived level of pain or verbally state the number. In addition, medications used for pain or nausea were documented for the study. Operatively, all patients received the same medications but in varying doses. All patients were sent home with the same 2 prescriptions: oral ondansetron for nausea and an opiate analgesic. ACOG surgical guidelines for preoperative antibiotics and anticoagulation were followed.

RESULTS

Mean age in years (TLH, 44.76±9.85, LAVH, 48.11±13.42) and body mass index (TLH, 26.31±5.51, LAVH, 27.57±5.08) did not significantly differ between the 2 groups. Mean uterine weight did not significantly differ between the 2 groups (TLH, 134.33±52.03, LAVH, 153.89±164.44), ranging from 44g to 800g. Mean surgery time in minutes did not differ significantly (TLH, 128.88±24.92, LAVH, 150.32±47.61). Nineteen patients were included in the LAVH group and 17 in the TLH group. In the TLH group, 11 patients received a unilateral (USO) or bilateral (BSO) salpingo-oophorectomy, 5 had lysis of adhesions or fulguration of endometriosis (LOA), and 2 patients had cystoscopy (cysto). In the LAVH group, concomitant surgeries included 13 USO or BSO, 4 LOA, and 6 cysto.

Comparisons of LAVH to TLH pain are summarized in **Table 1**.

Table 1.
Ambulatory Hysterectomy Mean Pain Score (0-10 VAS^a)

	LAVH ^b (n=19)	TLH ^b (n=17)
Preoperatively (SE ^b)	0.42 (0.09)	1.38 (2.13)
Recovery room	1.21 (2.27)	0.65 (1.9)
Phase II recovery	2.63 (2.17)	2.35 (2.34)
Upon arrival home	3.84 (1.89)	3.88 (2.85)
First day postop	3.84 (1.98)	4.82 (2.7)
1-2 weeks postop	1.11 (1.41)	0.53 (0.8)
	No patients reported anything higher than moderate pain at any time point	Severe pain was reported in 6% (n=1) of patients in phase II, 12% (2) of patients at home, and 24% (4) of patients on postop day 1. At all other time points, pain was reported as no more than moderate.

^aVAS, visual analog scale, 0-1=no pain, 2-4=mild, 5-7=moderate, 8-9=severe, 10=excruciating.

^bSE, standard error; LAVH, laparoscopically assisted vaginal hysterectomy; TLH, total laparoscopic hysterectomy; preoperative pain scores were subtracted from all other pain scores.

No statistically significant differences existed in pain between the 2 groups at any time points. No major complications or hospitalizations were necessary in either group. Minor complications in the LAVH group included 1 UTI (one of the patients was discharged home with an indwelling catheter); 1 umbilical port-site drainage, noninfected; 1 fever of unknown origin; and 1 endometrial cancer was diagnosed postoperatively by pathology report. No minor complications occurred in any of the TLH patients. Reported nausea at any time point was well tolerated with no significant difference between the 2 groups (TLH 71% [n=12], LAVH 84% [n=16]). There were only 6 patients in each group that were sent home with urinary catheters.

DISCUSSION

Others have reported excellent safety results and patient satisfaction with ambulatory hysterectomy.⁶⁻⁹ Benefits of ambulatory hysterectomy include decreased costs to the patient and state and federal programs, low infection rates and admission to hospitals postoperatively, and high patient satisfaction.¹⁰ High patient satisfaction occurs due to recuperation at home in familiar surroundings, better sleep, fewer disturbances, and the ability of family to be with the patient around the clock. Importantly, patient costs are dramatically decreased in the outpatient setting compared to hospitalization.

Some surgeons will choose one type of hysterectomy procedure over another based on many factors: patient age or ethnicity, insurance status, income, and geographic region.¹¹ My own surgical experiences and preference, availability of equipment, patient BMI, and type of disease (benign vs. malignant) certainly influenced my decision early on in the process of gaining comfort with ambulatory hysterectomy. Patient pain tolerance and the fear by physicians and patients of poor pain control have been one of the factors keeping ambulatory hysterectomy from becoming a common choice for patients requiring hysterectomy.

This study confirms that not only is elective ambulatory laparoscopic hysterectomy a viable choice for many patients, but it is also well tolerated by patients in the postoperative period. No differences in pain are reported by patients in the 2 groups, in spite of the anticipated increased pain in the LAVH group. No patients in either group reported excruciating pain. No patients in the LAVH group at any time point in the study reported severe pain either. Four of the 17 patients in the TLH group reported severe pain on postoperative day #1, and all 4 patients

reported no pain at their postoperative office visit. This compares favorably to other studies showing that laparoscopic hysterectomy is well tolerated by patients.^{12,13}

Another component of this study suggests that in experienced hands, elective ambulatory hysterectomy is also a safe alternative to in-patient hysterectomy. Though most patients experienced some postoperative nausea, no admissions were required for this complaint, and it was well controlled with oral ondansetron. No major complications were encountered.

Though our numbers indicate that LAVH patients do not experience more pain than TLH patients, one of the main limitations of this study is the small number of patients. To minimize bias, we reported on only 1 surgeon's experiences within only 1 facility. Lengthening the time of the study or including other facilities could have achieved adding more participants to the study. Very few surgeons are performing ambulatory hysterectomies in our area. Another cause of the low numbers in this study is the fact that Medicare only pays ASCs for the performance of LAVH, not TLH, or vaginal hysterectomy, or abdominal hysterectomy, many of which could be performed on an ambulatory basis.

Since 2002, this same surgeon at this ASC, including vaginal and abdominal hysterectomies, has successfully performed over 150 ambulatory hysterectomies. For the sake of prospective analysis, only the most recent patients were included in the study.

Recent advancements in laparoscopic surgery include single-site laparoscopy (eg, LESS, NOTES, and others). Yim et al¹⁴ reported decreased pain and comparable complication rates in those patients undergoing single-port access TLH vs. conventional 4-port access TLH. This type of procedure can only be performed by experienced laparoscopists due to the required dexterity and the difficulty in lack of triangulation needed during the learning phase of laparoscopy. Robotic surgery has thus far been a great benefit to those surgeons reluctant to perform laparoscopic cases, but is actually more invasive than any of the methods noted above, because of its need for many port sites. Robotic hysterectomy has been shown to be safe and effective with comparable operative times to those of conventional laparoscopy.^{15,16} Rather than more expensive and more invasive procedures, experienced laparoscopists comfortable with advanced surgical techniques will likely convert their cases to less invasive modalities in the future like single-site surgery. Patient pain postoperatively will likely improve and lead us to being more

comfortable in providing ambulatory solutions to complex surgical problems.

CONCLUSIONS

Ambulatory laparoscopic hysterectomy is a safe, well-tolerated, less expensive alternative to similar inpatient procedures. Since no significant differences in pain were noted between the 2 types of hysterectomies, surgeons should perform the procedure they are most comfortable with. Patient pain was well controlled on an outpatient basis, and no major complications were encountered. Further comparisons of pain and patient satisfaction with single-port vs. multi-port laparoscopy would be welcome in the future.

References:

- Whiteman MK, Kuklina E, Jamieson DJ, Hillis SD, Marchbanks PA. Inpatient hospitalization for gynecologic disorders in the United States. *Am J Obstet Gynecol*. 2010;541–543.
- Medicare co-insurance rates are lower in ASCs than in hospitals. MedPAC, Report to the Congress: Medicare Payment Policy, March 2004.
- Fleisher LA, Pasternak LR, Herbert R, Anderson GF. Inpatient hospital admission and death after outpatient surgery in elderly patients: importance of patient and system characteristics and location of care. *Arch Surg*. 2004;139(1):67–72.
- FASA. FASA Outcomes Monitoring Project, 4th Quarter 2005.
- Natof HE. Complications associated with ambulatory surgery. *JAMA*. 1980;244(10):1116–1118.
- Yamamoto MP, Zaritsky E, Perron-Burdick M, Year R, Kivnick S. Is same-day discharge of laparoscopic hysterectomy patients a safe option? Poster Presentation, Annual Meeting of the American College of Obstetricians and Gynecologists, San Francisco, 2010.
- Rosenfield R. Implementing an outpatient laparoscopic hysterectomy program: 8 steps toward success. *The Female Patient*. 2010;35:37–39.
- Summitt RL, Stovall TG, Lipscomb GH, Ling FW. Randomized comparison of laparoscopy-assisted vaginal hysterectomy with standard vaginal hysterectomy in an outpatient setting. *Obstet Gynecol*. 1992;80(6):895–901.
- Thiel J, Gamelin A. Outpatient total laparoscopic hysterectomy. *J Am Assoc Gynecol Laparosc*. 2003;10(4):481–483.
- Morrison JE, Jacobs VR. Outpatient laparoscopic hysterectomy in a rural ambulatory surgery center. *J Am Assoc Gynecol Laparo*. 2004;11(3):359–364.
- Jacoby V, Autry A, Jacobson G, Domush R, Nakagawa S, Jacoby A. Nationwide use of laparoscopic hysterectomy compared with abdominal and vaginal approaches. *Obstet Gynecol*. 2009;114:1041–1048.
- Wu J. Hysterectomy rates in the United States, 2003. *Obstet Gynecol*. 2007;110:1091–1095.
- Summitt R, Stovall T, Steege J, Lipscomb G. A multicenter randomized comparison of laparoscopically assisted vaginal hysterectomy and abdominal hysterectomy in abdominal hysterectomy candidates. *Obstet Gynecol*. 1998;92(3):321–326.
- Yim GW, Jung YW, Paek J, et al. Transumbilical single-port access versus conventional total laparoscopic hysterectomy: surgical outcomes. *Am J Obstet Gynecol* 2010;203:26, e1–6.
- Shashoua AR, Gill D, Locher SR. Robotic-assisted total laparoscopic hysterectomy versus conventional total laparoscopic hysterectomy. *JSLs*. 2009;13:364–369.
- Payne TN, Dauterive FR. A comparison of total laparoscopic hysterectomy to robotically assisted hysterectomy: surgical outcomes in a community practice. *J Minim Invasive Gynecol*. 2008;15(3):286–291.