

Laparoscopic vs Abdominal Hysterectomy in the Management of Benign Gynecological Diseases: A Tertiary Hospital Experience in Punjab

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ABSTRACT

Objectives:

- To compare laparoscopically assisted vaginal hysterectomy (LAVH) with total abdominal hysterectomy (TAH) in a retrospective analysis for the management of benign diseases.
- To evaluate average age, hospital stay, blood loss, intraoperative and postoperative complication rates, and postoperative pain management.

Study design:

- A retrospective case-control study in Christian Medical College and Hospital, Ludhiana, was carried out comparing LAVH and TAH for a period of 1 year between November 2014 and October 2015.
- Sample size: A total of 124 patients (62 for LAVH and 62 for TAH).

Results:

- The LAVH is associated with shorter hospital stay as compared with TAH (3.3 and 5.8 days; $p < 0.001$), less amount of blood loss (176 and 420 mL; $p < 0.022$), and less number of postoperative complication rates (4.76 and 14.5%; $p = 0.061$).
- The LAVH is also associated with less number of blood transfusions. Only 8 patients required blood transfusion intra- or postoperatively following LAVH, and 25 patients for TAH.
- The operation time in LAVH is slightly longer as compared with TAH (173 vs 153 minutes; $p = 0.999$).
- Analgesic drug requirement to control pain was significantly less in LAVH. About 38.7% required continuous opioid infusion pump following TAH, and only 6.35% following LAVH.

Conclusion:

- The LAVH is a safe and reliable alternative to open surgery in the management of benign gynecological diseases, with significantly reduced hospital stay and complications.

Keywords: Analgesia, Blood loss, Complications, Laparoscopically assisted vaginal hysterectomy, Total abdominal hysterectomy.

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INTRODUCTION

Hysterectomy is one of the most common major operations performed in women, next only to cesarean section. In the United States, approximately 600,000 hysterectomies are performed each year. The highest rate of hysterectomy is between the ages of 40 and 49 years, with an average age of 46.1 years. Lower socioeconomic status contributes to increased hysterectomy rates.¹ In India, the mean age of a woman undergoing hysterectomy is much lower. A study conducted in Haryana state showed that the incidence of hysterectomy was 7% among married women.² Another study from Gujarat pointed out that 7 and 8% of rural women and 5% of urban women had already undergone hysterectomy at an average age of 37 years.³

There are no specific criteria that can be used to determine the route of hysterectomy.¹ The vaginal operation is preferable when there are no contraindications, as it has lower morbidity and quicker recovery. When laparoscopically assisted vaginal hysterectomy (LAVH) is done, it should be surgery should be carried out through vaginal route.⁴ The abdominal approach is still being used by the majority of surgeons as the operation of choice, particularly when dealing with pelvic malignancy or for carrying out oophorectomy.⁵

The first LAVH was reported by Reich and De Caprio in 1989.⁶ Since then, it has gained widespread acceptance throughout the world. Laparoscopic dissection of the parametrial tissues to the level of the uterine arteries also permits oophorectomy or dissection of adhesions under direct vision more easily than at vaginal hysterectomy (VH).^{5,7}

Laparoscopy reduces the morbidity associated with laparotomy. It offers superior tissue image and anatomic view of the abdominopelvic cavity and, thus, facilitates better hemostasis and dissection. It allows the performance of adnexal surgery, ureterolysis, retroperitoneal dissection, and excision of endometriosis.⁸

Smaller incision, less postoperative pain, shorter hospital stay, and quicker return to normal activity are the main advantages of laparoscopy over laparotomy.⁸

AIM

The aim of our study was to compare LAVH with total abdominal hysterectomy (TAH) in a retrospective analysis

for the management of benign diseases, in order to evaluate the average age of the patient, length of hospital stay, blood loss and blood transfusion, intraoperative and postoperative complication rates, and postoperative pain management.

MATERIALS AND METHODS

A retrospective case-control study was carried out in the Department of Christian Medical College and Hospital, Ludhiana, comparing LAVH with TAH for a period of 1 year spanning from November 2014 to October 2015. Patients undergoing LAVH and TAH for benign conditions were identified. Medical records of the patients identified were then reviewed – factors examined included demographic details, indications for operation, intraoperative details, length of hospital stay, blood transfusion, and postoperative pain management and complications. A total of 124 files were reviewed, 62 for LAVH and 62 for TAH.

Data were processed and analyzed using Statistical Package for the Social Sciences (SPSS) (version 22.0). Statistical significance for differences was tested by student's t-test and χ^2 test, and a p-value <0.05 was considered statistically significant.

Exclusion Criteria

- Hysterectomy for malignant diseases
- Hysterectomy performed along with other surgical procedures like pelvic floor repair, cholecystectomy, hernia repair, etc.

RESULTS

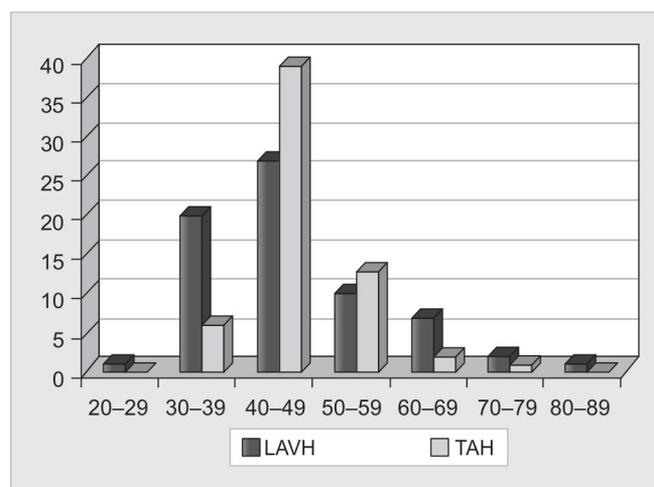
Table 1 shows that the demographic characteristics, such as age, hemoglobin, and platelets levels were comparable between the two groups. The most common indications for surgery were abnormal uterine bleeding and fibroid uterus. Previous history of pelvic surgery was not

significantly different between the two groups, and so did not have significant influence on the course of the study.

The average age in years of patients undergoing LAVH and TAH were 46.3 and 46.2 respectively (35–68 for LAVH and 22–89 for TAH), exactly matching the US data. The maximum number of patients in both groups fell in the age group of 40 to 49 years (Graph 1 and Table 1).

The average operating time was comparable between the two groups (LAVH was slightly longer). On an average, LAVH took 173 minutes (70–320 minutes), while for TAH, it was 153 minutes (60–300 minutes, $p = 0.999$).

Intraoperative complication rates (Table 2) were comparable between the two groups (LAVH 4.76% and TAH 6.45%, $p = 0.275$). However, postoperative complication rates (Table 3) were seen to be slightly higher in TAH as compared with LAVH (LAVH 4.76% and TAH 14.5%, $p = 0.061$). The common complications seen were ureteric injury, bladder injury, wound infection, and hemorrhage. One patient in the LAVH group developed vault sepsis, and there was no incidence of port site wound infection; seven patients who underwent TAH developed wound infection, including one burst abdomen.



Graph 1: Age distribution

Table 1: Demographic data of patients in both groups

| | LAVH (n = 62) | TAH (n = 62) | p-value |
|--------------------------------|-----------------|---------------|---------|
| Age (years) | 46.28 ± 7.13* | 46.23 ± 11.69 | 0.51 |
| Hemoglobin | 11.20 ± 2.01* | 11.40 ± 1.66 | 0.27 |
| Platelets | 265.32 ± 10.13* | 264.98 ± 8.34 | 0.96 |
| <i>Previous pelvic surgery</i> | | | |
| Negative | 60 (96.8%)** | 58 (93.5%) | |
| Positive | 2 (3.2%)** | 4 (6.5%) | |
| <i>Indication for surgery</i> | | | |
| AUB | 31 (50%)** | 11 (17.74%) | |
| Fibroid uterus | 22 (35.48%)** | 31 (50%) | |
| PMB | 4 (6.45%)** | 3 (4.84%) | |
| Others | 5 (8.06%)** | 17 (27.42%) | |

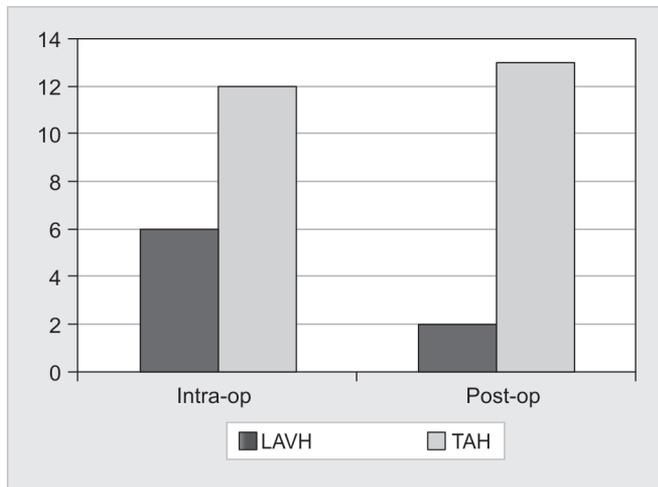
*Values are given as mean ± standard deviation; **Values are given as number with percentage in brackets; p value refers to t-test and χ^2 test; AUB: Abnormal uterine bleeding; PMB: Postmenopausal bleeding

Table 2: Intraoperative complications

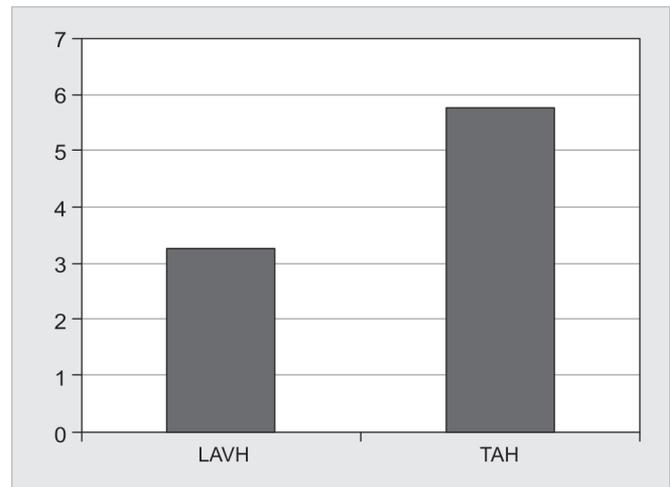
| | LAVH (n = 62) | TAH (n = 62) | p-value |
|-------------------------------------|---------------|--------------|---------|
| <i>Intraoperative complications</i> | | | |
| Ureteric injury | 1 | 1 | 0.275 |
| Bladder injury | 0 | 2 | |
| Hemorrhage | 2 | 1 | |

Table 3: Postoperative complication

| | LAVH (n = 62) | TAH (n = 62) | p-value |
|------------------------------------|---------------|--------------|---------|
| <i>Postoperative complications</i> | | | |
| Wound infection | 1 | 7 | 0.061 |
| Chest complications | 1 | 1 | |
| Urinary complications | 1 | 1 | |



Graph 2: Blood transfusion



Graph 3: Blood loss

The average estimated blood loss was found to be more than double in TAH as compared with LAVH (100–2,300 mL for TAH and 100–1,500 mL for LAVH; $p < 0.022$) and, as such, was associated with a significantly more number of blood transfusions. Twelve patients received blood intra-operatively and 13 patients in the postoperative period. For LAVH, it was only 6 and 2 respectively (Graph 2).

Postoperative pain management was done either with a continuous opioid infusion pump, or with a fixed hourly dose of parenteral nonsteroidal anti-inflammatory drug and/or opioid. The number of patients requiring infusion pump following TAH was found to be 38.7%, while following LAVH, it was only 6.35%. Hence, pain was significantly less with LAVH.

The average length of hospital stay following LAVH was significantly reduced, as it is with all other laparoscopic procedures (Graph 3). In our study, we found that the average length of hospital stay was 3.3 days with LAVH, whereas following TAH, it was found to be 5.8 days ($p < 0.001$).

And finally, it is noteworthy to mention that among the LAVH group, there were only two cases of unplanned conversions to laparotomy. The first was a case of uterine vessel bleed, which could not be controlled laparoscopically. The second was a case of dense adhesion between the posterior uterine surface and bowel completely obliterating the Pouch of Douglas, which brings our conversion rate at 3.07%.

DISCUSSION

The result of our study shows that LAVH is more comfortable and safer for the patient in terms of complications, pain, and length of hospital stay with reduced morbidity as compared with TAH, which is similar to the studies done by McCracken et al,⁵ Asgari et al,⁸ and Zesmin et al.⁹

It also shows that with experience and better exposure to the procedure, certain disadvantages of LAVH

have been reduced. For example, studies done more than 10 years ago by Kulvanitchaiyanunt,¹⁰ Jaturasrivilai,¹¹ and Carter et al¹² had consistently reported that LAVH was associated with equal amount of blood loss as compared with TAH. A study by Lowell and Kessler¹³ showed that the mean blood loss and need for transfusion was higher in the LAVH group. However, in the present scenario, with better techniques, equipments, and experience, we have been able to reduce blood loss to a minimum and the need for blood transfusion with LAVH.

The same study done by Lowell and Kessler¹³ showed that there was an increased risk of intraoperative complications with LAVH. However, in our study, the intraoperative complication rate was similar, and postoperative complication rate was actually higher following TAH.

Although studies done by Kongwattanakul and Khampital¹⁴ showed comparable operating time between LAVH and TAH, in our present study, LAVH took slightly longer. We hope that in the near future, we can reduce this as well.

Since Reich and De Caprio described LAVH in 1989, the uptake of the procedure has been steadily increasing over the years and is likely to replace TAH in the management of benign diseases. Although the cost factor was not considered in our study, it is a well-known fact that laparoscopic procedures are costlier as compared with open procedures. However, the result of our study clearly shows that the benefit of LAVH outweighs the cost of the procedure. At present, we have been offering the procedure to almost all patients in our institution as the first choice for the management of benign disease, where feasible.

CONCLUSION

The LAVH is a safe and reliable alternative to open surgery in the management of benign gynecological

diseases, with significantly reduced hospital stay and complications, and significantly less amount of pain and blood loss requiring transfusion.

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