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Original Research Article

Total laparoscopic hysterectomy versus vaginal hysterectomy: A comparative study

Aditi Phulpagar*

Assistant Professor, Department of Obstetrics and Gynaecology, KB Bhabha Hospital, RK Patkar Marg, Bandra West, Mumbai - 400050 India

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***Correspondence Info:**
Dr. Aditi Phulpagar
Assistant Professor,
Department of Obstetrics and Gynaecology,
KB Bhabha Hospital, RK Patkar Marg,
Bandra West, Mumbai – 400050 India

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Abstract

Background: Total laparoscopic hysterectomy (TLH) is now emerging as a safe procedure even in patients suitable for vaginal hysterectomy (VH) due to its advantages like better visualization, less post-operative pain and shorter hospital stay. The present study was carried out to compare the TLH and VH with respect to duration of surgery, intra and postoperative complications, hospital stay and post-operative analgesia requirement.
Methods: Patients undergoing both the types of hysterectomy i.e. TLH and VH during January 2017 to December 2017 at KB Bhabha Hospital, Mumbai were included in the study. Patients with suspected genital malignancy and uterine prolapsed were excluded. Baseline characteristics, intra and post-operative parameters like duration of surgery, complications, post-operative analgesic dosage and hospital stay were recorded and compared between the two surgeries.
Results: The mean time taken to perform TLH was significantly longer i.e. 100.21 minutes compared with VH, i.e. 80.16 minutes ($p < 0.0001$). But the mean duration of hospital stay was shorter for the women undergoing TLH i.e. 3.2 days as opposed to 5.15 days in women undergoing VH ($p<0.0001$). The mean post-operative analgesia requirement was more in women undergoing VH (1.87) than those undergoing TLH (mean 1.01). There was no statistically significant difference observed between two groups with respect to rate of complications.
Conclusions: Total laparoscopic hysterectomy, notwithstanding its learning curve, is as safe as vaginal hysterectomy.
Keywords: Total laparoscopic hysterectomy, Vaginal hysterectomy, Genital malignancy, Uterine prolapse, Post-operative analgesia.

1. Introduction

Hysterectomy is a commonly performed gynaecological procedure. It is the second most common operation performed on women after Caesarian Section worldwide [1]. In India, the incidence of hysterectomy is about 4-6% of adult Indian women and approximately 2,310,263 women undergo hysterectomy every year [2, 3]. However, the several routes of hysterectomy such as abdominal, vaginal and laparoscopic hysterectomy have been explored and debated in search for the optimum one which would aid in the ease of operation with minimum complications and best cosmetic results. Abdominal and vaginal hysterectomies have been performed for centuries. About 20 years ago, the laparoscopic approach to hysterectomy was introduced by Reich [4], and it has been evolving since then [5]. Although the factors that may influence the route of hysterectomy include the indication for surgery, size of the uterus, presence or absence of associated pelvic pathology, surgeon's training and preference and patient's choice [6].

Recent reviews have suggested that whenever feasible vaginal hysterectomy should be preferred over total abdominal hysterectomy and when vaginal hysterectomy is not technically possible, total laparoscopic hysterectomy is the approach of choice [7]. As experience with TLH increases, gynaecologists have begun to debate the role of TLH in women otherwise suitable for VH [8]. Total laparoscopic hysterectomy facilitates better anatomical views, allows performance of concomitant surgery, and is

suitable for larger uteri and those with little or no descent, which may prove difficult to remove vaginally. Several recent randomized trials comparing TLH with VH have been published, with conflicting conclusions [3,9-11]. These two modalities were also retrospectively compared in a 2008 trial [6], which concluded that TLH was associated with significantly longer operative time and shorter hospital stay than VH with a trend toward more intraoperative and postoperative complications in the TLH group.

Hence, aim of the current trial was to compare total laparoscopic hysterectomy and vaginal hysterectomy with respect to duration of surgery, intra and postoperative complications, hospital stay and post-operative analgesia requirement in women with benign disorders. Also aims to see if total laparoscopic hysterectomy had advantages over vaginal hysterectomy.

2. Materials and Methods

During the study period of January 2017 to December 2017, 37 patients underwent total laparoscopic hysterectomy (TLH group) and 32 patients underwent vaginal hysterectomy (VH group) for benign pathology in the Department of Obstetrics and Gynaecology at KB Bhabha Hospital, Mumbai. The choice of surgery was made by the patients after discussion with their consultants. Patients with suspected genital malignancy and uterine prolapsed higher than first degree were excluded from the study. The baseline characteristics including age, parity, previous caesarean section, other previous pelvic surgery, body mass index (BMI), uterine size and the indication for hysterectomy for all the patients were recorded.

Then, all the patients were evaluated for fitness for surgery. Prophylactic antibiotic was given to all patients at the beginning of the surgery. The vaginal hysterectomy was performed following Heaney's technique and the laparoscopic technique was always a total laparoscopic hysterectomy. Intra-operative parameters including conversion to laparotomy, time of surgery, complications – bowel injury, anaesthetic-CO2 narcosis, blood transfusion and postoperative parameters including hospital stay, infections, vault haematoma, pulmonary embolism, vesicovaginal fistula and vault dehiscence, if any, were recorded. Analgesic doses on the day of surgery were also recorded. Again prophylactic antibiotic was given to all patients after 12 hours of surgery. The data were analyzed using independent T test and chi square test. A p value of <0.05 was considered as significant.

3. Observations and Results

There were significant differences observed between the groups in mean age, BMI and in mean size of the uterus as shown in Table 1, but there was no statistically significant difference in parity between the groups. However, patients in the TLH group had significantly more previous caesarean sections and previous pelvic surgeries than the VH group but the difference was not statistically significant, (Table 1).

Table 1: Baseline characteristics

Characteristics	TLH (n=37)	VH (n=32)	P value
Mean Age (Years)	44.92±5.24	41.71±5.08	0.026
Mean BMI (kg/m^2)	25.85±4.35	20.64±3.95	0.005
Mean size of Uterus (Weeks)	12.13±4.23	9.84±3.06	0.015
Parity	4.20±95	5.42±2.35	0.09
Previous Caesarean Section	5 (13.51%)	4 (12.5%)	0.62
Previous pelvic Surgery	4 (10.81%)	3 (9.37%)	0.06

The indications for hysterectomy for both groups were shown in Table 2. The most common indication for hysterectomy was fibroid uterus in both the groups followed by dysfunctional uterine bleeding and adenomyosis.

Table 2: Indications for surgery

Indications	TLH (n=37)	VH (n=32)
Uterine fibroids	20	11
Dysfunctional uterine bleeding	7	10
Adenomyosis	7	8
Adnexal disease	2	0
Endometrial hyperplasia	1	0
Others	1	1

Patients in the TLH group had significantly longer mean operative time than patients in VH group (100.21 minutes Vs 80.16 minutes, p <0.0001). But the mean duration of hospital stay was shorter for the women undergoing TLH i.e. 3.2 days as opposed to 5.15 days in women undergoing VH. This difference was statistically significant with p value being <0.0001. The mean post-operative analgesia requirement was more in women undergoing VH (1.87) than those undergoing TLH (mean 1.01), and this difference was also statistically significant. The large uterine fibroid and more estimated blood loss was observed in TLH group as compared to VH group. There was no statistically significant difference observed between two groups with respect to rate of complications as shown in Table 3.

Table 3: Surgical data and clinical outcomes

Variable		TLH (n=37)	VH (n=32)	P value
Operative time (minutes)		100.21 ±47.5	80.16 ± 33.2	0.005
Hospital stay (days)		3.2±1.5	5.15±1.2	0.17
Total analgesia required (doses)		1.01±4.3	1.87±3.19	0.15
Uterine weight (g)		200.12±55.4	137.71±50.8	0.090
Estimated blood loss (mL)		201.05±268.4	260.6±293.5	0.842
Intraoperative complications	Conversion to laparotomy	1 (2.70%)	0	NS
	Bowel injury	1 (2.70%)	0	
	Blood transfusion	1 (2.70%)	1 (3.12%)	
	Anaesthetic-CO2 narcosis	1 (2.70%)	0	
Postoperative complications	Infection	0	0	NS
	Return to operating theatre	0	0	
	Pulmonary embolism	0	0	
	Vault hematoma	0	1 (3.12%)	
	Vesicovaginal fistula	0	0	
	Vault dehiscence	0	0	

4. Discussion

The major objective of this current series was to compare total laparoscopic hysterectomy and vaginal hysterectomy in the index setting where there is relatively limited experience with TLH – evident by the small number of cases – with the results from centers with a greater level of experience. However, the study was limited by its retrospective nature and by the small number of patients. Therefore, the risks of rare complications could not be definitively established. An above normal BMI, increased uterine size (width greater than 10 cm) and adhesions from previous abdominopelvic surgeries have been suggested as predictive factors for conversion to a laparotomic approach [12]. However, other series have not shown a relationship between BMI and conversion rates [6, 13].

The current study found that the TLH group had higher BMI and larger sized uteri which was statistically significant. Similar finding was noted in the study done by Morton *et al* [6]. This probably suggests that TLH may be more appropriate in these groups of patients. The increased operating time was identified in TLH group; this may be due to the increase in the size of the uterus in this group compared to VH group. Similar result has been shown in other studies [6, 14-16]. The TLH group had a greater proportion of patients who have had a previous pelvic surgery. Whether this may have contributed to the longer operative time in this group is unclear as there was no indication in the patient's note of any intraoperative difficulty secondary to adhesions. Also, despite the performance of additional procedures (anterior and posterior colporrhaphy), the VH group had shorter operative times. However, women in TLH group stayed in the hospital for a significantly lesser duration of time compared to those undergoing VH. The same was reflected in previous comparative studies [6,10,17].

In present study, the complications were rare and there was no significant difference in the rate of complications between two groups. However, the sample size was not sufficient to analyze the incidence of complications. One patient in TLH group required conversion to laparotomy, this result was compared with study done by Gendy *et al* [9]. In their mataanalysis of randomized control trials involving VH and TLH found no significant differences in the conversion rates to laparotomy between TLH and VH. In one case of TLH there was an inadvertent small bowel injury due to dense adhesions. Intraop injury was detected and bowel was suture laproscopically by general surgeon in our study. Patient recovery was uneventful. Apart from this complication, one patient had anaesthetic-CO2 narcosis in TLH group. In VH group, one patient had vault haematoma in post-operative period which was managed conservatively. One patient of both groups required blood transfusion intraoperativly. There were no significant differences between the groups in terms of intraoperative and postoperative complications. Consistent results were shown in other series [6]. Patients in the TLH group in the current series trended toward a lower number of doses of analgesia but difference between two groups was not statistically significant. This reflects less post-operative pain in TLH group compared with VH group. The results of various other studies comparing TLH and VH were similar [11, 18, 19].

Issues such as pain score, patient satisfaction and return to work were not considered due to retrospective nature of the study. Other limitations of this study are lack of randomization and decreased sample size to study the rate of complications in the two groups. The financial implications of TLH vs. VH, as well as long-term differences in post-operative quality of life, urinary incontinence, and sexual function, require further study.

5. Conclusion

Total laparoscopic hysterectomy was as safe as vaginal hysterectomy and had advantages like shorter hospital stay and reduced analgesia dose. TLH also has other potential advantages. It may be performed in a wide variety of patients, including those with a large uterus, which would ordinarily require an abdominal approach for hysterectomy. It is also preferable for nulliparous patients or for those with limited vaginal access and the resulting challenges of VH. It facilitates removal of adnexa, either normal or pathological. Also, urinary bladder can be clearly visualized and adhesions can be identified and divided in cases of previous caesarean section.

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