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Research Article

Total laparoscopic hysterectomy versus vaginal hysterectomy: a retrospective study

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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 visualisation, less post-operative pain and shorter hospital stay. This study was done to compare the duration of surgery, intra-operative and postoperative complications, hospital stay and post-operative analgesia requirement in TLH and VH.
Methods: A retrospective study of women undergoing TLH and VH between June 2013 and September 2014 in JSS Hospital, Mysore was done. Patients with suspected genital malignancy and uterine prolapse were excluded. Baseline characteristics like age, BMI, parity, indication for hysterectomy, uterine size and previous pelvic surgeries were noted. Intra-operative and post-operative parameters like duration of surgery, complications, post-operative analgesic dosage and hospital stay were compared between the two surgeries and the results were analysed using Chi square test and independent t test.
Results: The mean time taken to perform TLH was significantly longer, i.e. 113.46 minutes compared with VH, i.e. 61.18 minutes ($p < 0.0001$). But the duration of stay in the hospital was shorter for the women undergoing TLH, mean duration being 3.74 days as opposed to 5.85 days in women undergoing VH ($p<0.0001$). Also, women undergoing VH required more analgesic doses (mean 1.79) than those undergoing TLH (mean 1.36). When we studied the rate of complications in both the groups, we found no statistically significant difference.
Conclusions: TLH was as safe as VH and had advantages like shorter hospital stay and reduced analgesia dose.

Keywords: Total laparoscopic hysterectomy, Vaginal hysterectomy, Hospital stay, Post-operative analgesia

INTRODUCTION

Hysterectomy is one of the most frequently performed surgical procedures in gynaecology.[1] It can be performed vaginally, abdominally, or with laparoscopic or robotic assistance.

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.[2]

Evidence demonstrates that, in general, vaginal hysterectomy is associated with better outcomes and fewer complications than laparoscopic assisted vaginal hysterectomy or abdominal hysterectomy. Old studies indicate that, when feasible, vaginal hysterectomy is the safest and cost - effective way to remove the uterus.[2]

As experience with total laparoscopic hysterectomy is increasing, gynaecologists have begun to debate the role of laparoscopic hysterectomy in women otherwise suitable for vaginal hysterectomy. The superiority of vaginal hysterectomy over laparoscopic hysterectomy, particularly, total laparoscopic hysterectomy, has begun to be challenged.[3]

When compared with vaginal hysterectomy, total laparoscopic hysterectomy facilitates better anatomical

views, allows performance of concomitant surgery, and is suitable for larger uteri and those with non – descent uterus, which may prove difficult to remove vaginally.[3]

This study was done to compare laparoscopic hysterectomy with vaginal hysterectomy in women with benign disorders and to see if laparoscopic hysterectomy had advantages over vaginal hysterectomy.

METHODS

Patients admitted in the Department of Obstetrics and Gynaecology at JSS Hospital, JSS University, Mysore, with an indication for vaginal hysterectomy or total laparoscopic hysterectomy for benign pathology from June 2013 to September 2014 were included in the study. Thirty nine patients who underwent total laparoscopic hysterectomy (TLH) were included in the TLH group and 34 patients who underwent vaginal hysterectomy (VH) were included in the VH group. The choice of surgery was made by the patients after discussion with their consultants.

Exclusion criteria were suspicion of malignancy and a vaginal prolapse higher than first degree. All the patients were evaluated for fitness for surgery. The vaginal hysterectomy was performed following Heaney's technique. The laparoscopic technique was always a total laparoscopic hysterectomy.

For each patient we recorded the baseline characteristics, including age; parity; previous caesarean section; other previous pelvic surgery; body mass index (BMI); uterine size and the indication for hysterectomy. Intra-operative parameters including conversion to laparotomy, time of surgery, complications – injury to bowel, bladder, ureter and postoperative parameters including hospital stay, infections, vault haematoma, DVT/ pulmonary embolism, vesicovaginal fistula and haemorrhage, if any, were recorded. Analgesic doses on the day of surgery were also recorded.

Prophylactic antibiotic was given to all patients at the beginning of the surgery and repeated 12 hours later. The data were analyzed using independent T test and chi square test. A p value of <0.05 was accepted as significant.

RESULTS

The mean age of women undergoing TLH was 45.69 years and for those in VH group it was 42.71 years and the difference was statistically significant. Women undergoing TLH had a higher BMI, i.e., 27.01kg/m2 compared with women undergoing VH, i.e., 23.80kg/m2 and this difference was statistically significant. However, neither age nor BMI had any impact on the parameters compared in this study (Table 1).

The difference in the size of the uterus between the two groups was also statistically significant. In the TLH group, the mean size of the uterus was 11.13 weeks whereas in VH group it was 8.71 weeks (Table 1).

Table 1: Baseline characteristics: age, BMI and uterine size.

	Group						
	TLH*			VH#			
	Mean	Standard Deviation	Median	Mean	Standard Deviation	Median	
Age (Years)	45.69	5.92	46.00	42.71	5.08	43.00	0.025
BMI (kg/m^2)	27.01	4.95	26.60	23.80	3.96	23.00	0.004
Uterine size (weeks)	11.13	4.85	10.00	8.71	3.03	8.00	0.014

*TLH: Total laparoscopic hysterectomy
#VH: Vaginal hysterectomy

There was no statistically significant difference in parity between the groups. There were more number of women with previous caesarean in TLH group compared to VH group but the difference was not statistically significant. None of the women in both the groups had undergone any other previous pelvic surgery other than caesarean section (Table 2).

The most common indication for hysterectomy was fibroid uterus in both the groups, among which 22 (56.4%) underwent TLH and 14 (41.2%) underwent VH. The next common indication was dysfunctional uterine bleeding, with 6 (15.4%) women undergoing TLH and 12 (35.3%) women undergoing VH for the same. Among women undergoing hysterectomy for adenomyosis, 6 (15.4%) underwent TLH and 7 (20.6%) underwent VH. Other indications were adnexal disease for which 2 women underwent TLH and endometrial hyperplasia for which 1woman underwent TLH (Table 2). The mean time taken to perform TLH was significantly longer, i.e. 113.46 minutes compared with VH, i.e. 61.18 minutes, with the p value being <0.0001.

Table 2: Baseline characteristics: Parity, indication, previous caesarean and previous pelvic surgery.

		Group				
		TLH* (39)		VH# (34)		
		n	%	n	%	p
Para	1.00	6	15.4	2	5.9	0.3
	2.00	22	56.4	20	58.8	
	3.00	7	17.9	9	26.5	
	4.00	3	7.7	1	2.9	
	5.00	0	.0	2	5.9	
	7.00	1	2.6	0	.0	
	No	33	84.6	33	97.1	
Previous_LSCS	Yes	6	15.4	1	2.9	0.1
	No	39	100.0	34	100.0	
Previous_Pelvic_Surgery	Yes	0	.0	0	.0	NA
	Fibroid Uterus	22	56.4	14	41.2	
Indication	Adenomyosis	6	15.4	7	20.6	0.23
	DUB@	6	15.4	12	35.3	
	Adnexal disease	2	5.1	0	.0	
	Endometrial hyperplasia	1	2.6	0	.0	
	Others	2	5.1	1	2.9	

*TLH: Total laparoscopic hysterectomy
#VH: Vaginal hysterectomy
@DUB: Dysfunctional uterine bleeding

Table 3: Intra-operative and post-operative parameters like operation time, hospital stay and analgesia dose required.

	Group						
	TLH*			VH#			
	Mean	SD	Median	Mean	SD	Median	p
Operation time (Hours)	113.46	44.34	105.00	61.18	29.59	60.00	<0.0001
Hospital stay (days)	3.74	1.33	4.00	5.85	1.05	6.00	<0.0001
Analgesia dosage	1.36	.49	1.00	1.79	.54	2.00	0.001

*TLH: Total laparoscopic hysterectomy
#VH: Vaginal hysterectomy

But the duration of stay in the hospital was shorter for the women undergoing TLH, mean duration being 3.74 days as opposed to 5.85 days in women undergoing VH. This difference was statistically significant with p value being <0.0001. Also women undergoing VH required more analgesic doses (mean 1.79) than those undergoing TLH (mean 1.36) and this difference was also statistically significant (Table 3).

When we studied the rate of complications in both the groups, we found no statistically significant differences. One woman undergoing VH had bladder injury which was recognised intraoperatively and repaired and another one had vault haematoma in post-operative period which was also managed conservatively. One woman in TLH group came to us with vesicovaginal fistula on post-operative day 14 and it was repaired by laparoscopy. Conversion to laparotomy was done in one case of VH

due to technical difficulty but all cases posted for TLH were completed by laparoscopy.

Table 4: Intra-operative and post- operative complications and conversion to laparotomy.

		Group				
		TLH* (39)		VH# (34)		
		n	%	N	%	P
Intra_op_complications	Nil	39	100.0	33	97.1	0.46
	Visceral injury	0	.0	1	2.9	
Conversion_to_laparotomy	Nil	39	100.0	33	97.1	0.46
	1	0	.0	1	2.9	
Post_op_complications	Infection	0	.0	0	.0	NA
	Vault hematoma	0	.0	1	2.9	
	Vesicovaginal fistula	1	2.6	0	.0	

*TLH: Total laparoscopic hysterectomy
#VH: Vaginal hysterectomy

DISCUSSION

In contemporary gynecological practice, it is recommended that, where possible, hysterectomy for benign indications should be approached vaginally.[4] But the studies which said that VH is superior to TLH, like the eVALuate study and the Cochrane review, had their own limitations.

In the eVALuate study, the trial comparing vaginal hysterectomy with laparoscopic hysterectomy was underpowered and was inconclusive on the rate of major complications but it stated that vaginal hysterectomy took less time.[5]

In the Cochrane review, no advantages of laparoscopic hysterectomy over vaginal hysterectomy could be found. Laparoscopic hysterectomies had a greater risk of damaging the bladder or ureter. Vaginal hysterectomy should be performed whenever possible. Where vaginal hysterectomy is not possible, both a laparoscopic approach and abdominal hysterectomy have their pros and cons and these should be incorporated in the decision-making process. However, the evidence in this review has to be interpreted with caution as adverse event rates were low, resulting in low power for this comparisons.[6]

From a technical point of view, laparoscopic approach benefits include high-definition imaging and vision amplification, allowing for an easier access to the uterine vessels, ureter, rectum and vagina.[7] Despite the initial controversy regarding laparoscopic approach-related complication rate, most recent studies are consensual and present TLH as a safe and first-line technique in multiple surgical scenarios, either benign or malignant.[7, 8, 9, 10]

In our study we 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 Mathew Morton et al.[2] This probably suggests that TLH may be more appropriate in these groups of patients.

When the time taken for surgery was calculated, we found an increase in the operative time for TLH compared with VH. This may be due to the increase in the size of the uterus in TLH group compared with VH group. Other studies comparing TLH with VH have also shown an increase in operative time in the TLH group compared to vaginal route.[2,11,12]

However, women in TLH group stayed in the hospital for a significantly lesser duration of time compared to those undergoing VH. The same is reflected in previous comparative studies also.[2,13,14] In the study done by V DaCosta et al they found that although not significantly different, patients in TLH group tended to spend on an average a shorter duration of time in hospital.[3]

In the study done by Mathew Morton et al,[2] they found that the incidence of intraoperative complications in both the TLH and VH groups appeared to be similar, especially in patients with a uterine mass of less than 300 g. Niel Johnson et al,[15] in their mata-analysis of randomised control trials of methods of hysterectomy found no significant differences in urinary tract injury for laparoscopic versus vaginal hysterectomy. Also, no significant differences were noted in long term complications like fistula formation. Even in our study the complications were rare and there was no significant difference in the rate of complications between the two groups. However, the sample size was not sufficient to analyse the incidence of complications.

There was no conversion to laparotomy in our study in the TLH group but one case in the VH group was converted to laparotomy. In the study done by Matthew Morton et al, one case in TLH group was converted to laparotomy. In the study done by V DaCosta et al,[3] none of the cases were converted to abdominal route. Rasha Gendy et al[14] 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.

There was a statistically significant difference in the number of analgesic dosages used in our study, with lesser number of analgesics given in TLH group compared with VH group. This reflects less post-operative pain in TLH group compared with VH group. The results of various other studies comparing TLH and VH are similar.[16-18] Raxita Patel et al[19] in their study found a statistically significant difference in pain scores between TLH and VH with patients in TLH having significantly lower pain scores. The study done by V DaCosta et al[3] showed no significant difference in the number of doses of analgesia consumed between the two groups.

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 visualised and adhesions can be identified and divided in cases of previous caesarean section.

CONCLUSIONS

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 randomisation 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.

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