

Original research article

Non-Descent Vaginal Hysterectomy Vs Total Laparoscopic Hysterectomy for Benign Gynaecological Conditions: A Comparative Study

Ishrath Fatima Bemat¹, Bemat Ilyas², Khan Amreen Kausar³,
Mohd Shafee Haneef⁴, Jawwad Hashmi⁵

¹Professor, Department of Obstetrics and Gynecology, JIIU's Indian Institute of Medical Science and Research Warudi, Tq Badnapur Dist. Jalna

²Associate Professor Department of Physiology JIIU's Indian Institute of Medical Science and Research Warudi, Tq Badnapur Dist. Jalna

³Senior Resident, Department of Obstetrics and Gynecology, JIIU's Indian Institute of Medical Science and Research Warudi, Tq Badnapur Dist. Jalna

⁴Professor, Department of Community Medicine, JIIU's Indian Institute of Medical Science and Research Warudi, Tq Badnapur Dist. Jalna

⁵Associate Professor, Department of Community Medicine, JIIU's Indian Institute of Medical Science and Research Warudi, Tq Badnapur Dist. Jalna

Corresponding author: Bemat Ilyas

Email : drbemat@gmail.com

ABSTRACT

Background: Hysterectomy is a common surgical procedure most commonly performed in the practice of gynaecology. Non-descent vaginal hysterectomy (NDVH), which is an art of gynaecological surgeons, has established its place in the gynaecological surgeries. Total laparoscopic hysterectomy (TLH) has a steep learning curve, requires modernized OT set-up including special endoscopic instruments and may not be available in all centres. Non-decent vaginal hysterectomy is a viable alternative in such a scenario. Hence these two surgeries have been compared in this study.

Methods: A total 50 patients undergoing hysterectomy for various benign indications, were included in this study. They were divided into two groups of 25 each. One group underwent TLH and the other NDVH. Demographic profile and other peri-operative events were compared and statistically analysed.

Results: NDVH group experienced more pain and required a greater number of analgesic doses. The intra-operative blood loss was more in NDVH group and duration of surgery was significantly higher in NDVH group. Two most common complications in the post operative period were fever and hematuria.

Conclusions: Both NDVH and TLH have good results in respect to benign gynaecological conditions. In a given scenario, the final decision will depend on a number of variables like human, financial and medical and availability of TLH.

Keywords: Hysterectomy, Non-descent vaginal hysterectomy, Total laparoscopic hysterectomy, Comparison, gynaecology

INTRODUCTION

Hysterectomy is the most common surgery performed in the field of gynaecology.¹ The route of hysterectomy is generally based on multiple factors like indication of surgery, size of the uterus, presence of other co-morbidities, individual surgeon's expertise, availability of equipments and preference. In India, the rate of hysterectomy is about 4-6% of adult Indian women out of which 90% are carried out for benign indications.²

Total laparoscopic hysterectomy (TLH) requires specialized equipment and cost involved is more compared to routine surgery. The advent of non-descent vaginal hysterectomy (NDVH) gave us another route of access and has become a competing alternative to abdominal hysterectomy for benign uterine pathology.

Initially gynecologists started laparoscopic hysterectomy as laparoscopic-assisted vaginal hysterectomy (LAVH) and subsequently after gaining more expertise switched over to TLH. Recent reviews have suggested that whenever feasible vaginal hysterectomy should be the operation of choice for gynaecologists. TLH, presently is considered a better alternative to abdominal hysterectomy.³

Total laparoscopic hysterectomy is a modern concept. It has a steep learning curve, requires modernized OT set-ups and special laparoscopic instruments which may not be available in all centers, more so in semi-urban and rural hospitals. Non decent vaginal hysterectomy is a viable alternative in such situations. Yet total laparoscopic hysterectomy is becoming popular because of its minimal invasiveness and overall better outcome. Keeping all these factors in mind we planned a study to comparing NDVH and TLH and evaluate their pros and cons.

Materials and Methods

The permission from head of institution and clearance from institutional ethics committee was obtained. This hospital based observational study was carried out at department of obstetrics and gynaecology, JIU's Indian Institute of Medical Science and Research, Warudi village, Badnapur Taluka, Dist. Jalna from March 2022 to August 2022. The sampling technique used was purposive sampling. Total 50 patients were selected for this study. Total 25 patients underwent NDVH and other 25 patients underwent TLH surgery.

The inclusion criteria for the study were patients posted for hysterectomy for benign gynaecological pathology. The exclusion criteria were uterine size more than 12 weeks, utero-vaginal prolapse, proven or suspected malignancy, broad ligament fibroid,

endometriosis, history of any previous major abdominal surgery, patient having co-morbidities like hypertension, diabetes mellitus, or any other major systemic disease.

Data was collected on a structured questionnaire including history taking, physical examination and necessary investigations including appropriate imaging studies were obtained from the case files. Informed consent was taken from all patients for the specific surgery. The preoperative preparation and post-operative management were as per laid down norms for the respective surgeries with Peglec bowel preparation being done for all TLH cases. All the cases were operated by primary investigator of this study.

The time of commencement of the operation for NDVH started from the moment of saline infiltration into the sub-vaginal tissue and for TLH starting time was incision on the port-site. The final closure of the vault was considered the end point for NDVH and the suturing of all the port-site incisions considered the end point of TLH.

The steps of TLH were as per standard protocol and the surgical steps carried out in NDVH were as per standard operative protocol.

Intra-operative data including the type of anaesthesia, duration of surgery, blood loss, and any complications during the surgery were noted from documents. Complications were divided into major and minor groups. The complications which were considered major in this study were organ (bowel, bladder, and ureter) injury, major haemorrhage with blood loss >500 ml or requiring blood transfusion. Minor complications were fever, urinary tract infection, respiratory tract infection, wound infection, and vault problems. Temperature $\geq 100^{\circ}\text{F}$ was taken as postoperative fever for the evaluation.

Blood loss during TLH was calculated by the difference between the volume of fluid introduced and the volume of fluid aspirated during the operation. For NDVH the estimation of blood loss was calculated by weighing surgical mops and gauze pieces before (dry state) and after (blood-soaked gauze and mops) the operation plus any blood collected in the suction bottle.

Postoperative pain was assessed during the first 24 hours after surgery using a visual analogue scale, from 0 for no pain to 10 for maximum pain. Using a ruler, the score was determined by measuring the distance in mm on the 10-centimetre line between the “no pain” anchor and the patient’s mark, providing a range of scores from 0 to 100mm. The following cut off points were considered: 0 to 4mm is no pain, 5 to 44 mm is mild pain, 45 to 74 mm is moderate pain, 75 to 90 mm is severe pain and 91 to 100mm is worst pain

Data were entered in EXCEL sheet, tabulated and analyzed by applying various statistical tests like for Quantitative data using mean and SD and Qualitative data by using proportions. Appropriate tests of statistical significance such as Chi-square, t-test and paired t-test were used.

Results

The mean age of the participants in the NDVH group was 50.7 (SD=8.09) years and for TLH 51.70 (7.36) years and hence there was no statistically significant difference ($P= 0.6496$) between the two groups. All patients resided in rural area and according BG Prasad scale all patients belong to low socioeconomic class.

In the present study, all participants in the NDVH group received regional anaesthesia and whereas in TLH group, all participants received general anaesthesia.

Table 1: Distribution of participants based on indication as per FIGO classification of AUB in NDVH and TLH group.

Indication	NDVH		TLH	
	No.	Percentage	No.	Percentage
AUB-A	6	12%	6	12%
AUB-L	8	16%	9	18%
AUB-M	5	10%	4	8%
AUB-O	4	8%	3	6%
AUB-P	2	4%	3	6%
Total	25	50%	25	50%

Table no.1 shows that AUB-L was the most common indication for hysterectomy in both NDVH and TLH groups (16% and 18%) followed by AUB-A, AUB-M, AUB-O and AUB-P.

Table 2: Intra-Operative complications in NDVH Vs TLH

Type of Surgery	Complication		Total
	Present	Absent	
NDVH	1 (2%)	24 (48%)	25 (50%)
TLH	4 (8%)	21 (42%)	25 (50%)
Total	5 (10%)	45 (90%)	50 (100%)

Fisher exact Test, $P= 0.3487$

Three patients with bladder injury and one with bleeding were common intraoperative complication in TLH group as compared to one patient with bleeding in NDVH group but this difference was not significant statistically.

Table 3: Post-operative complications in NDVH Vs TLH

Type of Surgery	Complication		Total
	Present	Absent	
NDVH	4 (8%)	21 (42%)	25 (50%)
TLH	6 (12%)	19 (38%)	25 (50%)
Total	5 (10%)	45 (90%)	50 (100%)

Fisher exact Test, P= 0.7252

Six (4 fever and 2 hematuria) patients in TLH group and four (3 fever and 1 hematuria) patients in NDVH group were present in postoperatively. This difference was not significant statistically.

Table 4: Comparison of variables between NDVH and TLH

Variable	Group	Mean	SD	T value	P Value
Duration of hospital stay	NDVH	7.32	1.36	3.54886	0.00095
	TLH	5.65	1.92		
Duration of Surgery	NDVH	1.91	0.52	2.13933	0.03872
	TLH	1.48	0.86		
Intraoperative blood loss	NDVH	296.25	61.25	3.75075	0.000522
	TLH	215.31	89.12		
No. of Analgesic doses	NDVH	7.20	1.83	1.81991	0.07515
	TLH	6.32	1.58		

Table no. 4 shows the mean duration of hospital stay in NDVH group was 7.32 (SD=1.36) days and that in TLH 5.65 (SD= 1.92) days. This higher duration of hospital stay in NDVH was a statistically significant difference (P= 0.00095). There was statistically significant difference in duration of surgery between the groups (1.91 hours Vs 1.48 hours, P= 0.03872). The mean value of intra-operative blood loss in the NDVH group was more compared to TLH and the difference was statistically significant (P= 0.000522). The mean number of analgesic doses per patient in the NDVH group was 7.2 and in TLH group was 6.32. The difference between the groups was not statistically significant (P= 0.07515).

Table 5: Comparison of VAS score for pain in NDVH and TLH groups

Variable		NDVH		TLH	
		No.	Percentage	No.	Percentage
VAS Score	Mild	7	14	8	16
	Moderate	9	18	11	22
	Severe	6	12	4	8
	Worst	3	06	2	4
	Total	25	50	25	50

Chi Square=0.8667, Degrees of Freedom=3, P= 0.8335

Table no. 5 shows there was no statistically significant difference in VAS score between the groups.

Discussion

In our study, the commonest indication for surgery in both the NDVH and TLH groups, was leiomyoma consisting of total 34% cases. This finding is similar to study done by Ekanayake CD et al.⁴ Patel et al⁵ also reported Leiomyoma and DUB were the most common indications

of hysterectomy in the TLH group and DUB as most common indication in the NDVH group similar to study done by Khandelwal et al.⁶

The major intra-operative complications in our study were three patients with bladder injury and one with bleeding in TLH group as compared to one patient with bleeding in NDVH group. This difference was not found to be significant statistically. Ekanayake CD⁴ et al reported bladder injuries, internal bleeding and serosal rectal injury as major complication in NDVH group and ureteric injury with ureterovaginal fistula in the TLH group. Study by Aratipalli et al⁷ also reported that, bladder injury was reported in 2% cases each in NDVH group and in TLH group.

In our study, post operative complications found were, 4 patients had fever and 2 patients had hematuria in TLH group and 3 patients had fever and 1 had hematuria in NDVH group. This difference was also not significant statistically. Postoperative complications noticed in our studies [such as Ekanayake⁴ and Lee et al⁸] were hematuria, febrile morbidity, wound infection and analgesic requirement. Sarada Murali et al⁹ also reported one case of pelvic abscess and post-op ileus in two cases of laparoscopic hysterectomy.

In NDVH group 18% patients had severe to worst pain, whereas in TLH group 12% patients had severe to worst pain. However, there was no statistically significant difference in VAS score for Pain between the groups in our study. Similar other studies done by Chattopadhyay et al¹⁰ and Patel et al⁵ have reported that patients who underwent TLH had significantly lower post-operative pain compared to patients undergoing NDVH, which was statistically significant.

In our study there was a statistically significant difference in the mean duration of hospital stay between two Groups which was 7.32 (SD=1.36) days in NDVH and 5.65 (SD= 1.92) days in TLH group. Study done by Bhatt et al¹¹ reported average duration of hospital stay in NDVH group was 6.13 days and 5.60 days in the TLH group and the difference was statistically significant. Similar finding is also reported by Ekanayake⁴. Candiani et al¹², also concluded that laparoscopic hysterectomy results in the shorter hospital stay.

There was also a statistically significant difference in duration of surgery between the groups (1.91 hours in NDVH Vs 1.48 hours in TLH, P= 0.03872). This is similar to study done by Fuzayel et al¹³. However, study done by Ekanayake⁴ shows statistically significant difference between that the mean duration of surgery in NDVH and in TLH.

The mean value of intra-operative blood loss in the NDVH group was more compared to TLH and the difference was statistically significant (P= 0.000522). Other similar studies done by Nagar et al¹⁴ and Murali te al⁹ also show statistically significant more blood loss in TLH as compared to NDVH.¹⁵

In our study, mean number of analgesic doses per patient in the NDVH group was 7.2 and in TLH group was 6.32 and this difference between the groups was not statistically significant ($P= 0.07515$).

CONCLUSION

NDVH and TLH are becoming more prevalent. By and large both these surgeries are comparable though each of them has its own pros and cons. Intraoperative blood loss, postoperative pain and duration of hospital stay were all more in the NDVH group. NDVH also has the advantage of being more affordable for the economically challenged sections without compromising on efficacy or safety. The drawbacks of TLH include more incidence of organ injuries like bladder injury, longer operating time and being highly equipment dependant. At the end, the choice of surgery is situational. It will depend upon the nature of the pathology, availability of resources, skills of the surgeon and most importantly the desire of the patient.

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