ORIGINAL ARTICLE

Diagnosis Based Technique of Hysterectomy: Comparison among Laparoscopic and Nondescent Vaginal Hysterectomy

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Abstract

Objectives and background: The objectives of this investigation encompass the indications prompting uterine removal for various medical reasons. The current inquiry systematically examines the factors influencing the decision for hysterectomies and subsequently reports the corresponding clinical outcomes. The primary aim is to conduct a comparative analysis of clinical results between two methods of hysterectomy, namely total laparoscopic hysterectomy (TLH) and nondescent vaginal hysterectomy (NDVH).

Materials and methods: This comparative study, conducted in a Tertiary Care Center, meticulously considers crucial intraoperative parameters, such as operating time, blood loss attributable to the procedure, and bladder/bowel injury, as well as pain scores assessed by the visual analogue scale (VAS), in conjunction with the duration of hospital stay. Statistical analyses include the application of the Chi-square test and other fundamental statistical procedures.

Results: With an average age of 46 years, it was observed that the time required for performing TLH was significantly shorter than NDVH. Similar trends were identified in parameters such as blood loss, and postoperative pain scores at the 3rd hour, 1st day, and 2nd day. The total hospital stay (in days) for NDVH was notably longer compared to TLH.

Discussion: The findings of the present study suggest that under optimal conditions, including suitable facilities, surgical expertise, and proper indications, TLH could be considered the preferred route for hysterectomy. Conversely, in a developing nation like India, NDVH offers a distinct advantage, especially when considering the specific indications for surgery, making it the preferred route for benign uterine conditions.

Conclusion: The study concludes that the choice of the hysterectomy route may be contingent upon the specific circumstances of the procedural location.

Clinical significance: The decision regarding the appropriate route for the operation can be made with careful consideration of the factors elucidated in this study.

Keywords: Cesarean section, Hysterectomy, Nondescent vaginal hysterectomy, Obstetrics, Total laparoscopic hysterectomy.

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Introduction

Hysterectomy, the surgical removal of the uterus, stands as the second most prevalent major surgical procedure among females following cesarean section.[1–3] This procedure is indicated for various conditions such as symptomatic uterine leiomyomas (51.4%), abnormal uterine bleeding (41.7%), endometriosis (30%), and prolapse uterus (18.2%). Numerous factors influence the choice of hysterectomy route for benign causes, including uterine factors, surgical technique availability, and surgeon proficiency.[4] Historically, the vaginal route was primarily employed for uterine prolapse, but contemporary practice extends its use to benign uterine conditions like abnormal uterine bleeding and fibroids with a nondescent uterus (Fig. 1).

Although abdominal hysterectomy offers shorter operating times, it has been associated with prolonged hospital stays, delayed return to normal activity, substantial drop in hemoglobin levels, increased intraoperative blood loss, and higher rates of wound or abdominal wall infections. Despite evidence favoring vaginal hysterectomy when clinically appropriate, guidelines, such as those by ACOG 2017, suggest the vaginal route is most suitable for women with mobile uteri no larger than 12 weeks gestational age (approximately 280 gm). The guidelines recognize that the choice of approach should be based on surgical indication, anatomical conditions, patient preference, and surgeon expertise (Fig. 2).[5–7]

Since the introduction of total laparoscopic hysterectomy (TLH) in 1989, minimal access surgery has gained prominence for treating various gynecological conditions. This study comprehensively reviews considerations for hysterectomies and reports outcomes.

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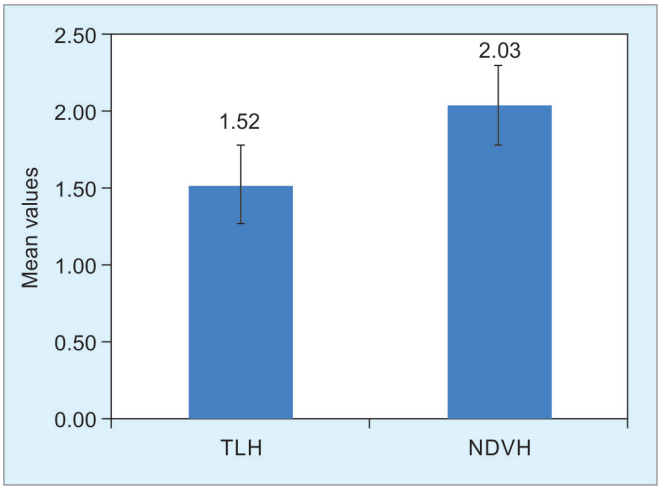

Fig. 1: Figure showing comparison of operative time (in hours) between TLH and NDVH ($n = 88$)

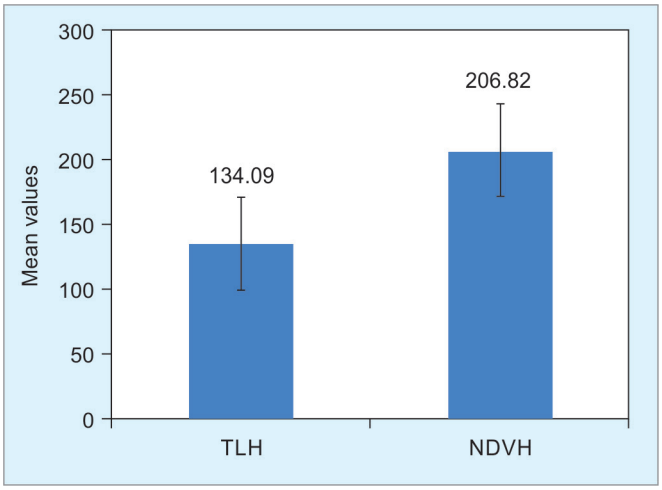

Fig. 2: Figure showing comparison of blood loss (mL) between TLH and NDVH

Table 1: Table showing comparison of operative time (in hours) between TLH and NDVH ($n = 88$)

	TLH (n = 44)	*NDVH (n = 44)*	*Total*	*p-value*
Operative time (in hours)				
Mean ± SD	1.52 ± 0.4	2.03 ± 0.43	1.77 ± 0.49	<0.0001*
Median (25th–75th percentile)	1.5 (1.25–1.5)	2 (1.75–2.5)	1.62 (1.5–2)	
Range	1–3	1.5–3	1–3	
Blood loss (mL)				
Mean ± SD	134.09 ± 37	206.82 ± 60.61	170.45 ± 61.88	<0.0001*
Median (25th–75th percentile)	150 (100–150)	200 (187.5–250)	150 (100–200)	
Range	100–200	100–400	100–400	
Postoperative pain score				
At 3rd hour				
Mean ± SD	2.09 ± 0.36	2.66 ± 0.75	2.38 ± 0.65	<0.0001*
Median (25th–75th percentile)	2 (2–2)	2.5 (2–3)	2 (2–3)	
Range	1–3	2–4	1–4	
At 1st day				
Mean ± SD	1.75 ± 0.44	2.16 ± 0.53	1.95 ± 0.52	0.0002*
Median (25th–75th percentile)	2 (1.75–2)	2 (2–2)	2 (2–2)	
Range	1–2	1–3	1–3	
At 2nd day				
Mean ± SD	1.75 ± 0.44	2 ± 0	1.88 ± 0.33	0.0005*
Median (25th–75th percentile)	2 (1.75–2)	2 (2–2)	2 (2–2)	
Range	1–2	2–2	1–2	
Total hospital stays (days)				
2 days	3 (6.82%)	0 (0%)	3 (3.41%)	<0.0001†
3 days	39 (88.64%)	4 (9.09%)	43 (48.86%)	
4 days	0 (0%)	40 (90.91%)	40 (45.45%)	
>1 week	2 (4.55%)	0 (0%)	2 (2.27%)	
Mean ± SD	3.18 ± 1.24	3.91 ± 0.29	3.55 ± 0.97	0.0003*
Median (25th–75th percentile)	3 (3–3)	4 (4–4)	3 (3–4)	
Range	2–10	3–4	2–10	

*Independent *t*-test; †Fisher's exact test

It evaluates the safety and benefits of TLH and nondescent vaginal hysterectomy (NDVH) within the constraints of a government healthcare setup at a tertiary-level institute in India.[8–11]

The objective is to compare the results of TLH and NDVH concerning intraoperative parameters, postoperative outcomes, and patient comfort (Table 1).

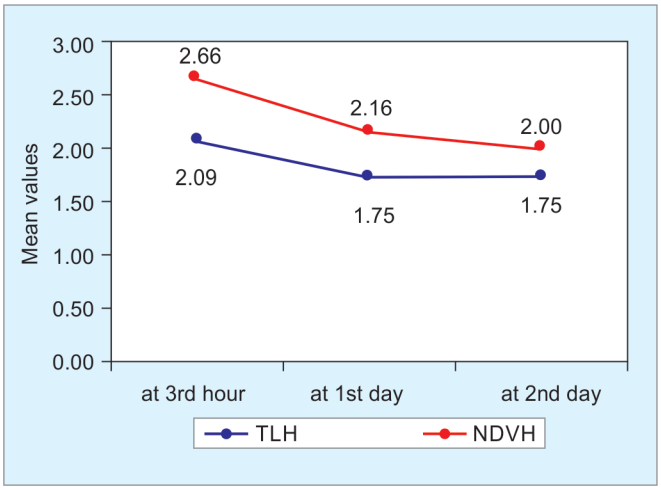

Fig. 3: Figure showing comparison of trend of postoperative pain score at different time intervals between TLH and NDVH

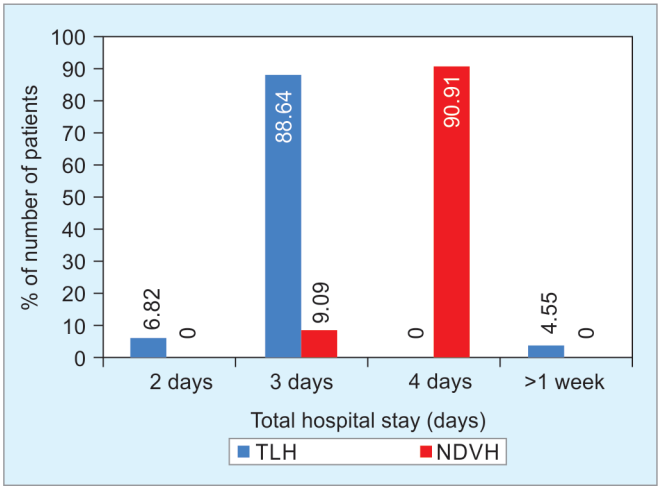

Fig. 4: Figure showing comparison of total hospital stay (days) between TLH and NDVH

Materials and Methods

This prospective study spanned 2 years (September 2019 to October 2021) at IGMC, Nagpur, Maharashtra, India. About 44 participants were enrolled in each group, TLH, and NDVH, meeting inclusion criteria for benign uterine conditions, uterus size <12 weeks, age between 30 and 70 years, and mobile uterus. Exclusion criteria included gynecological malignancy, previous cesarean section, endometriosis, prolapsed uterus, and BMI >35 kg/m^2. Ethical approval was obtained, and written informed consent was obtained from participants (Fig. 3).[12]

Participants were randomly assigned to TLH or NDVH, and intraoperative and postoperative parameters were compared, including operating time, blood loss, bladder/bowel injury, febrile morbidity, urinary tract infections, analgesia requirement, pain score [assessed by visual analogue scale (VAS)], and hospital stay. Statistical analysis employed the Chi-square test (Fig. 4).[13–15]

Results

The study involved 88 participants with an average age of 46.44 ± 4.78 years. Total laparoscopic hysterectomy demonstrated significantly shorter operating times (1.52 ± 0.4 hours) compared to NDVH (2.03 ± 0.43 hours) ($p < 0.0001$). Nondescent vaginal hysterectomy exhibited significantly higher blood loss (206.82 ± 60.61 mL) compared to TLH (134.09 ± 37 mL) ($p < 0.0001$). Total laparoscopic hysterectomy resulted in lower postoperative pain scores and a shorter hospital stay compared to NDVH ($p = 0.0003$).

Discussion

Hysterectomy can be performed through various approaches, each tailored to specific requirements and surgical indications. Total laparoscopic hysterectomy demonstrated shorter operating times in this study, aligning with similar findings in the literature. However, TLH presented higher postoperative complications, a longer learning curve, and increased equipment costs.

Conclusion

The study suggests that TLH may be the preferred route for hysterectomy when setup, facilities, surgical expertise, and patient indication align. Nondescent vaginal hysterectomy, with its advantages of minimal intraoperative manipulation, better postoperative comfort, and faster recovery, is a viable option, particularly in resource-limited settings.

Clinical Significance

Total laparoscopic hysterectomy and NDVH offer distinct advantages based on the clinical context. Total laparoscopic hysterectomy may be favored in well-equipped settings, while NDVH stands as a preferable option in resource-limited environments for benign uterine conditions.

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