Hysterectomy by Vaginal Natural Orifice Transluminal Endoscopic Surgery (VNOTES) vs Total Laparoscopic Hysterectomy for Benign Indications: Preliminary Data from a Retrospective Cohort Study

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Introduction

Hysterectomies performed laparoscopically have greatly increased within the last few decades and exceed the number of vaginal hysterectomies. In fact, the laparoscopic approach affords the benefit of less postoperative discomfort, shorter hospital stays, and quicker recovery. The emergence of NOTES (Natural orifice transluminal endoscopic surgery) for gynecologic surgeries began in 2012 when Ahn et al. first demonstrated its feasibility and safety. Subsequently, many authors have published their experiences with vNOTES in a series of gynecologic procedures,

Problem Statement

The aim of this study is to compare the vNOTES hysterectomy with the total laparoscopic hysterectomy (TLH) in terms of surgical complications, operative time, length of hospital stay, estimated blood loss and conversion rate.

Methods

Retrospective cohort study.

The woman undergoing hysterectomy for benign diseases by vNOTES and TLH from January 2023 to August 2024 at BronxCare Hospital were retrospectively analyzed.

Results

From January 2023 to August 2024, we analyzed 23 women who underwent vNOTES and 25 women who underwent TLH.

There were no statistically significant differences in age, BMI, smoking, parity, and preoperative hemoglobin level between the two groups. However, the patients in the TLH group had a significant number of previous abdominal surgeries vs the patients in the vNOTES group (17 patients in the vNOTES vs 22 patients in the TLH group, $p< 0.05$) (table 1).

Moreover, no statistically significant differences were found in terms of postoperative complications, conversion rate, blood transfusion, and hospital stay. However, from the preliminary analysis, the mean operative times were 191.3 ($\pm$39.2) in the vNOTES group and 248 ($\pm$ 62.3) in the laparoscopic hysterectomy group ($p<0.05$). Nonetheless, the indications for surgery in the two groups were mainly different, as shows in Table 2. Also, even if the mean estimated blood loss (EBL) in the 2 groups were comparable (110$\pm$71.5 in the vNOTES vs 194$\pm$232.4 in the TLH group $p=0.010$), a statistically significant difference was found in the level of the hemoglobin drop post-operative (1.2$\pm$0.6 in the vNOTES group vs 1.7$\pm$0.9 in the TLH group). (Table 2)

	TLH	Vnotes	T test
Age (Mean±SD)	56 ± 4.2	58± 3.8	
BMI (Mean±SD)	30.7± 6.1	28.6±5.6	0.22
Smoking (%)	3 (12%)	5 (20%)	
Menopausal (%)	17 (73%)	19 (76%)	
Parity (Mean±SD)	1.5 ± 2	1.3 ± 2	
N of previous surgery[1] (n, %)	22 (88%)	17 (74%)	<0.05
Pre-op Hb (Mean±SD)	11.6±1.8	12.5±1.2	0.06

	TLH	Vnotes	T test
Peri-operative complication n (%)	2 (8%)	1 (4%)	0.24
Post-operative complications n (%)	0	0	-
Estimated Blood loss ,ml (mean ± SD)	194 ±232.4	110±71.5	0.10
Duration min (mean ± SD)	248 ±62.3	191.3 ±39.2	<0.05
Hgb post-op[1], mg/dl (mean ± SD)	10.6 ± 1.7	11.3 ±1.1	0.11
Hgb drop, mg/dl (mean ± SD)	1.7 ±0.9	1.2 ±0.6	<0.05
Hospital stay, N of days (n, %)			0.21
1 day	18 (72%)	20 (87%)	
2 days	4 (16%)	2 (8.7%)	
≥ 3 days	3 (12%)	1 (4.3%)	
Blood transfusion, n (%)	2 (8%)	1 (4%)	0.24
Conversion rate n (%)	0	0	-
Indications for surgery, n (%)			
AUB	20 (80%)	16 (73%)	0.48
Fibroid/Bulk symptoms	9 (36%)	15 (68%)	<0.05
Pelvic pain	6 (24%)	3 (14%)	0.06
PMB	3 (12%)	1 (4%)	0.09
>2 symptoms	12 (48%)	19 (86%)	<0.05

Conclusion

Our preliminary data showed that the early operative outcomes of vNOTES hysterectomy were comparable to those of the TLH group. Additionally, vNOTES had significantly lower values for operation time and change in hemoglobin in postoperative day 1. There were no significant differences in intra- and postoperative complications. Randomized controlled trials are needed to evaluate whether Vaginal Natural Orifice Endoscopic Hysterectomy is superior to standard laparoscopic hysterectomy.

References

S. Housmans, A. Stuart, J. Bosteels, J. Deprest, and J. Baekelandt, "Standardized 10- Step Approach for Successfully Performing a Hysterectomy via Vaginal Natural Orifice Transluminal Endoscopic Surgery," *Acta Obstetricia et Gynecologica Scandinavica* 101, no. 6 (2022): 649–656.