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Vaginal Hysterectomy using Bipolar Vessel Sealing System VS Total Laparoscopic Hysterectomy for benign diseases of uterus.

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Abstract

Objective: To compare outcomes of vaginal and abdominal hysterectomy procedures in women with benign gynaecological diseases.

Material and Methods: This was a prospective study of outcomes of consecutive patients who underwent total vaginal hysterectomy (VH) or abdominal hysterectomy (AH) for benign gynaecological diseases. Patient characteristics before, during, and after the operations were reviewed. Patients were followed up for three months to evaluate postoperative complications.

Results: Mean procedure time in suture group was 71.37min whereas in sealer group it was 34.9 min. Mean blood loss in suture group (159.4ml) versus sealer group (82.97ml). Mean pain score on Visual Analogue Scale showed significant difference in POD 0,1,2 and thereafter, did not differ significantly. Mean length of stay was 7.13days (suture group) versus 5.13 days (sealer group). Complication rate did not differ significantly. Results: Mean procedure time in suture group was 71.37min whereas in sealer group it was 34.9 min. Mean blood loss in suture group (159.4ml) versus sealer group (82.97ml). Mean pain score on Visual Analogue Scale showed significant difference in POD 0,1,2 and thereafter, did not differ significantly. Mean length of stay was 7.13days (suture group) versus 5.13 days (sealer group). Complication rate did not differ significantly.

Conclusion: The route and procedure of Hysterectomy will depend on various factors, however NDVH with BIPVSS has certain advantage over TLH as it takes lesser times, lesser blood loss and gives similar pain experience if not better than TLH.

Keywords: Vaginal Hysterectomy, POD, NDVH, TLH

Introduction

While hysterectomy continues to be one of the most common gynecological surgeries used for benign disease of uterus, technological advancement and improved surgical skills are making their pathway to increase the efficiency and efficacy of the procedure. This has encouraged Gynecologists to perform minimally invasive surgery even for non-prolapse indications and thus Total Laparoscopic Hysterectomy (TLH), Robotic Hysterectomy (RH) and Non-descent Vaginal Hysterectomy (NDVH) have started to gain popularity among the surgeons. Based on surgical indications and other factors TLH is a better alternative of abdominal hysterectomy however it requires specialized setup, high-end equipment, skilled and trained surgeons and thus becomes an expensive affair which could not be afforded by many patients in South Africa. NDVH on the other hand can be performed with minimal invasion and provides easy access to the ligaments for surgeons to become a good alternative of abdominal hysterectomy and a cost-effective alternative of TLH. The efficiency and efficacy the NDVH could further be increased with the usage of latest instruments like Bipolar Vessel Sealing System to minimize the intraoperative time, intraoperative blood loss and postoperative pain experience.

Harry Reich performed the first TLH in 1988, being one of the most renowned vaginal surgeons claimed vaginal route to be the first choice of approach for hysterectomy. In the modern world vaginal hysterectomy could be performed either with the usage of clamps and ligation of pedicles or with the use of various energy sources ie. Electrosurgical unit, harmonic device and laser to coagulate and cut the tissue. Bipolar Vessel Sealing System is an electrosurgery unit used for sealing blood vessels of the size up to 7mm in diameter and thus effective for sealing uterine artery (size - approximately 2mm). It compresses, coagulates and seals the vessel using bipolar electrothermal energy. Lateral thermal spread of Bip VSS is only up to 2.5mm and thus chances of thermal injury in Ureter, Bowel and Pelvic tissues are minimal.

The main objective of this study is to compare the surgical outcomes of Non-Descent Vaginal Hysterectomy using Bipolar Vessel Sealing System and Total Laparoscopic Hysterectomy with reference to Intra operative time, Intraoperative blood loss, Postoperative pain.

Materials And Methods

50 patients who underwent Non-descent Vaginal Hysterectomy and 50 patients that underwent Total Laparoscopic hysterectomy were included in the Study after taking detailed history and performing general and systemic examinations. Malignancy was ruled out using clinical examination, Paps smear and/or endometrial and endocervical biopsy. Pre-anesthetic fitness was taken prior to surgery. Data collection variables included demographic variables (Age Parity and Surgical indication)); and variables pertaining to intra-operative (Blood Loss and Intra-Operative Time) and post-operative pain.

Study participants included patients above the age of 35 years having benign diseases of uterus like fibroid, endometrial and endocervical polyps, adenomyosis, Dysfunctional uterine bleeding and chronic pelvic inflammatory disease. Patients of abnormal uterine bleeding not responding to medical management for ≥ 6 months, patients with uterine size on per-vaginal examination ≤12 weeks and patients with previous history of tubectomy done for female sterilization were also included in the study.

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Study participants having Uterine size >12 weeks, Narrow subpubic angle, Restricted Uterine mobility, Complex/simple adnexal cyst ≥ 5 cm, Uterovaginal prolapse, Suspicion of genital malignancy were excluded from the study. Patients requiring additional surgical procedures in addition to hysterectomy, patients with history of previous abdominal surgeries, patients with history of Abdominal Koch's and patients not giving consent for the mode of surgery were also excluded from the study.

All cases of Non-descent Vaginal Hysterectomy using Bipolar vessel sealing system were done under spinal and epidural anesthesia. After Lithotomy position cleaning and draping was done, cervix was held with Vulsellum, and circular incision was taken around the cervix. Pub vesical ligament was cut to push up the bladder and pouch of Douglas was open posteriorly. Cardinal ligaments, uterosacral ligaments and Uterine artery were cut after clamping and coagulating with Bipolar vessel sealing system. Uterine myomectomy, debulking and bisection were performed on case-to-case basis. Uterus was delivered by clamping, coagulating, and cutting the round ligament, infundibular pelvic ligament, tubo ovarian ligament using Bipolar vessel sealing system. Vaginal vault was closed using continuous interlocking suture. All cases of Total Laparoscopic Hysterectomy were done under general anesthesia using standard operative techniques. Same electrothermal energy source was used in both NDVH with Bip VSS and TLH.

Primary outcome measures included statistically significant differences in the operating time, intra operative blood loss, post-operative pain after 24 and 48 hours of surgery and post-operative comp locations between the two groups (TLH & NDVH). Operating time was calculated as the time taken from skin incision to placement of last abdominal or vaginal closure sutures. Estimated blood loss was calculated on the basis of weight of the final mops counts and blood in suction apparatus. Post-operative pain after 24 and 48 hours of surgery was scaled according to Visual Analog Scale of 0-10 to measure mild, moderate, and severe pain.

Statistical Analysis

Data collected was entered in Microsoft excel 7, then data was analysed using SPSS (Statistical Package for Social Sciences) 20.0 software package. Categorical variables have been expressed as the numbers of cases and percentage value. Independent T test and Chi Square test were applied and p-value of <0.05 was considered statistically significant.

Results

Table 1: Demographic Indications factor for surgery

Indication for surgery	% of patients
Benign	
Menorrhagia/failed conservative management	23.9
Cervical intra-epithelial neoplasia (CIN)	11.7
Endometriosis / Chronic Pelvic Pain	7.8
Uterovaginal Prolapse	6.3
Endometrial Hyperplasia	4.8
Other benign indications	3.4
Malignant	
Endometrial carcinoma	36.5
Cervical Carcinoma	5.3

As mentioned in Table 1, the demographic constituent of both the study group was comparable where more than half of the patients in both study group was between 41 to 50 years. Patients within the age range of 30 to 40 years were between 12% and 14% in NDVH and TLH groups respectively. There were 26% patients between the age group of 51-60 in NDVH group while 30% of the patients were o 51-60 age group in TLH study group.

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6% patients were above the age of 61 years in both the study groups.

Table 2: Mean Operative Time Procedure

Mean Operative Time (Minutes)	NDVH using Bipolar Vessel Sealing System (n=50)	TLH (n=50)
0-40	44 (88%)	00 (00%)
41-80	06 (12%)	04 (08%)
81-120	00 (00%)	24 (48%)
>120	00 (00%)	16 (32%)
	00 (00%)	06 (12%)
Independent t Test was applied, t Value = (-16.42605) p Value = <0.00001, Result – Statistical Highly Significant		

As shown in Table 2, NDVH using Bipolar vessel sealing system was completed in 40 minutes for 88% of the patients while took little longer to complete within 80 minutes for 12% of the patients. TLH surgery took more than 2 hours for most of the patients (86%) and was completed within 2 hours for 14% of the patients in TLH group.

Table 3: Mean Intraoperative Blood Loss in ML

Mean Intraoperative Blood Loss (ml)	NDVH using Bipolar Vessel Sealing System (n=50)	TLH (n=50)
<30	27 (54%)	00 (00%)
30-60	13 (26%)	08 (16%)
60-90	08 (16%)	28 (56%)
90-120	01 (02%)	10 (20%)
>120	01 (02%)	04 (08%)
Independent t Test was applied,t Value = (-9.4508) p Value = <0.00001, Result – Statistical Highly Significant		

As stated in Table 3, blood loss for more than half of the patients in NDVH using Bipolar vessel sealing system group (54%) was less than 30 ml while all the patients in TLH group had more than 30ml of blood loss. 30-60 ml of blood loss was observed in 26% patients of NDVH group and in 40% patients of TLH group.16% patients of NDVH group and 50% patients of TLH group had a blood loss between 60ml to 90ml. 2% patients of NDVH group and 4% patients of TLH group had more than 120 ml of blood loss. The mean intraoperative blood loss in this study for NDVH with BIPVSS group has been 41.7ml and 89.24 ml for TLH group.

Figure 1: Uterosacral ligament coagulated using BiClamp

Discussion

Conventional Vaginal Hysterectomy is still the procedure used by most gynecologist for benign disease of uterus as it is affordable, safe and less time-consuming procedure in comparison to Total Laparoscopic Hysterectomy but it is associated with more intraoperative blood loss and postoperative pain. With the advancement of electrosurgical instruments, it has now become even more effective as it has further reduced the operative time, blood loss and postoperative pain in NDVH.

Conclusion

The route and procedure of Hysterectomy will depend on various factors like surgical indication, surgical setup, surgeon's preference and even patients' preference,

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NDVH with BIPVSS has certain advantage over TLH as it takes lesser times, causes lesser blood loss and gives similar pain experience if not better than TLH.

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