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Original Research Article

## Study of route of hysterectomy

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### ABSTRACT

**Background:** The objective is to study complication rate, advantages and outcome of different route of hysterectomy. **Methods:** A prospective study of 175 women over a period of 1 year i.e. from 01/01/2011 to 31/12/2011 SSG hospital, Vadodara. Depending on the patient profile, experience of surgeon optimum route of hysterectomy was decided.

**Results** mean operating time in AH group was  $68.4 \pm 14.4$  min, which was  $80 \pm 10.3$  min,  $115.8 \pm 40.6$  min and  $148.8 \pm 25.5$  min in NDVH, LAVH and TLH group respectively. TLH was performed by consultants. Febrile morbidity was significantly high in AH (23%). Bladder and ureteral injuries were seen in 4% and 3% cases of NDVH and AH group. Wound complications were seen in AH (10%), whereas vault complications were higher in TLH. The hospital stay was shortest in TLH. Women with TLH had early ambulation, early resumption to normal diet, early return to routine work and better sexual function.

**Conclusions:** Women with excessively enlarged uteri, significant pelvic pathology, or cancer are obvious candidates for AH. On the other hand, VH is frequently chosen for the small uterus in a multiparous woman with a large pelvis and no prior pelvic inflammatory disease or surgery. Although TLH, LAVH have significantly lower complication rate than AH, but overall cost is higher owing to the high operating room charges. The final selection of hysterectomy route should be based on surgeon's experience and indication for surgery.

**Keywords:** Abdominal hysterectomy, LAVH, NDVH, TLH

### INTRODUCTION

Hysterectomy is the second most common operation performed on women after Caesarean Section worldwide.<sup>1</sup> In India, the incidence of hysterectomy is about 4-6% of adult Indian women out of which 90% are performed for benign indications.<sup>2</sup> In India approximately 2,310,263 women undergo hysterectomy every year.<sup>3</sup>

While hysterectomy is one of the most frequently performed operations in Gynecology, how to perform it abdominally, vaginally, or laparoscopically is less evidence. Since certain aspects of postoperative morbidity are related to the route for hysterectomy, the

surgeon must individualize the approach for each patient and not rely on a dogmatic assignment of technique. Generally, the abdominal route is used when extensive intraperitoneal surgery and/or exploration are required in addition to the hysterectomy, i.e., in cases of pelvic organ carcinoma. A combination of uterine morcellation techniques to accomplish a vaginal hysterectomy can be used. Most hysterectomies currently requiring an abdominal route may be performed with laparoscopic dissection in part or all of abdominal portion followed by removal of uterus vaginally. Recent reviews have suggested that whenever feasible vaginal hysterectomy should be preferred over total abdominal hysterectomy and when vaginal hysterectomy is not possible, total

laparoscopic hysterectomy is the approach of choice.<sup>4</sup> As experience with TLH increases, gynaecologists have begun to debate the role of TLH in women otherwise suitable for VH.<sup>4</sup> It is a general consensus that vaginal hysterectomy is considered the gold standard compared to total laparoscopic hysterectomy.<sup>5</sup>

There are many surgical advantages to laparoscopy, particularly magnification of anatomy and pathology, easy access to the vagina and rectum, and the ability to achieve complete haemostasis. There are multiple advantages such as avoidance of painful abdominal incision, reduced duration of hospitalization and recovery and extremely low rate of infection. The goal of vaginal hysterectomy, LAVH or TLH is to safely avoid an abdominal wall incision, with resultant benefits. Thus, Abdominal hysterectomy should be done less frequently worldwide because LH can be used effectively to accomplish a less invasive laparoscopic or vaginal hysterectomy in most cases.<sup>6,7</sup> Laparoscopic cuff suspension may limit future vault prolapse.

The reason for the hysterectomy, risk and benefit of the procedure, alternatives and expectation for the outcome should be discussed with the woman in detail. Informed consent with thorough exploration of patient preferences and expectation is particularly important. The vast majority is without problems, but there is serious complication in about 1 in 1000.<sup>8</sup>

## METHODS

This study involves a prospective analytical review and compares abdominal hysterectomy (AH), non-descent vaginal hysterectomy (NDVH), laparoscopic assisted vaginal hysterectomy (LAVH) and total laparoscopic hysterectomy (TLH). Total of 175 women were included in this study over a period of 1 year i.e. from 01/01/2011 to 31/12/2011. This study was done at SSG hospital, Vadodara.

Depending on the patient profile, experience of surgeon optimum route of hysterectomy was decided. 100 women were enrolled in AH group, 25 women each in NDVH, LAVH and TLH groups. All patients were thoroughly examined and investigated, and malignancies were excluded by Pap smear and or D and C. All patients were observed minutely during pre-operative, intra operative and post-operative period for any complications. Cases of benign diseases of the uterus not responding to medical management for at least 6 months and requiring hysterectomy were selected for this study.

Diseases included were: fibroid and polyps, adenomyosis, endometriosis, dysfunctional uterine bleeding, age >30 years, having at least 1 child. Investigations for pre-anesthetic check-up which includes complete hemogram, liver function test, kidney function test (urea, creatinine), fasting and postprandial sugar levels, serology which includes Hepatitis B surface antigen and HIV screening

test, chest X-ray and ECG 12 leads were done. Thyroid profile and 2D echocardiography were done where ever applicable depending on the patient profile.

Ambulation time was measured in terms of hours from the time the patient was shifted to bed after surgery till she started walking. Duration of hospital stay was measured as number of days from day from admission up to the day of discharge. Complications like febrile illness, UTI, urinary retention after removal of catheter, pelvic hematoma or vaginal cuff infection were recorded for each case.

Patients were followed up at 1 month in gynecology OPD to note: Number of days required since OT to resume professional activities, presence of rectal or vaginal fistula, vault complications like vault prolapse, urinary complications like incontinence, chronic lower abdominal pain. The outcome for each surgical procedure was analyzed by statistical methods e.g. tabulation, proportion and percentage and mean.

## RESULTS

A total of 175 patients were included in the study. 100 women were enrolled in AH group, 25 women each in NDVH, LAVH and TLH groups. Patient characteristics are shown in Table 1. Patient age and body weight did not differ significantly between groups. Nulliparous women were operated abdominally (10%).

**Table 1: Women profile in study population.**

	AH	NDVH	LAVH	TLH
Mean age (years)	46	44	41	42
Nulliparous (%)	10 (10%)	00	00	00
Prior 1 cesarean section (%)	13 (13%)	03 (12%)	05 (20%)	02 (8%)
Prior ≥2 cesarean section (%)	07 (7%)	00	03 (12%)	01 (4%)
Obese (%)	08 (8%)	02 (8%)	02 (8%)	03 (12%)

**Table 2: Pathology in study population.**

	AH	NDVH	LAVH	TLH
Fibroid (%)	46 (46%)	10 (10%)	15 (60%)	07 (28%)
PID (%)	05 (5%)	00	02 (8%)	01 (4%)
Ovarian pathology (%)	15 (15%)	00	00	02 (8%)
DUB (%)	20 (20%)	05 (20%)	05 (20%)	08 (32%)
Adenomyosis (%)	14 (14%)	10 (40%)	03 (12%)	07 (28%)

The primary indication in AH and LAVH group was fibroid (46% in AH and 60% in LAVH). Uterus size >12weeks were operated abdominally. The main indication in TLH group was DUB (32%), followed by adenomyosis (28%) and fibroid (28%) as shown in Table 2. Table 3 shows that TLH was performed by senior consultants only, whereas majority of cases in LAVH (88%), NDVH (68%) were also performed by senior consultants. Assistant professors performed 50% of total surgeries in AH group, whereas, residents did 30% surgeries in AH group, followed by 8% in NDVH group.

**Table 3: Operating surgeon in study population.**

Operating surgeon	AH	NDVH	LAVH	TLH
Senior consultants and head of unit	20 (20%)	17 (68%)	22 (88%)	25 (100%)
Assistant Prof	50 (50%)	06 (24%)	03 (12%)	00
Residents	30 (30%)	02 (8%)	00	00

Febrile morbidity was significantly high in AH group (23% in AH versus 12% and 4% in NDVH and LAVH group). 19% cases of AH group required blood transfusion, followed by 8% in NDVH and 4% in LAVH and TLH group. Bladder and ureteral injuries were seen in 4% and 3% cases of NDVH and AH group. Wound complications were seen only in AH group (10%), whereas vault complications were higher in TLH group (Table 4).

**Table 4: Intra operative complications in study population.**

	AH	NDVH	LAVH	TLH
Febrile morbidity (%)	23 (23%)	03 (12%)	01 (4%)	00
Required transfusion (%)	19 (19%)	02 (8%)	01 (4%)	01 (4%)
Bladder, bowel or ureteral injury (%)	03 (3%)	01 (4%)	00	00
Wound complications	10 (10%)	00	00	00
Vault complications	02 (2%)	01 (4%)	01 (4%)	02 (8%)

Table 5 shows most of the women (80%) in TLH group walked normally without support within 24 hours (40% in LAVH vs 24% in NDVH). 88% cases in TLH group had normal diet within 24 hours of surgery; whereas, 80%, 56% and 36% cases resumed normal diet in LAVH, NDVH and AH groups respectively. 92% cases in TLH group could do normal routine activities within 7 days (84%, 60% and 38% in LAVH, NDVH and AH groups respectively). Sexual quality function was better in TLH

group (96% cases resumed sexual activities within 3weeks)

**Table 5: Recovery in study population.**

	AH	NDVH	LAVH	TLH
Ambulation within 24hours (%)	00	06 (24%)	10 (40%)	20 (80%)
Removal of catheter within 24hours (%)	40 (40%)	16 (64%)	18 (72%)	22 (88%)
Resumption of normal diet within 24hours (%)	36 (36%)	14 (56%)	20 (80%)	22 (88%)
Resumption of routine activities within 1 week	38 (38%)	15 (60%)	21 (84%)	23 (92%)
Resumption of sexual activities within 3 weeks	00	12 (48%)	13 (52%)	24 (96%)

## DISCUSSION

The mean age in present study is 46, 44, 41 and 42 years in AH, NDVH, LAVH and TLH groups. In a study conducted by L. Benassi et al who did a prospective, randomized study, 60 vaginal hysterectomies (study group) were compared with 59 abdominal hysterectomies (control group). There were no major differences in patient age, weight, parity, and uterine weight between the two groups.<sup>9</sup> Another study by Asnafi N, et al comparing the complications of vaginal versus abdominal hysterectomy also concurred with similar results with the mean age of the patients who had undergone vaginal hysterectomy was 58.5±12 years for vaginal hysterectomy and 44.69±7.9 years for abdominal hysterectomy.<sup>10</sup> The route of hysterectomy is guided by the surgical indication for hysterectomy, patient anatomy, data that support the selected procedure, informed patient preference, and the surgeon's expertise.<sup>11</sup> The common indications for traditional VH include good uterine activity, volume of uterus equivalent to less than 12 weeks' gestation, no history of pelvic surgery, normal adnexa, wide maternal pelvis, and no other an aesthetic or surgical contraindications. In this study, VH was performed in patients with uterine size equivalent to 8-16 weeks, and was associated with less operation time, less intraoperative blood loss and better postoperative outcomes compared with AH. In present study 19% cases of AH group required blood transfusion, followed by 8% in NDVH and 4% in LAVH and TLH group. Bladder and ureteral injuries were seen in 4% and 3% cases of NDVH and AH group respectively. Wound

complications were seen only in AH group (10%), whereas vault complications were higher in TLH group. In a study conducted by Zhu Lan the amount of blood loss in the TVH group was less than in the LAVH and TAH groups ( $P < 0.05$ ).<sup>12</sup> Christopher and Bernard et al carried out a 5-year retrospective study of 503 women who underwent TLH.<sup>13</sup> The results reported were mean uterine size 11 cm (5-17) mean operating time was 133 min, mean blood loss 309 ml, 23 women (4.5 %) had major complication like conversion to laparotomy, excessive bleeding, ureteric injury, bowel injury, and pulmonary embolism. A comprehensive and systematic review compared AH and VH with laparoscopic hysterectomy and assessed their potential beneficial and adverse effects in women with benign gynecological conditions.<sup>11</sup> Compared with AH, the beneficial effects of VH included shorter time to normal activities, fewer febrile episodes or unspecified infections, shorter duration of hospital stay, lower intraoperative blood loss, and fewer wound or abdominal wall infections.<sup>11</sup> In addition, fewer febrile episodes or unspecified infection and shorter operation time were noticed in LAVH procedures compared with TLH procedures. Operation time and bleeding are increased in TLH as compared with LAVH.<sup>14</sup> TLH is associated with greater safety, efficacy, and improvement in the patient quality of life compared to total AH in women with benign gynecological diseases.<sup>15</sup> TLH has been regarded as a more cost-effective procedure, and has several advantages over total AH, such as smaller incision, less postoperative pain, shorter hospital stays, faster recovery time and less serious complications.<sup>15</sup> One study comparing cost of operation between abdominal hysterectomy and LAVH showed significantly lower average operation cost in abdominal hysterectomy (\$10,511) than that in LAVH (\$12,814) a difference of \$2303.<sup>16</sup>

## CONCLUSION

Women with excessively enlarged uteri, significant pelvic pathology, or cancer are obvious candidates for AH. On the other hand, VH is frequently chosen for the small uterus in a multiparous woman with a large pelvis and no prior pelvic inflammatory disease or surgery. Although TLH, LAVH have significantly lower complication rate than AH, but overall cost is higher owing to the high operating room charges. Ultimately, the final selection of hysterectomy route should be based on the surgeon's experience, the indication for surgery, and the patient's anatomy.

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