

Comparative study of non-decent vaginal hysterectomy with abdominal hysterectomy

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Abstract

Introduction: Hysterectomies are carried out to treat many uterine conditions, and are performed by two principal routes i.e. abdominal and vaginal. However even after many studies, the best route of performing hysterectomy is not clear.

Aim: To compare the complications of vaginal and abdominal hysterectomies in treating non-prolapsed cases with good uterine mobility and uterine size less than 12 weeks.

Materials and Methods: We carried a prospective, randomized controlled trial on 80 patients requiring hysterectomy for benign diseases at ESI College, Sanathnagar, Hyderabad, Telangana State from May 2016 to September 2017. The sample was categorized into Group A (n=40) in whom non descent vaginal hysterectomy and Group B (n=40) in whom abdominal hysterectomy was performed. The primary outcome measures compared were time of operation, blood loss, post-operative pain, duration in hospital, febrile morbidity and postoperative systemic infections.

Results: We found comparable baseline features in both the groups. Mean time of operation, blood loss intra-operatively, was more in Group B (69.82 ± 8.15 minutes, 235 ± 46.89 ml) when compared to Group A (48.36 ± 1.47 minutes, 115 ± 41.35 ml) respectively. Non descent vaginal hysterectomy group showed faster recovery, shorter hospital stay, lesser operative and postoperative morbidity compared to abdominal route.

Conclusion: In patients requiring hysterectomy for benign non prolapsed cases, vaginal route may be preferred as it is less invasive, with minimal or no complications, more economical and effective.

Keywords: Abdominal hysterectomy, Gynaecology, Intra-operative complications, Non descent vaginal hysterectomy, Postoperative outcome.

Introduction

Hysterectomy is one of the commonest procedures performed by gynecologists, after caesarean section. It is the removal of either all or a portion of the uterus.^{1,2} It is carried out by vaginal, abdominal, laparoscopic or robot assisted ways. Charles Clay (1843) was first to carry on an abdominal hysterectomy, whereas Soranus of Ephesus (120 AD) was first to carry on a vaginal hysterectomy.^{3,4}

Traditional Abdominal Hysterectomy (TAH) and Non Decent Vaginal Hysterectomies (NDVH) correspond to the most and least invasive techniques of hysterectomy respectively. However most gynaecologists prefer abdominal route, as it offers advantages of ease to perform and convenience, due to large abdominal incision. As laparoscopic route needs added operating time and has more chances of occurrence of intra-operative injuries, this route is not favoured.⁵⁻⁷

Recently vaginal hysterectomy is favoured over abdominal hysterectomy due to the morbidity related with abdominal incisions like infection, evisceration, discomfort and scarring. American College of Obstetricians and Gynecologists (ACOG) in 1990 set up various guidelines regarding hysterectomy routes and stated that vaginal hysterectomy is to be carried out in women with mobile uteri, no larger than one at 12 weeks gestation.^{8,9}

We carried our study to assess the most competent route of hysterectomy in women with mobile nonprolapsed uteri of 12 weeks or lesser by comparing the intra and postoperative complications of vaginal and abdominal hysterectomies.

Materials and Methods

We carried a prospective, randomized controlled trial on 80 patients requiring hysterectomy for benign diseases at ESI College, Sanathnagar, Hyderabad, Telangana State from May 2016 to September 2017. After obtaining institutional ethical committee approval and informed consent from all the patients, the sample was categorized into two groups, Group A (n=40) in whom non descent vaginal hysterectomy and Group B (n=40) in whom abdominal hysterectomy was performed. A detailed history was taken and general and systemic examination was performed.

Inclusion criteria:

1. Uterine size up to 12 weeks of gestation
2. Non prolapsed uterus

Exclusion Criteria:

1. Uterine size of more than 12 weeks
2. Complex ovarian cyst (or >8 cm)
3. Any degree of uterine descent
4. Restricted mobility of uterus
5. Suspicion of genital malignancy
6. Any existing significant bleeding diathesis.

Investigations like ultrasound scanning of abdomen and pelvis, haemogram, blood grouping, urine analysis, liver function tests, Chest X Ray, HIV, HBs Ag and pap smear were carried out in all the patients.

Procedure

Abdominal Hysterectomy: Pfannenstiel incision was given, then abdomen was opened layer wise, then with the help of Kocher's clamps, uterus was elevated out of the pelvis. Bilateral clamps were then applied to the round and tubo-ovarian ligaments, cut and ligated. Uterovesical fold was then opened and bladder was mobilized to the lowest limit of cervix. Then clamps were applied to the uterine artery and mackenrod's - uterosacral ligaments bilaterally, clamped, cut and transfixed. Uterus was delivered out and vault closure was done. Closure of abdomen was done after obtaining haemostasis.¹⁰

Vaginal Hysterectomy: Labial sutures were given and bladder evacuation was done. Transverse incision was done on anterior vaginal wall after holding the cervix with vulsellum. Then the incision was deepened to reach pubo-vesicocervical ligament and incised.

Pushing the bladder up with steady traction, uterovesical peritoneum was visualized and incised after pushing the bladder upwards. After opening the Pouch of Douglas, bilateral Mackenrod's-Uterosacral ligaments, uterine artery and fundal structures were clamped, cut and transfixed.¹¹

Duration of operation was considered to be the time from incision to the end of the procedure. Intraoperative blood loss, was measured by weight of swab, considering 9mg weight difference equal to 1 ml blood loss. Temperature was gauged and charted 4 hourly. Febrile Morbidity was defined as temperature of 38°C on 2 occasions with 4 hours apart, excluding the first postoperative day. Total number of days of analgesic requirement was also noted. Various parameters recorded were intra-operative blood loss and injuries, postoperative pain, blood transfusion, febrile morbidity, infections and hospital stay.

The data was statistically analyzed with SPSS 20 using chi-square test and t-test and p-value was determined.

Results

When the age of the sample was recorded, we found that most of the patients were between 41 and 45 years, with a statistically insignificant ($P=0.0625$) difference between the groups.

Table 1: Age distribution

Age in years	Abdominal Hysterectomy		Vaginal Hysterectomy		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
30-35	2	5	5	12.5	7	8.75
36-40	10	25	11	27.5	21	26.25
41-45	14	35	16	40	30	37.5
46-50	11	27.5	6	15	17	21.25
> 50	3	7.5	2	5	5	6.25
Total	40		40		80	
Group	Mean Age		Standard Deviation		P value	
Abdominal Hysterectomy	41.35		5.852		0.0625	
Vaginal Hysterectomy	38.86		5.931			

In respect to parity, most of the patients were P3 followed by P4 and the difference between both the groups was statistically insignificant. Fibroids was the commonest indication of hysterectomy (64% cases of TAH and 56% cases of NDVH). Second common indication was DUB in both groups (22% cases of TAH and 36% cases of NDVH). Adenomyosis was the indication in 10% and 6 % cases of TAH and NDVH respectively. Endometrial polyp was the indication in 4% and 2 % cases of TAH and NDVH respectively. In one case of NDVH, post-menopausal bleeding was the indication (Table 2).

Table 2: Distribution of cases according to indications of surgery

Indication for Hysterectomy	Abdominal Hysterectomy		Vaginal Hysterectomy		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Fibroids	28	70	23	57.5	51	63.75
DUB	8	20	10	25	18	22.5
Adenomyosis	3	7.5	2	5	5	6.25
endometrial polyp	1	2.5	4	10	5	6.25

Post-menopausal bleeding	0	0	1	2.5	1	1.25
Total	40		40		80	

The mean blood loss in TAH and NDVH was 235 ± 46.89 ml and 115 ± 41.35 ml respectively, with statistically significant ($p < 0.001$) difference (Table 3).

Table 3: Type of operation and blood loss

Quantity of blood (ml)	Abdominal Hysterectomy		Vaginal Hysterectomy		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
50-100	0	0	17	42.5	17	21.25
100-150	0	0	20	50	20	25
150-200	14	35	2	5	16	20
> 200	26	65	1	2.5	27	33.75
Total	40		40		80	

Duration of operation for TAH and NDVH was 153.82 ± 38.15 minutes and 108.36 ± 31.47 minutes respectively with statistically significant (p value < 0.0001) difference (Table 4).

Table 4: Duration of operation

Time in Minutes	Abdominal Hysterectomy		Vaginal Hysterectomy		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
0-60	0	0	5	12.5	5	6.25
60-120	7	17.5	28	70	35	43.75
>120	33	82.5	7	17.5	40	50
Total	40		40		80	

The postoperative complications like UTI, fever and wound gaping were only seen in the TAH group (Table 5).

Table 5: Postoperative Complications

Complications	Abdominal Hysterectomy		Vaginal Hysterectomy		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
UTI	6	15	0	0	6	7.5
Fever	4	10	0	0	4	5
Gaping on wound	2	5	0	0	2	2.5
1 unit PRBC	3	7.5	1	2.5	4	5
Bladder Injury	0	0	1	2.5	1	1.25
No Complications	25	62.5	38	95	63	78.75

Pain score (VAS) was recorded on day 3 and was found to be between 0-3 in 62.5% patients in vaginal group which was statistically significant compared to abdominal group in which VAS was between 6-10 in 90% cases (p value < 0.05). The hospital stay or discharge period was 0-4 days in 82.5% cases in vaginal group compared to 4-7 days in 85% in abdominal group which showed statistical significance (p value < 0.05) (Table 6).

Table 6: Distribution of cases according to post operative hospital stay

Number of Days	Abdominal Hysterectomy		Vaginal Hysterectomy		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
0-4	0	0	33	82.5	33	41.25
4-7	34	85	7	17.5	41	51.25
>7	6	15	0	0	6	7.5
Total	40		40		80	

Discussion

Hysterectomy by vaginal route is considered as least invasive one of all the routes, as it utilizes an

anatomical orifice. Factors favouring NDVH are mobile uterus with usual size, large pelvis which allows

manipulation, a single, large easily reachable fibroid and experience of the gynecologist.^{5,6}

In this study, we found a statistically significant reduction in blood loss, reduced operation time, postoperative pain, febrile morbidity and duration of hospital stay in the patients who underwent vaginal route of treatment in comparison to the abdominal route.

In our study most of the patients were between 41 and 45 years of age. However, Chandrakar et al (2016) found that most of their patients were between 40-49 years.⁸

We found mean operating time for TAH as 153.82 ± 38.15 minutes and in NDVH, it was 108.36 ± 31.47 minutes. Chandrakar et al (2016) found that the mean duration of surgery in NDVH group was 86.3 minutes and mean duration of surgery in TAH group was 106.4 minutes.⁸ Whereas Rathindra Nath Ray et al (2015) found it being 66.32 and 72.88 minutes in NDVH and TAH groups respectively.⁹

We found the mean blood loss in TAH to be 235 ± 46.89 ml and in NDVH it was 115 ± 41.35 ml. Chandrakar et al (2016) found that the mean blood loss in NDVH group as 171.32 ml and mean blood loss in the TAH group was 210.45 ml.⁸ Whereas Pradeep Kumar Garg et al (2002) found the mean blood loss in the NDVH and TAH groups as 286 and 310 ml respectively, the difference being statistically insignificant.¹² Rathindra Nath Ray et al (2015) found that the mean blood loss in NDVH to be 127.64 ml and the mean blood loss in TAH to be 216.16 ml.⁹ Dewan Rupali et al (2004) found that mean blood loss for NDVH group was 290 ml.¹³ Singh Abha et al (2006) showed that the blood loss between the groups as statistically significant with p value 0.001.¹⁴

Pain score (VAS) was recorded on day 3 and it was found to be between 0-3 in 62.5% patients in vaginal group which was statistically significant compared to abdominal group in which VAS was between 6-10 in 90 % cases. Chandrakar et al (2016) found that the mean pain score in NDVH group was 1.32 and mean pain score in TAH group to be 5.04, the difference being statistically significant.⁸ Rathindra Nath Ray et al (2015) found that the mean pain score in NDVH to be 2.88 and the mean pain score in TAH was 6.48.⁹ Our findings are also in agreement with Pradeep Kumar Garg et al (2002), S. Taylor et al (1996) as well as Dewan Rupali et al (2004).^{12,13,15}

The duration of hospital stay or discharge period in our study was 0-4 days in 82.5% cases in vaginal group compared to 4-7 days in 85 % in abdominal group. Chandrakar et al (2016) found that duration of hospital stay was less in NDVH group (p<0.001).⁸ Rathindra Nath Ray et al (2015) also found similar results with hospital time in TAH and NDVH group to be 9.92 and 7.90 days respectively.⁹

Kumar et al (2004) also compared both the groups and stated that vaginal route of hysterectomy is a safe

and successful route in uteri whose size is less than 12 weeks.¹⁶ S Taylor et al (1996), Garg et al (2002) and Mc Cracken et al (2006), Nieboer et al (2009), Rathindra Nath Ray et al (2015), Dhivya Balakrishnan and Gharphalia Dibyajyoti (2016), Deshpande et al (2016) also found similar results.^{2, 4, 9, 15, 17-19}

Limitations

Our study has certain limitations which include

1. Low sample size
2. This is a single hospital based study and cannot be correlated with general population.
3. Long term postoperative effects were not taken into consideration.

Conclusion

Our study showed that vaginal hysterectomies have advantages like less morbidity, shorter duration of hospital stay in comparison to abdominal hysterectomies. Hence we suggest that wherever possible vaginal route must be the choice of hysterectomy.

References

1. Goswami D et al. Non-descent vaginal hysterectomy versus total abdominal hysterectomy in fibroid uterus: a comparative study in tertiary care hospital in Uttarakhand, India. *Int J Reprod Contracept Obstet Gynecol.* 2016 Aug;5(8):2718-22.
2. Dhivya Balakrishnan and Gharphalia Dibyajyoti. A Comparison Between Non-Descent Vaginal Hysterectomy and Total Abdominal Hysterectomy. *Journal of Clinical and Diagnostic Research.* 2016 Jan, Vol-10 (1):QC11-QC14.
3. DeFrances CJ, Hall MJ. 2005 National Hospital Discharge Survey. *Adv Data.* 2007;385:1-19.
4. Deshpande et al. A Comparative Study of Abdominal Versus Non Descent Vaginal Hysterectomy. *International Journal of Contemporary Medical Research.* 2016;3(4):1153-6.
5. Richardson RE, Bournas N, Magos AL. Is laparoscopic hysterectomy a waste of time? *Lancet.* 1995;345:36-41.
6. ACOG Committee Opinion. Number 311, April 2005. Appropriate use of laparoscopically assisted vaginal hysterectomy. *Obstet Gynecol.* 2005;105:929-30.
7. Mehta K et al. Comparative study of abdominal hysterectomy and vaginal hysterectomy in non-descent cases a prospective study. *Int J Reprod Contracept Obstet Gynecol.* 2017 Apr;6(4):1265-70.
8. Chandrakar K, Singh N, Charla S. Comparative study on non descent vaginal hysterectomy verses abdominal hysterectomy for benign uterine conditions. *Int J Med Res Rev* 2016;4(11):2071-6.
9. Rathindra Nath Ray, Samir Roy, Shovondeb Kalapahar, Chiranjit Ghosh, Prosenjit Das. A Comparative Study of Non Descent Vaginal Hysterectomy with Abdominal Hysterectomy in relation with Morbidity and Outcome in Dysfunctional Uterine Bleeding Patients. *Int.J.Curr.Microbiol.App.Sci* 2015;4(3):327-33.
10. Te Linde's Operative Gynaecology, Tenth Edition – Abdominal Hysterectomy, pg:733-9.
11. Te Linde's Operative Gynaecology, Tenth Edition – Vaginal Hysterectomy, pg:745- 55.

12. Garg PK, Deka D, Malhotra N. Non-descent vaginal hysterectomy for Benign Condition. A better proposition than abdominal hysterectomy. *Obst & Gynaec Today*. 2002;7(6):345-46.
13. Dewan Rupali, Agarwal Suivani, Manisha, Minocha Bharti, Sen Soumendra K, Non-descent vaginal hysterectomy – An experience, *J. Obstet. Gynecol. Ind*. 2004;54(4):376-8.
14. Singh Abha. Vaginal hysterectomy for nonprolapsed uterus. *Obstet Gynecol India*, 2006;56(2):152-5.
15. Taylor S, Romero A, Qualls C, Rogers R. Abdominal hysterectomy for the enlarged myomatous uterus compared with vaginal hysterectomy with morcellation. *The American Journal of Obstetricians and Gynecologist*. 1996;162:994-8.
16. Sushil K, Antony ZK. Vaginal hysterectomy for benign nonprolapsed uterus. Initial Experience. *J Obstet Gynaecol Ind*. 2004;54(1):60-3.
17. Garg PK, Deka D, Malhotra N. Non-descent vaginal hysterectomy for Benign Condition. A better proposition than abdominal hysterectomy. *Obst & Gynaec Today*. 2002;7(6):345-46.
18. Mc Cracken G, Hunter D, Morgan D, Price JH. Comparison of laparoscopic – assisted vaginal hysterectomy, total abdominal hysterectomy and vaginal hysterectomy. *Ulster Med J*. 2006;75(1):54-8.
19. Nieboer TE, Johnson N, Lethaby A, Tavender E, Curr E, Garry R, et al. Surgical approach to hysterectomy for benign gynaecological disease. *Cochrane Database Syst Rev*. 2009;(3):CD003677.