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A comparative study between laparoscopic assisted vaginal hysterectomy (LAVH) vs. non descent vaginal hysterectomy (NDVH) in patients with benign gynecological pathology

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Abstract
Objective: To find out the intraoperative and postoperative complications associated with Laparoscopic assisted vaginal hysterectomy and Non descent vaginal hysterectomy.
Design: Prospective observational study.
Methods: A prospective observational study was undertaken in patients undergoing Laparoscopic assisted vaginal hysterectomy and Non descent vaginal hysterectomy in patients with benign gynecological pathology.
Results: Operating time was lesser in Non descent vaginal hysterectomy group. Operating time was (87.36+/- 16.32 minutes in Laparoscopic assisted vaginal hysterectomy and 67.38+/-16.77 minutes in Non descent vaginal hysterectomy p-value =0.001). Intraoperative blood loss was significantly less in Non descent vaginal hysterectomy group (269.85+/-103.85ml in Laparoscopic assisted vaginal hysterectomy group and 219.05+/-84.37 ml in Non descent vaginal hysterectomy group p-value =0.026). Postoperative pain was also less in women undergoing Non descent vaginal hysterectomy group. Pain score was in the immediate postoperative period was 7.04+/- 0.46 in the Laparoscopic assisted vaginal hysterectomy group and 6.12+/-0.72 in the Non descent vaginal hysterectomy group (p-value=0.001). Complications like bladder hematoma and paralytic ileus were seen was seen only in Laparoscopic hysterectomy.
Funding: No funding received for the study.
Conclusion: Non descent vaginal hysterectomy should be the preferred route of hysterectomy in benign Gynaecological pathology.

Keywords: Hysterectomy, Non descent vaginal hysterectomy

Introduction
Hysterectomy is one the common surgeries performed globally. Most of them were done for benign indications [1]. Abdominal hysterectomy is associated with more operating time and postoperative morbidity. Less invasive methods like Laparoscopic assisted hysterectomy and Non descent vaginal hysterectomies are associated with shorter operating time and postoperative morbidity [2, 3, 4]. There are no definite criteria to select the route of hysterectomy for benign gynaecological conditions. The route is often decided by personal preferences, size of uterus and associated conditions like adhesions etc [5]. We did a prospective observational study among patients who underwent Laparoscopic assisted vaginal hysterectomy and Non descent vaginal hysterectomy to find out the intraoperative and postoperative complications.

Materials and Methods
A prospective observational study was undertaken at a tertiary care institution. The study was conducted between December 2015 and December 2016. The study was conducted on patients undergoing Laparoscopic assisted vaginal hysterectomy (LAVH) and Non descent vaginal hysterectomy (NDVH). NDVH is defined as a vaginal hysterectomy which is performed when there is no descent of cervix on clinical examination. Informed consent was taken from all patients before surgery. Only cases with uterine size less than 12 weeks were considered in the study. All the surgeries were performed by the principal Author Dr Jayaraman Nambiar M.Non descent vaginal hysterectomy was performed in a standard manner. No saline infiltration was used in the study. After making a circular incision around the cervix, vaginal walls were reflected and both uterovesical fold of peritoneum and Pouch of Douglas opened. Vaginal hysterectomy was done in a standard manner after the division of uterosacral, transverse cervical

ligaments, Uterine A and upper pedicles. All the stumps were ligated with No 1 Vicryl. In the Laparoscopic assisted vaginal hysterectomy group only upper pedicles were ligated laparoscopically. Bipolar cautery was used in the division of upper pedicles. Uterine Artery, uterosacral and transverse cervical ligaments were ligated vaginally. The vaginal vault was closed vaginally in both groups. Vault suspension was done by attaching uterosacral ligaments to vaginal vault before closure of vaginal vault. Operating time and blood loss during surgery was calculated. Hemoglobin estimation was done preoperatively and 24 hours after surgery and the difference in hemoglobin values calculated. Post-operative pain was calculated on a visual analogue scale during the immediate postoperative period and 24 hours after surgery. On the visual analogue scale, a score of 0 meant no pain at all, 10 suggested a worst unbearable pain. The score of 1 to 9 suggested increasing degree of severity (figure 1). Statistical package for the social science (SPSS-16) was used for statistical compilation and analysis. For statistical analysis of difference between the two groups, Independent T test, Chi-square test were used. Statistical significance was accepted at p value <0.05.

Results

Majority of patients undergoing hysterectomy belonged to 41-50 years of age (Figure 2). Most common indication for Hysterectomy was fibroid uterus (Table 1). Six patients in Laparoscopic assisted vaginal hysterectomy group and 5 patients in Non descent vaginal hysterectomy group had previous LSCS. Mean operating time and blood loss was significantly lower in Non descent vaginal hysterectomy group. When ovaries need to be removed Laparoscopic assisted route was chosen, however in a few cases ovaries could be removed in the Non descent vaginal hysterectomy group. Post-operative complications like paralytic ileus and bladder wall hematoma were seen in few patients undergoing Laparoscopic assisted vaginal hysterectomy. (Table 2). Postoperative pain in the immediate postoperative period and the first post-operative day was significantly less in the patients who underwent Non descent vaginal hysterectomy (Table 3).

Discussion

Studies suggest that Laparoscopic assisted hysterectomy or vaginal hysterectomy is associated with fewer problems compared to abdominal hysterectomy [6]. Vaginal hysterectomy must be the choice of hysterectomy whenever possible. Our study showed Non descent vaginal hysterectomy is associated with lesser problems when compared with Laparoscopic assisted vaginal hysterectomy. The operating time, blood loss and post operating pain was significantly less in the vaginal hysterectomy group compared with Laparoscopic assisted vaginal hysterectomy group. Summit *et al*. in a study found longer operating time, blood loss and more pain in Laparoscopic assisted vaginal hysterectomy group than in Non descent vaginal hysterectomy [7]. Soriano *et al*. also found longer operating time in patients who underwent Laparoscopic assisted vaginal hysterectomy. However, the post-operative pain was similar in both groups in their study [8]. Two patients in our series had bladder wall hematoma in the Laparoscopic assisted vaginal hysterectomy group. Harkki *et al*. in an extensive series also observed a higher rate of urinary tract injuries in patients who underwent Laparoscopic assisted vaginal hysterectomy [9]. Our study demonstrates the superiority of Non descent vaginal hysterectomy over Laparoscopic assisted vaginal hysterectomy. Vaginal hysterectomy should be the preferred route of hysterectomy if there are no contraindications. Laparoscopic assisted vaginal hysterectomy may be considered in the presence of adhesions or when removal of the ovary is needed. Though ovaries can be removed during Non descent vaginal hysterectomy it needs considerable skill. We could remove ovaries in 5 cases during Non descent vaginal hysterectomy. The sample size in the study was small and is a drawback of this study. In a metanalysis, Jhonson *et al*. have suggested Vaginal hysterectomy as the preferred route of hysterectomy whenever possible [10]. If there are no contraindications and situations are favorable vaginal route of hysterectomy should be the route of hysterectomy. Laparoscopic assisted vaginal hysterectomy may be considered when there are intraabdominal adhesions or when removal of ovaries are indicated.

Table 1: Patient characteristics.

Characteristics	Laparoscopic assisted vaginal hysterectomy (N =55)	Non descent vaginal hysterectomy (N =21)
Age in years (Mean +/-SD)	48.69 +/- 8.44	42.1+/- 4.7
Previous LSCS	n=6(10.90%)	n=5(23%)
Indication for surgery		
Fibroid	n= 32(58.18%)	n= 12(57.14%)
Abnormal uterine bleeding	n= 11(20%)	n= 5 (9.09%)
Adenomyosis	n=12 (21.82%)	n= 4 (7.27%)

Table 2: Intraoperative characteristics

	Laparoscopic assisted vaginal hysterectomy(N =55)	**Non descent vaginal hysterectomy (N=21)**	**Independent t test P value**
Operating time in minutes (Mean +/- SD)	87.36+/- 16.32	67.38+/-16.77	0.001
Blood loss in ml (Mean+/-SD)	269.85+/-103.85	219.05+/-84.37	0.026
Drop in Haemoglobin (g/dl) (Mean +/-SD) 24 hours after surgery	1.7+/- 0.83	1.25+/-0.93	0.081
Blood transfusion post surgery	(n=10) (18.18%)	(n=3) (14.20%)	0.689
Uterine weight(gms) (Mean +/-SD}	202.95+/-131.20	186.19+/-88.13	0.296
Adnexectomy	30(54.5%)	5(23.8%)	0.0164
Intraoperative complications	Nil	Nil	

Table 3: Postoperative characteristics

	Laparoscopic assisted Vaginal hysterectomy (N=55)	Non descent vaginal hysterectomy (N=21)	Independent t-test P value
Postoperative complication	Paralytic ileus(n=2) Bladder wall hematoma (n=2)	Nil	0.204
Visual analog scale (Immediate post op period)	7.04+/- 0.46	6.12+/-0.72	0.001
Visual analog scale (Post op day 1)	5.93+/-0.60	5.43+/-0.94	0.009
Hospital stay (Days) (Mean +/-SD}	6.05+/-1.39	5.57+/- 1.02	0.076

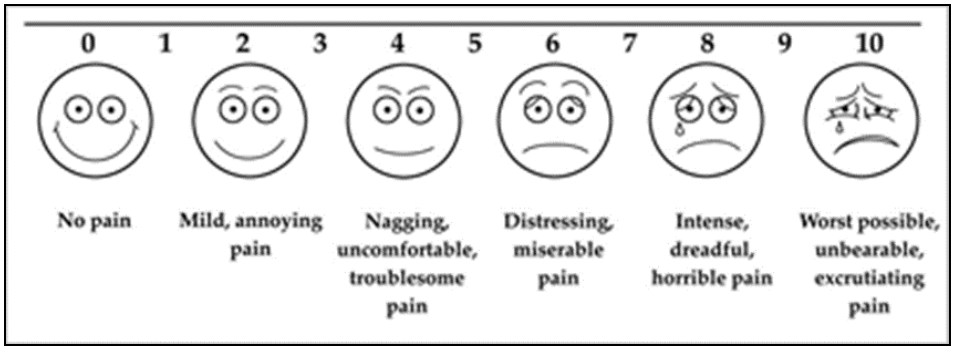

Fig 1: Visual analog scale for pain

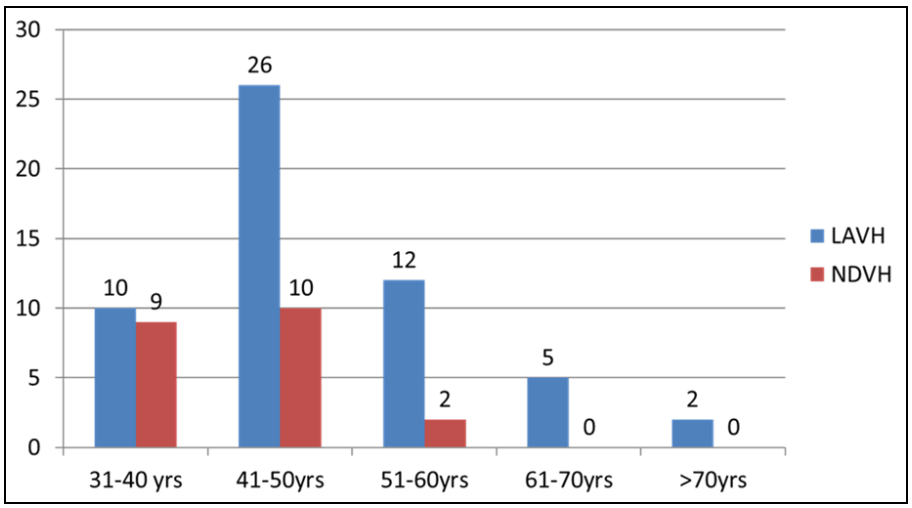

Fig 2: Age distribution of patients

Conclusion

Non descent vaginal hysterectomy is associated with shorter operating time and less blood loss. Post-operative pain is less in women undergoing Non descent vaginal hysterectomy. Hence Non descent vaginal hysterectomy as a route of hysterectomy should be whenever possible. However Laparoscopic assisted vaginal hysterectomy may be considered in situations where intrabdominal adhesions are present or when removal ovaries are needed.

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