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Original Research Article

Comparative evaluation of laparoscopic hysterectomy and non-descent vaginal hysterectomy in women with benign gynaecological disease

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ABSTRACT

Background: Hysterectomy is one of the most frequently performed gynaecological operative procedure all over world, second most to caesarean section in United States. The aim of study was to compare the intraoperative and postoperative complications in patients undergoing non-descent vaginal hysterectomy (NDVH) and Laparoscopic hysterectomy (LH) for benign gynaecological disease.

Methods: The prospective one-year study was conducted on 156 patients who required hysterectomy for benign gynaecological conditions. After applying inclusion and exclusion criteria, 75 patients assigned to Group A (NDVH) and 75 to Group B (LH) and both groups were compared.

Results: On comparing the two groups there was statistically significant decrease in the duration of surgery ($p < 0.01$, $t = 11.65$), pain score ($p < 0.01$, $t = 2.75$) and blood transfusion requirement ($p = 0.03$, $\chi^2 = 4.80$) in group A, while blood loss ($p = 0.73$, $t = 0.33$), uterine volume ($p = 0.15$, $t = 1.43$), time taken to ambulate ($p = 0.06$, $t = 0.21$), duration of hospital stay ($p = 0.07$, $t = 1.80$), conversion to laparotomy ($p = 0.13$, $\chi^2 = 2.56$), febrile morbidity ($p = 0.27$, $\chi^2 = 1.34$), infection ($p = 0.42$, $\chi^2 = 1.11$) and visceral injury was found statistically insignificant.

Conclusions: Vaginal hysterectomy is an easier technique with shorter duration of surgery and with minimal infrastructure required and for fixed uterus or huge adnexal mass laparoscopic hysterectomy (LH) should be preferred.

Keywords: Intraoperative complications, LH, NDVH, Postoperative complications

INTRODUCTION

The word hysterectomy comes from the Greek word "hustera" means "womb" and "ektomia" means "cutting out of" i.e. the surgical removal of the uterus. In India no national statistics for hysterectomy is available. A study conducted in northern state of India (Haryana) states that the incidence of hysterectomy was 7% among married women above 15 years of age.¹

The leading indication for hysterectomy is uterine leiomyoma, while other indications are dysfunctional uterine bleeding, genital prolapse, endometriosis, chronic

pelvic pain, PID and obstetric indication. Malignant indication includes cervical intraepithelial neoplasia, invasive cervical cancer, atypical endometrial hyperplasia, endometrial cancer, ovarian cancer, fallopian tube cancer and gestational trophoblastic tumours.² Major routes are abdominal, vaginal and laparoscopic (laparoscopic assisted vaginal hysterectomy, vaginally assisted laparoscopic hysterectomy and Total laparoscopic hysterectomy).³ A latest route introduced is the robotic surgery, which is a new revolution in the surgical armamentarium. Hysterectomy can also be divided into type 1 or simple hysterectomy, Type 2 or modified radical hysterectomy, Type 3 or radical hysterectomy, Type 4 and Type 5.⁴ Factor that may

influence the route of hysterectomy for benign causes include size and shape of vagina and uterus, accessibility to the uterus, extent of extra uterine disease, need for any concurrent procedures, surgeon's training and experience, available hospital technology, devices and support, safety and cost effectiveness.⁵ Uterine size larger than 280 g and one or more of the following i.e. previous pelvis surgery, history of pelvic inflammatory disease, indication for adnexectomy, nulliparity without uterine descent, previous caesarean or laparotomy have not been found as contraindications to NDVH.⁶

Use of laparoscopic hysterectomy as an alternative is gaining popularity. Laparoscopic examination provides a panoramic view of the pelvis and allow the surgeon to directly examine the degree of the pathology and to note the presence of any condition that might contraindicate vaginal hysterectomy. It is characterized by less pain and a rapid recovery. LH may be cost effective, despite higher direct cost, because of shorter hospital stay and quicker recovery. But this method requires a longer learning curve and greater surgical skills than vaginal and abdominal method. It also carries a higher risk of injury to adjacent organs and a longer operating time.⁷

Major long-term complications include fistula, pelvic or abdominal pain, urinary dysfunction, bowel dysfunction, pelvic floor condition and sexual dysfunction. Short term outcomes and complications include length of hospital stay, infections of vaginal cuff, infection of abdominal wall, urinary tract infection, febrile episode and thromboembolism.⁸

As gynaecologic surgeon, our responsibility is to provide the best surgical care proven by rigorous review of the evidence. The future surgical relationships with our patients will depend upon whether we make our surgical decisions based on evidence or because of our lack of surgical expertise.⁹

METHODS

The present study was conducted in Department of Obstetrics and Gynaecology, Government medical college, Jammu for a period of one year (October 2014 to September 2015).

A total of 156 patients were selected according to inclusion criteria (completed families and willing for hysterectomy, benign indications like AUB, uterine fibroid, Adenomyosis, uterus size ≤ 16 weeks, good mobility of uterus) and excluding women with uterine size >16 weeks, restricted mobility of uterus, uterine prolapsed, severe endometriosis, benign ovarian cyst, complex adnexal mass, contracted bony pelvis, malignancy, acute PID and previous pelvic surgery. Of these 76 patients were assigned to group A (NDVH) and 80 to group B (LH). However, one patient in group A and five in group B, had to be converted to abdominal route and were excluded from study. The patients were

subjected to detailed history and clinical examination. All the investigation including haemoglobin, bleeding time, clotting time, routine urine examination, pro thrombin time, PTI, platelet count, renal function test, liver function test, HIV, HCV, VDRL, Hbs Ag, TSH, USG abdomen and pelvic organ were done.

The main parameter for comparison noted are Duration of surgery, Blood loss, Uterine volume, Pain score on day 2, Ambulation, Duration of hospital stay, Conversion to laparotomy, Blood transfusion, Febrile morbidity, Infections and Visceral injury.

The results were expressed as mean (\pm standard deviation). The data was analysed statistically using Chi square test and t test wherever applicable. The difference was considered significant at $p < 0.05$.

RESULTS

Following observations were made, mean age in group A was 45.20 ± 4.85 and 44.69 ± 5.95 years in group B. Mean parity was 2.8 in group A and 3.24 in group B. Most common indication was fibroid (50.7%) in group A and DUB (42.7%) in group B (Table 1).

Table 1: Indications.

	Group A (NDVH)		Group B (LH)	
	N	%	N	%
Fibroid	38	50.7	31	41.3
DUB	28	37.3	32	42.7
Adenomyosis	1	1.3	2	2.7
Chronic PID	4	5.3	2	2.7
Endometrial Hyperplasia	4	5.3	8	10.7
Total	75		75	

In group A, 4% of uterine size was more than 13 weeks, the maximum size being 14 weeks, while 5.3% of uterine size was more than 13 weeks and maximum size being 16 weeks in group B.

On comparing the two groups, following observations were made (Table 2, 3 and 4). Duration of surgery (calculated from first incision to the end of procedure) was lesser in group A (62.73 ± 15 min.) and the difference was statistically significant ($p < 0.01$, $t = 1.65$), Pain score on a 10 cm visual analogue scale (0 cm-no pain, 10 cm-extreme pain) on day 2 was also lesser in group A (1.86 cm) and the difference was again significant ($p < 0.01$, $t = 2.75$), only 2.7% women in group A received blood transfusion as compared to 12% in group B and this difference was found statistically significant ($p = 0.03$, $\chi^2 = 4.80$).

Blood loss (calculated by mean Hb decline on day 2) in group A was 0.76g/dl and 0.74g/dl in group B which was not significant ($p = 0.73$, $t = 0.33$), uterine volume (estimated by the volume of water displaced by the

removed uterus in a graduated jar) in group A was 185.44 cc and 197.20 cc in group B and this difference was insignificant ($p = 0.15$, $t = 1.43$), Time taken to ambulate (number of days required by patient for unaided ambulation) in group A was 1.5 days and 1.48 days in

group B which was statistically insignificant ($p=0.06$, $t=0.21$) and may be attributed to the fact that many patients were very anxious irrespective of the type of surgery and consider any slightest mobility as a risk to their wellbeing.

Table 2: Comparison between two group.

Parameters	Group A (NDVH)		Group B (LH)		Statistical Inference
	Mean	SD	Mean	SD	
Duration of surgery (min)	62.73	15.00	91	14.70	$t = 11.65$, $p < 0.01$
Blood loss/Hb decline (g/dl)	0.76	0.33	0.74	0.39	$t = 0.33$, $p = 0.73$
Uterine volume (cc.)	185.44	46.24	197.2	54	$t = 1.43$, $p=0.15$
Pain Score (cm.)	1.86	0.70	2.21	0.85	$t = 2.75$, $p < 0.01$
Ambulation (days)	1.5	0.50	1.48	0.62	$t = 0.21$, $p=0.06$
Duration of hospital stay (days)	2.93	0.74	2.70	0.82	$t = 1.80$, $p = 0.07$

Table 3: Comparison between two group.

Parameters	Group A (NDVH)		Group B (LH)		Statistical Inference
	N	%	N	%	
Converted to laparotomy	1	1.3	5	6.25	$\chi^2 = 2.56$
Not converted	75	98.7	75	93.75	$p = 0.13$
Blood transfusion	2	2.7	9	12	$\chi^2 = 4.80$
No blood transfusion	73	97.3	66	88	$p = 0.03$
With fever	2	2.7	5	6.7	$\chi^2 = 1.34$
Without fever	73	97.3	70	93.3	$p = 0.27$

Table 4: Infection.

Group	No infection	With UTI	With RTI	With paralytic ileus	Vault bleeding	Vaginal discharge	Statistical Inference
A	69 (92%)	2 (2.7%)	0	0	1 (1.3%)	3 (4%)	$\chi^2 = 1.11$
B	65 (86.7%)	3 (4%)	2 (2.7%)	2 (2.7%)	2 (2.7%)	1 (1.3%)	$p^* = 0.42$

*For statistical convenience the groups were divided into with or without infection and then Fischer's exact applied

Duration of hospital stay (after surgery excluding day of surgery) was 2.93 days in group A and 2.70 days in group B and the difference was statistically insignificant ($p = 0.07$, $t = 1.80$) which may be due to the fact that many patients residing in the far flung areas were reluctant to go early due to the lack of facilities, conversion to laparotomy: one patient in group A (1.33%) was converted to abdominal route as the fibroid was 16 weeks impinging into the broad ligament restricting the mobility and 5 patient in group B (10.67%) had to converted to abdominal route of which 3 had dense adhesion and 2 had bladder injury but the difference was statistically insignificant ($p = 0.13$, $\chi^2 = 2.56$).

Febrile morbidity (temperature more than 100.4° F on two occasion 4 hours apart excluding the first postoperative day) was seen in 2.7% women in group A and 6.7% women in group B which was not significant ($p=0.27$, $\chi^2=1.34$) and infection was lesser in group A i.e. 2.7% as compared to 4% in group B which was found

statistically insignificant ($p = 0.42$, $\chi^2 = 1.11$). No viscera injury in group A and 2.5% in group B.

DISCUSSION

The mean age in our population was 45.20 years in group A and 44.69 years in group B which was comparable to the studies done previously, 43 years in Roy KK et al and 46 years in Bhandari S et al.^{10,11} In the present study both groups were comparable in their parity and hence conclusion drawn was that parity did not determine the route of hysterectomy. The indications for hysterectomy were comparable in both groups and also to the other studies performed, DUB 35% and fibroid 57% in study by Roy KK et al.¹⁰

Majority of women, 65.3% in group A and 56% in group B, had uterine size less than 10 weeks which was comparable with study done by Bhadra B et al in which out of 158 women who underwent NDVH, 123 had size

upto 8 weeks, 19 between 9-12 weeks and 16 between 13-20 weeks.¹²

On comparing the two group, there was statistically significant decrease in the Mean duration of surgery in group A ($p < 0.01$, $t = 11.65$) which was consistent with study by Roy KK et al. Where duration was 67 min in NDVH and 105 min in LH.¹⁰

Mean pain score was lesser in group A (1.86 cm) as compared to group B (2.21 cm) and the difference was statistically significant ($p < 0.01$, $t = 2.75$) which was consistent with study done by Summitt RL et al.¹³

Difference in blood transfusion was statistically significant ($p = 0.03$, $\chi^2 = 4.80$) and it was comparable to study by Soriana D et al. which showed more need of transfusion in LH group.¹⁴

The difference between rest of the parameters, when compared, was found statistically insignificant in our study i.e blood loss/Hb decline ($p = 0.73$, $t = 0.33$) comparable to study by Oksuzoglu A et al, Uterine volume ($p = 0.15$, $t = 1.43$), mean time for ambulation ($p = 0.06$, $t = 0.21$) which was in consensus to the study by Jahan S et al. Which showed faster ambulation in LH but the difference was insignificant.^{15,16} Duration of hospital stay ($p = 0.07$, $t = 1.80$) which was comparable to study by Roy KK et al. where duration was 2.6 days in NDVH and 2.4 in LH.¹⁰ Conversion to laparotomy ($p = 0.13$, $\chi^2 = 2.56$) comparable to study by Makinen J et al where conversion rate is 4-11%.¹⁷ Febrile morbidity ($p = 0.27$, $\chi^2 = 1.34$) comparable to study by Summitt RL et al and Soriano D et al. which showed more febrile morbidity in LH group and Infections ($p = 0.42$, $\chi^2 = 1.11$) comparable to study done by Roy KK et al.^{13,14,10} No visceral injury in group A and 2.5% in group B.

CONCLUSION

The study concludes that vaginal hysterectomy is an easier technique with shorter duration of surgery and with minimal infrastructure required, significant reduction in pain scoring due to avoidance of abdominal wound and less blood transfusion requirement.

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