



Vaginal hysterectomy for nonprolapsed uterus

Singh Abha, Bansal Shweta

Department of Obstetrics and Gynecology, Pt. J.N.M. Medical College, Raipur (CG)

OBJECTIVE(S): To compare the efficacy of vaginal hysterectomy with that of abdominal hysterectomy in nonprolapsed uteri.

METHOD(S) : A prospective comparative study was carried out on 100 women with nonprolapsed uteri. Group A consisted of 50 women operated by the vaginal route and Group B of 50 women operated by the abdominal route. A preoperative sonographic estimation of uterine volume was done in both the groups.

RESULTS : The most common indication was fibroid uterus in both the groups. There was a statistically highly significant difference in the mean time taken ($P < 0.001$), mean blood loss ($P < 0.001$) and mean hospital stay ($P < 0.01$) favoring vaginal hysterectomy. There was an apparent linear relationship between uterine volume and operating time.

CONCLUSION(S): Vaginal hysterectomy whenever feasible should be preferred over abdominal hysterectomy even when the uterine size is ≥ 12 weeks, cervix is flushed with vagina, subpubic angle is narrow and there is history of previous pelvic surgery.

Key words : vaginal hysterectomy for nonprolapsed uterus, abdominal hysterectomy, uterine volume, mean blood loss, mean operating time

Introduction

The past few years have seen growing indications of vaginal hysterectomy which is now preferred over abdominal hysterectomy .

In 1990, the ACOG established some guidelines for the route of hysterectomy stating that vaginal hysterectomy is performed in women with mobile uteri, no larger than the one at 12 weeks gestation, specially if there is some uterine descent ¹. Further, contraindications to the vaginal route have been suggested like uterus ≥ 14 weeks size, cervix flushed with vagina, previous pelvic surgery, and narrow subpubic angle ². Kumar and Antony ³ concluded that vaginal hysterectomy is a safe procedure for benign nonprolapsed uterus of less than 12 weeks size.

We compared vaginal hysterectomies in nonprolapsed uteri

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Correspondence :

Dr. Abha Singh,

Prof and Head Department of Obstetrics and Gynecology

E-8, Shankar Nagar, Raipur (CG)

Tel. 0771 2331014 Email : ajob_2k@yahoo.com

in relatively difficult cases with abdominal hysterectomies performed for similar indications. We feel that some of the contraindications for vaginal hysterectomy need a rethinking.

Methods

This is a prospective comparative study of 100 women undergoing hysterectomy from 1st October, 2004 to 31st March, 2005. Group A consisted of 50 women operated vaginally and Group B of 50 women operated abdominally. The subjects were taken up randomly for abdominal or vaginal hysterectomy for a wide range of indications and were placed in four categories based on the following inclusion criteria –

1. Large uterus ≥ 12 weeks size.
2. Cervix flushed with vagina.
3. Previous pelvic surgery.
4. Narrow subpubic angle – this was defined as one not admitting palmer aspect of two fingers.

In this randomized controlled trial, the sampling frame consisted of women requiring hysterectomy and also fulfilling one of the above four inclusion criteria.

The sampling method used was simple random sample. Women fulfilling the above four criteria were randomly put into Group A or Group B irrespective of the indication for hysterectomy. This method provided all women with an equal chance of being put into group A or group B. When 50 cases each in both groups were done, the study target was said to be reached. Uterine volume was sonographically calculated by any one of the three equally competent sonographers. Additional eight cases with uterine volume >350 mL were operated later on by the vaginal route and were added to the study Group A.

In Group A, out of the 15 cases of previous pelvic surgery, 13 had undergone tubectomy operation and 2 had a cesarean section in the past. In Group B, out of the 15 cases of previous pelvic surgery, 14 had undergone tubectomy and one had a cesarean section in the past.

When the cervix is flushed with vagina, the major problem is the site of circumferential incision and finding out the plane of cleavage. In such a case, the incision was given low down below the bladder sulcus, taking care that there is enough tissue to hold on.

The results were compared in terms of postoperative complications, mean hospital stay, operating time and blood loss. The blood loss was estimated by noting the difference in weights of the mops in grams before and after operation.

Chi square test and Z test were employed for statistical analysis.

Results

The most common indication for hysterectomy was fibroid uterus in both the groups (Table 1). There was a significant statistical difference ($P < 0.001$) in the mean surgical time between Group A (40.22 minutes) and Group B (49.35 minutes) (Table 2). Figure 1 shows that there is some linear relationship between uterine volume and operating time, both for vaginal and abdominal groups. The mean blood loss (Table 3) was maximum in women in whom the uterine size was ≥ 12 weeks (61.88g in Group A and 124.17g in Group B, $P < 0.001$). A highly significant difference ($P < 0.001$) was noted in the mean blood loss between Group A (47.85g) and Group B (104.58g) in difficult cases (Table 3). Table 4 shows that the mean hospital stay was significantly more in Group B than in Group A (8.18 days vs 3.54 days; $P < 0.01$).

Postoperative complications were also more in the abdominal group. Six patients had fever in the first three postoperative days, two had infected abdominal wounds, two had burst abdomen, and in one patient with a 16 weeks size uterus the left ureter was inadvertently injured. No patients in the vaginal group had injury to the bladder or ureter, two had febrile morbidity and two had vault infection at follow-up. In two cases vaginal hysterectomy had to be converted to abdominal hysterectomy, in one because of inability to reach uterine arteries (uterine weight 510 g) and in one because of slipped pedicle of right uterine artery (uterine weight 490 g).

Table 1. Indications.

Indications	Group A (n=58)		(Group B (n = 50)	
	Number	Percentage	Number	Percentage
Fibroid uterus	26	43.33	21	42
Dysfunctional uterine bleeding	11	22	6	12
Adenomyosis	9	19	6	22
Chronic cervicitis and pelvic inflammatory disease	10	20	6	12
Myomatous polyp	2	4	2	4
Cervical dysplasia	2	4	1	2
Cervical cancer in situ	1	2	1	2
Choriocarcinoma	1	2	1	2
Endometrial cancer	1	2	1	2

Table 2. Surgical and uterine volume.

Uterine volume (mL)	Group A (n=58)		Group B (n=50)		P value
	Number	Time taken (minutes)	Number	Time taken (minutes)	
< 100	9	30 ± 10.7	3	35 ± 5	0.045
101 – 150	18	31.83 ± 11.53	16	51.25 ± 8.06	0.001
151 – 200	13	40.38 ± 10.18	10	49 ± 8.75	0.04
201 – 250	6	41.17 ± 14.21	7	50.71 ± 9.75	0.04
251 – 300	2	32.5 ± 10.6	1	45 ± 0.0	0.02
301 – 350	2	40 ± 0.0	5	57 ± 12.54	0.01
>350	8	65.63 ± 24.74	8	49.35 ± 11.64	0.001
Mean		40.22 ± 17.03		49.35 ± 10.32	0.001

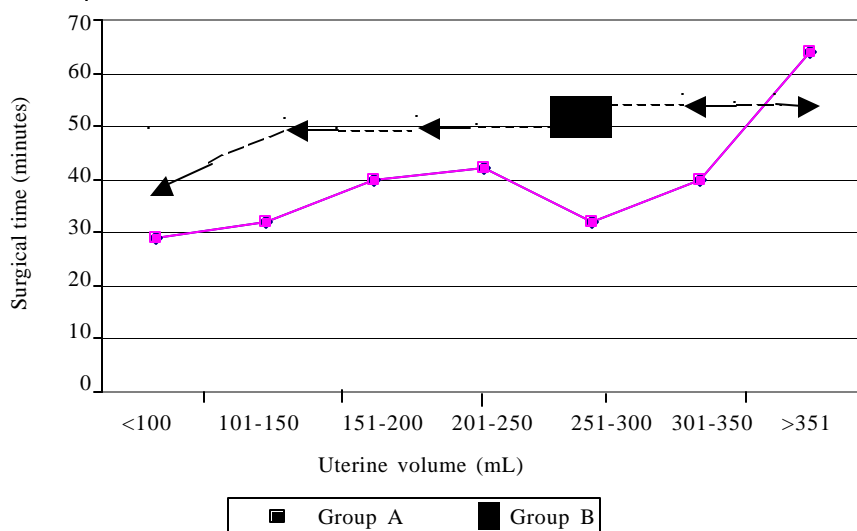


Figure 1. Relationship between volume of the uterus and surgical time.

Table 3. Mean blood loss in difficult cases.

Difficulty	Group A		Group B		P value
	Number	Mean blood loss (g)	Number	Mean blood loss (g)	
i) Uterine size \geq 12 weeks	18	61.88 ± 35.03	12	124.17 ± 29.18	0.001
ii) Cervix flushed with vagina	4	51.25 ± 30.65	4	107.50 ± 5.0	0.002
iii) Previous surgery	15	37.67 ± 22.67	16	93.13 ± 21.51	0.001
iv) Narrow subpubic angle	25	40.60 ± 23.19	20	93.50 ± 8.75	0.002
Mean		47.85 ± 28.64		104.58 ± 23.04	0.001

Table 4. Hospital stay in difficult cases.

Difficulty	Group A		Group B		P value
	Number	Hospital stay (days)	Number	Hospital stay (days)	
i) Uterine size \geq 12 weeks	18	3.57 ± 1.09	12	9.5 ± 3.94	0.001
ii) Cervix flushed with vagina	4	3.0 ± 0.81	4	7.5 ± 0.57	0.02
iii) Previous surgery	15	4.07 ± 1.4	16	8.06 ± 1.38	0.02
iv) Narrow subpubic angle	25	3.52 ± 0.65	20	7.65 ± 0.48	0.02
Mean		3.54 ± 1.03		8.18 ± 2.14	0.01

Discussion

Uterine size \geq 12 weeks, cervix flushed with vagina, previous pelvic surgery, and narrow subpubic angle did not impede successful vaginal hysterectomy for nonprolapsed uteri. Vaginal hysterectomy could be successfully completed in all but two patients with enlarged uterus. One of them had a 16 week size uterus (510g weight) with a 15 x 12 cm subserous posterior wall fibroid and the uterine arteries could not be reached safely. The second was a woman with multiple fibroids (490 g weight), where the uterine artery pedicle on the right side slipped off. Both cases had to be completed by the abdominal route.

According to Das and Sheth⁴, the preoperative sonographic estimation of uterine volume and the findings at examination under anesthesia help in choosing the vaginal route. We observed that even at increased uterine volume, the time taken was not substantially increased (Figure 1). This is in contrast to the study by Unger⁵ which shows a linear relationship between uterine weight and operating time. We think that apart from uterine size, operating time depends upon various factors like the technics of hemisection, morcellation and myomectomy, the amount of available uterus-free space and the skill of the surgeon. Various studies have shown the efficacy of these technics in accomplishing vaginal hysterectomy⁶⁻⁸. Two women in our study were operated vaginally for myomatous polyp (650 g and 180 g uterine weight) and showed better results in terms of surgical time, blood loss, and hospital stay than those in two women with myomatous polyp (uterine weight 520 g and 210 g) operated abdominally, corroborating the study of Sheth and Shinde⁹.

Despite a 30% (15/50) prevalence of previous pelvic surgery in Group A there was no bladder injury in contrast to the incidence of 0.5 – 1.5% reported for vaginal hysterectomies¹⁰. It must be emphasized that our series is very small in comparison to other series. The incidence of ureteric injuries has been reported to be 0.1-0.5% in abdominal and 0.5-0.1% in vaginal hysterectomies^{10,11}. We tend to agree with the statement of Sheth and Malpani¹² that vaginal route is always a better option for hysterectomy in patients with previous cesarean section.

Following vaginal hysterectomy, women were discharged earlier (mean hospital stay 3.62 days in Group A and 8.18

days in Group B, $P < 0.01$). This was highly acceptable not only to the majority of women but also to the hospital administration at large, as this resulted in significant reduction in hospital bed occupancy. Consequently, the turnover rate was increased and we were able to perform more surgeries – 209 hysterectomies from October 2004 to March 2005 compared to 143 hysterectomies from April to September 2004. This corroborates with the study by Hancock and Scott¹³.

Conclusion

An expert vaginal surgeon can defy the usually accepted contraindications of vaginal hysterectomy like uterus \geq 12 weeks size, cervix flushed with vagina, previous pelvic surgery, and narrow subpubic angle.

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