

Vaginal Hysterectomy for Benign Nonprolapsed Uterus-Initial Experience

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OBJECTIVE - To determine the feasibility and safety of vaginal hysterectomy for benign nonprolapsed uteri. **METHODS** - Eighty consecutive women with nonprolapsed uteri requiring hysterectomy for benign uterine conditions, without suspected adnexal disease, were treated prospectively by vaginal hysterectomy. Operating time, estimated blood loss, surgical techniques, operative complications, conversion to laparotomy when needed and length of hospital stay were recorded for each case. **RESULTS** - Vaginal hysterectomy was successful in 76 women (95%). Morcellation, hemisection, myomectomy, were done in 60 cases (75%). The operating time, estimated blood loss, conversion to laparotomy were directly proportional to the size of the uterus. Two bladder injuries occurred; one was repaired transvaginally and the other one required laparotomy. Three women needed blood transfusion. Four conversions to laparotomy were necessary. **CONCLUSION** - Vaginal hysterectomy is a safe and effective procedure for benign nonprolapsed uteri especially when uterine size is less than 12 weeks.

Key words: vaginal hysterectomy, fibroid uterus, uterine morcellation

Introduction

The controversy on whether the uterus should be removed abdominally or vaginally was started when Langenbeck¹ performed the first vaginal hysterectomy in 1813. In 1885 Jackson² suggested that vaginal hysterectomy should be abandoned but it found its ardent supporters in Doyen, Green Armytage, Howkins, Stallworthy in the west and Mitra, Purandare and Sheth in the east³. Superiority of hysterectomy by vaginal route is generally accepted but still majority of the gynecologists take this route only for removal of prolapsed uterus, preferring abdominal hysterectomy for all other indications. Most of us find it easier to perform hysterectomy through a wide-open abdominal incision and find excuses to avoid vaginal route. Sheth⁴ wrote an excellent article highlighting the technique and advantages of vaginal hysterectomy for the non-prolapsed uterus. This article sparked the resurgence of vaginal hysterectomy in many teaching institutions in India and abroad. We had a mind set that vaginal hysterectomy should be limited to prolapsed uterus. Influenced by the recent spurt in published articles favoring vaginal hysterectomy we decided to try vaginal route for removal of nonprolapsed uterus and present our experience.

Material and Methods

Eighty consecutive women with nonprolapsed uteri requiring hysterectomy for benign uterine conditions, without suspected adnexal disease or retroverted fixed

uterus were selected prospectively for vaginal hysterectomy from 1st October, 2000 to 31st March 2002. Seventeen patients had history of previous pelvic surgery. All patients underwent pelvic ultrasound (USG) to rule out gross adnexal pathology, and for assessment of uterine size and the site of fibroids in case there were any. All had a hemoglobin value of 9 gm % or more. Surgical technique, operating time, estimated blood loss, operative complications, conversion to laparotomy when needed and length of hospital stay were recorded for each case.

Important surgical details - The surgery was performed alternatively by the two surgeons. The technique of surgery was same in all cases except for minor variations. Examination under anesthesia was carried out to confirm clinical findings and the feasibility of vaginal hysterectomy. The paracervical tissues were infiltrated with a dilute solution of adrenaline or saline in case adrenaline was contraindicated.

Anterior and posterior incisions and reflection of the vaginal wall, dissection of the bladder upwards, opening of the vesico-uterine fold anteriorly and the pouch of Douglas posteriorly were performed initially. In some of the patients, where pouch of Douglas or vesico-uterine fold could not be opened initially, the step was performed after the division of uterosacral ligaments. The first pedicle usually incorporated the angles of the vagina along with the Mackenrodt's ligament.

This was followed by clamping, dividing and ligating of the sacro-uterine and cardinal ligaments and of the uterine vessels, as is done during a vaginal hysterectomy. Vicryl No 1 was the suture material used throughout. After the ligation of uterine vessels, the next

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step depended on the size and other features of the uterine corpus and included bisection, myomectomy and morcellation as required. Once the uterine vessels were ligated there was not much bleeding from the uterus while performing these bulk reducing.

For bisection the cervix was grasped on both sides and the uterus was bisected sagittally towards the fundus, using a knife. The bisection, carried out first along the posterior uterine wall, was aided by the repeated repositioning of the vulsella or Lanes forceps close to the apex of the incision, combined with rotation of the cervical portion of the uterus around the pubic arch. If necessary, the uterus was rotated back to its original position and the bisection pursued anteriorly. Complete bisection often allowed half the uterus to be delivered through the vagina and the adnexal or ovarian pedicles to be secured; meanwhile the other half was repositioned back into the pelvis and later treated similarly. Myomectomy was frequently combined with bisection or morcellation. Smaller myomas were removed in one piece while larger ones were morcellated and removed in fragments. Bisection was recommenced as soon as further descent of the uterus could be achieved after myomectomy. Morcellation was carried out on the uterus when despite bisection or myomectomy no further descent was possible. One of the vulsella always being attached to the residual bulk of the uterus.

After removal of the uterus the operative area was checked for hemostasis. Since most of the bleeding at this point takes place from posterior vaginal wall, continuous interlocking suture was given at the cut edge of posterior vaginal wall to obtain complete haemostasis.

Blood loss was calculated by weighing of cotton swabs before and after surgery.

24cm x 24cm swabs were used in all surgeries. On an average $\frac{1}{4}$ soaked swab contained 20 ml, $\frac{1}{2}$ soaked 40 ml and fully soaked 80 ml of blood.

Operating time was calculated from the beginning of the incision at cervico-vaginal junction to the placement of a small vaginal pack at operation's end. Hospital stay was recorded in whole days only because any stay beyond midnight is considered an entire hospital day. Some of the patients stayed in the hospital for the reasons other than medically warranted. These extra days were not counted on final analysis. The complications were defined as follows: pelvic haematoma; failed planned vaginal hysterectomy; postoperative exploration for bleeding; operative injury to the bladder, bowel, or ureters; surgical site infection and febrile morbidity including vaginal cuff cellulitis and pelvic abscess. Febrile morbidity was defined as fever more than 100.4°

F on two occasions six hours apart after first 24 hours of surgery.

Results

A total of 150 hysterectomies were performed during the study period from 01 Oct 2000 to 31 March 2002 and 70% of these were performed through the vaginal route compared to 25% in the preceeding 16 months. Out of 80 patients in the study 17 (21%) gave history of previous pelvic surgery. Two of them had bladder injury while opening uterovesical pouch. Average hospital stay was 3.9 ± 1.1 days. The most common indication (76%) for hysterectomy was fibroid uterus (Table I). Of the bulk reducing procedures on the uterus bisection was the commonest (50%) followed by enucleation (Table II). Table III shows outcome variables like blood loss, need for blood transfusion, operative time and need for laparotomy in relation to size of uterus. Two patients had bladder injuries (Table IV). Both these patients had previous cesarean section and fibroid uterus; the size of uterus was 16 and 18 weeks. The pedicle slipped in three patients: uterosacral pedicle in two and the adnexal pedicle in one. Diarrhea was the most common complication occurring on 3rd or 4th postoperative day, which generally subsided within 48 hours. Other complications are listed in Table IV. Vault granuloma occurred in two patients.

Table I – Indications for Vaginal Hysterectomy

Indications	No. of patients	Per-centage
Dysfunctional uterine bleeding	10	12.5
Adenomyosis	4	5
Fibroid uterus	61	76
Cervicitis/ dysplasia	2	2.5
Endometrial hyperplasia	3	3.75
Total	80	100

Table : II Surgical Procedure Performed on Uterus

Uterine size (weeks)	Surgical procedure	No. of patients	Per-centage
6-8	Removal of intact uterus	20	25
8-10	Bisection of uterus	40	50
10-16	Enucleation of myoma	15	19
12-16	Morcellation/ wedge resection	5	6
Total		80	100

Table - III Size of uterus and its effect on outcome

Size of uterus in weeks	No of patients (N=80)	Blood transfusion	Conversion to laparotomy	Blood loss in ml (mean±SD)	Operating time Min. (mean±SD)
6 or less	15	Nil	Nil	64.62 ±18.53	40.36±10.24
7 - 8	20	Nil	Nil	70.34 ± 20.2	50.45 ±12.12
9 -10	20	Nil	Nil	94.20 ± 24.45	55.7 ±15.34
11-12	15	Nil	Nil	140.47 ±40.79	81.32± 17.05
13 -14	5	1	1	320.82± 164.14	110.34±20.20
> 14	5	2	3	420.90 ±213.24	120.00±30.25

Table-IV Operative injuries and post-operative complications

	No. of patients	Percentage
Injury to bladder	2	2.5
Injury to ureter	Nil	0.0
Injury to bowels	Nil	0.0
Slipping of pedicle	3	3.8
Febrile morbidity	6	7.5
Pelvic hematoma	1	1.2
Pelvic abscess	Nil	Nil
Secondary hemorrhage	1	2
Urinary tract infection	4	5
Diarrhea	7	8.7

Discussion

The usual ratio of vaginal hysterectomy to abdominal hysterectomy is 1:4; ideally the ratio should be reversed⁴. In our institution vaginal hysterectomies increased to 70% of all hysterectomies after switching over to vaginal route compared to 25% prior to that. Only four of the patients (4/80) required change over to abdominal route. It appears that most hysterectomies can be performed vaginally. Previous pelvic surgery is not considered a contraindication for vaginal hysterectomy by many workers^{5,6}. Seventeen patients in our study gave the history of previous pelvic surgery. Two bladder injuries occurred in patients who had previous cesarean section and a large uterine fibroid together. Though not a contraindication, one needs to be cautious while dealing with such cases and specially so in the beginning of learning curve. Both the injuries were recognized during surgery and repaired by the operating gynecologist, one vaginally and the other abdominally. The patients did not suffer from any long-term sequel, one vaginally and the other abdominally. Average hospital stay was 3.9± 1.1 days. The stay was shorter than the average stay of 7-8 days for abdominal hysterectomy in our hospital. Hospital stay of 2-5 days is reported in other studies^{7,8}. One study where all cases were done under general anesthesia reported average hospital stay of only 24 hours⁹. However 90% of our

patients were operated under spinal anesthesia and 48 hours bed rest was needed for these patients to avoid post-spinal headache. Therefore, we feel that most of the patients do need at least 72 hours hospitalization. The commonest indication for vaginal hysterectomy was fibroid uterus with menorrhagia (76%). Sheth¹ reported the incidence of fibroid as 23% (875/3800 hysterectomies). The incidence of fibroid appears to be unusually high in Kerala though large epidemiological studies are needed for confirmation. Bulk reducing procedure is one of the critical steps while removing a large uterus. Bisection, myomectomy, morcellation and coring are described as bulk reducing procedures¹⁰. We found bisection of the uterus, one of the most rewarding procedures. The bisection was used in 50% of the patients with success. This was also performed as initial procedure and myomectomy or morcellation was added later on. We did not use Lash's¹¹ technique of coring in any patient, mainly because most of our patients had fibroids. The blood loss (p<0.001) and the operative time (p<0.001) were found to be directly proportional to the size of the uterus. The relationship is easy to understand since bigger uteri require more bulk reducing procedures leading to more operating time and increased blood loss. The size of uterus was more than 12 weeks and blood loss more than 600 ml in all the three patients who required blood transfusion. All four patients needing change over to abdominal route had 14-18 weeks size uterus with fibroids. Two of them had previous cesarean

section and had extensive bladder injuries, the other two had excessive bleeding and difficulty in reaching adnexal pedicles. The bladder injuries occurred in the patients having uterine size more than 12 weeks. Therefore, it may be advisable to use abdominal route for such cases. Contrary to our findings, Mazdisnian et al¹² did not find any increase in complication rate depending on size of uterus. Pelosi¹³, using Pryor technique of wedge morcellation, reported the operative time of 49-170 minutes and blood loss of 150-480 ml depending upon the size of uterus. However, Deval et al¹⁴ found only increase in operative time in patients with large uterus. We did not encounter any bowel injury. Mathevet et al¹⁵ in a review of 3076 vaginal hysterectomies found that the incidence of urinary and intestinal tract injuries were 1.7 and 0.5% respectively¹⁵. Operative injuries during vaginal hysterectomy are relatively rare. They are easily recognized and treated during the primary operation without important sequelae. The pedicle slipped in three patients mainly because of accidental traction on the ligature by the assistants. Initially we were not transfixing all the ligatures. Later on when we started transfixing all the ligatures there was no slippage. We do feel that transfixing all the pedicles is a safe habit. Diarrhea was the most common complication occurring on 3rd or 4th post-operative day, which usually subsided within 48 hours without any specific treatment. We subjected these patients to USG to detect any collection in POD, but found none. Reason for the diarrhea could be inflammation of the rectal wall due to close proximity to the operative area. We did not find this complication in many studies. We called all the patients after six weeks of surgery to check the histopathological report of the uterus and to assess the delayed complications. We did not close pelvic peritoneum or vaginal vault during surgery but we found the vault healed in all the patients. In two patients granuloma was present needing cauterization. The incidence of vault granuloma was not found to be higher than what was found in abdominal hysterectomies in our hospital.

Initially we were very cautious and the first 10 cases had uterine size up to 8 weeks, no previous pelvic surgery and good uterine mobility. We could perform vaginal hysterectomy for all these 10 cases. After that we took almost all cases without adnexal disease for vaginal hysterectomy. Some of the techniques and the instruments specially made the surgery easier for us e.g. use of cautery for incising posterior vaginal wall and achieving haemostasis, use of suction tube to keep the operative area clean, bulldog vulsellum for traction on cervix, right angle retractors for retraction of bladder and vaginal walls, use of Lane's forceps for traction on the uterus while bisecting or morcellating it, use of vicryl as suture material and the use of glove on posterior

vaginal wall retractor as it collects all the blood and operative surgeons gown is not soiled. A sonography also helped in planning the operative strategies in case of very large uterus.

This study confirms the utility and safety of vaginal hysterectomy for the moderately enlarged uterus up to 12 weeks. Though vaginal hysterectomy is possible for the uterus of more than 12 weeks size, it needs good experience and may be associated with more complications.

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