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ORIGINAL ARTICLES

Vaginal hysterectomy. A five year prospective descriptive study

J SHAVA, N L NENE, L MPANDE

Abstract

Objective: To review patients who had vaginal hysterectomy and observe any complications related to the procedure.
Design: A prospective descriptive study.
Setting: Sunshine Hospital, Actonville , Benoni, Gauteng Province, South Africa.
Subjects : 124 consecutive women who had vaginal hysterectomy.
Interventions : Vaginal hysterectomy.
Main Outcome Measures: Duration of operation, hospital stay, intra and post operative complications; need for blood transfusion; histological result of uterus and uterus weight.
Results: The mean age was 44.7years (range 16 to 74 years). Mean parity was 2.7 (range 0 to 9). Common indications were menorrhagia (34.7%) and myomatous uterus (25.8%). The common risk factors were previous Caesarean delivery (12.9%), medical conditions (9.7%) and previous tubal ligation (10.5%). The mean operation time was 86.6 minutes (range 52 to 140 minutes). Only two (1.6%) patients required blood transfusion. Complications occurred in 5.6% of the patients. Myomatous uterus (40.3%) and adenomyosis (19.4%) were the commonest histological diagnosis. The mean hospital stay was 2.5 days (range 2 to 21 days). The average weight of the uterus was 142.2 gms (range 25 to 599gms).
Conclusions: Vaginal hysterectomy can be performed and achieve very low complication rates.

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Introduction

The advantages of the vaginal route for hysterectomy are well established. These include shorter hospital stay, less need for post operative analgesia, less costs,[1,2] less complications[3,4] and quicker recovery with earlier return to normal activities.[5] Despite all the reported benefits vaginal hysterectomy remains a relatively less common form of hysterectomy. This is justified by the presence of contra-indications such as uterus size greater than 12 weeks (approximately 280grms),[2] lack of mobility, moderate to severe endometriosis and lack of operator experience, enthusiasm and confidence.[6] Senior gynaecologists are apparently satisfied with the abdominal route as opposed to the vaginal route, and are perpetuating the practice.[7] In this study we present our own experience with vaginal hysterectomy.

Material and Methods

We prospectively reviewed 124 consecutive vaginal hysterectomies performed from 15 March 1999 to 15

Correspondence and reprints to:
Dr J Shava
P O Box 1197
Benoni
1500
South Africa

March, 2004. Information was obtained from theatre records and patient records. A data collection form was designed in which the following information was recorded; age (in years); parity; indication or indications for hysterectomy; any risk factor present at time of operation; duration of operation (in minutes); hospital stay (in days); complications; need for blood transfusion; histological diagnosis and weight of uterus (in grammes). The information was updated each time the patient was seen on follow up.

Technique.

The decision to operate vaginally was based on uterine mobility and a uterine size of less than 20 weeks. These were assessed by bimanual pelvic examination and ultrasound scan. The final decision was taken after the patient had been examined under anaesthesia (EUA). There was, however, no case where the decision was changed by EUA findings in this series. Hysterectomy was performed following the three pedicle technique described by Nichols and Randall.[6]

The cervix was initially held by the anterior and posterior lip with two Shroeder tenaculum forceps. Paracervical tissues were infiltrated with ornipressin (1ml of 5IU diluted with 20mls of water). A circular incision was then made on the cervix. Bladder and rectum were reflected and the transverse cervical ligament was clamped, divided and ligated with chronic 2 (Ethicon no. 728). The pouch of Douglas (cul-de-sac) was opened by sharp dissection. The utero-sacral ligament was clamped, divided and ligated with chronic 2. The uterus was at this stage delivered posteriorly using the Doyen tumour screw. The vesico-uterine peritoneum was only cut after delivery of the uterine fundus. The vesico-uterine peritoneal fold was identified using a bent uterine sound using a method described by Hoffman and Jaeger.[8] This technique we found, avoided bladder injuries. In large uteri with myomata, myomectomy, bisection and morcellation as described by Magos *et al.* were employed.[9] The infandibulo-pelvic ligament was clamped, divided and ligated and the uterus delivered. The peritoneum was closed with a purse string of suture and exteriorisation of all the three pedicles. The vaginal vault was sutured from side to side anteriorly to reduce its size after which, at about half way, a running locked haemostatic stitch was put on the edges of the vaginal vault. There was a small opening to the posterior which was plugged with a betadine solution vaginal plug. This was left for at least 24 hours. All the patients in this series had antibiotics which consisted of Pharmacare-Cefuroxime 750mg eight hourly and metronidazole 500mg eight hourly intravenously. These were commenced one hour before the operation and continued for 24 hours post operatively. A urinary catheter which had been inserted at the time of EUA was removed at the same time as the vaginal plug.

If there were no problems the patients were discharged after 48 hours. They would have had at least one meal and passed urine normally. On discharge they were given analgesia (Diclofenac suppository 100mg twice daily) and betadine douche. Analgesia in the immediate post operative period depended on the choice of the anaesthetist.

We reviewed the patients after 14 days and at six weeks post operatively and thereafter every six months for two years.

Results

Age Distribution.

Table I shows the age distribution. The majority of the patients who had hysterectomy were aged between 31 and 50 years. Ages ranged from 16 to 74 years with a mean of 44.7 years. The only teenager who had a hysterectomy was a 16 year old severe mentally retarded child who could not handle her menses. Hysterectomy was felt to be the best option for her.

Table I: Age distribution.

Age (years)	Number	Percentage
<20	1	0.8%
21-30	4	3.2%
31-40	32	25.8%
41-50	69	55.6%
51-60	14	11.3%
>60	4	3.2%

N = 124.
Range = 16 to 74 years.
Mean = 44.7 years.

Parity.

Parity ranged from zero to nine with an average of 2.7. Two patients were nulliparous. There were 16 patients who had had previous Caesarean deliveries. Thirteen of these patients had never delivered vaginally. There were 122 multiparous patients (98.4%).

Table II: Indications for hysterectomy.

	Number	Percentage
Menorrhagia	43	34.7%
Myomatous uterus	32	25.8%
Pre-malignant lesions of cervix	18	14.5%
Chronic pelvic pain	14	11.3%
Genital prolapse	8	6.5%
Sterilization	5	4.0%
Cervical carcinoma stage 1a	3	2.4%
Ruptured uterus	1	0.8%

N = 124.

Indications.

The common indications were menorrhagia and myomatous uterus. There were five cases which had been included in the menorrhagia group but were found to be caused by myomatous uterus. This was corrected after histology results. The patient who had a ruptured uterus had endometrial ablation with the cavaterm™ system. She needed laparoscopic tubal ligation and it was at laparoscopy that she was noted to have sustained a uterine rupture. (A

caution to those keen on this form of endometrial ablation; this rupture was silent and could have gone unnoticed had the patient not had a laparoscopy).

Risk Factors.

The majority of patients 65 (52.4%) had no risk factors. The common risk factors were previous Caesarean delivery, medical conditions and previous tubal ligation. Medical conditions included hypertension five, asthma three, diabetes two, and cardiac diseases two.

Table III: Risk factors.

	Number	Percentage
Caesarean delivery	16	12.9%
Tubal ligation	13	10.5%
Medical conditions	12	9.7%
Myomectomy	6	4.8%
Laparotomy (unspecified)	4	3.2%
Appendicectomy	3	2.4%
Adnexaectomy	2	1.6%
Emergency (ruptured uterus)	1	0.8%
Cone Biopsy	1	0.8%
Ventro-suspension	1	0.8%
None	65	52.4%

N = 124.

Histology.

The commonest histological diagnosis was myomatous uterus in 50 (40.3 %) patients. Adenomyosis was the second commonest diagnosis in 24 (19.4%) patients. The 14 (11.3%) patients who had normal uteri had hysterectomy for menorrhagia.

Table IV: Histology.

	Number	Percentage
Myomatous uterus	50	40.3%
Adenomyosis	24	19.4%
Pre-malignant lesions of cervix	12	9.7%
Cervicitis	10	8.1%
Cervical carcinoma	3	2.4%
Ovarian fibroma	1	0.8%
Endometriosis	1	0.8%
Uterus carcinoma	1	0.8%
Normal	14	11.3%

N = 124.

Weight of Uterus.

Table V shows the weight distribution of the uteri. The majority of the cases were uteri weighing less than 200 gms. The mean weight was 142.2 gms and ranged from 25 to 599 gms.

Table V: Weight of uteri.

Weight in grams	Number	Percentage
<100	51	41.1%
101-200	54	43.5%
201-300	10	8.1%
>301	9	7.3%

N = 124; Range = 25.0 to 599.0 gms; Mean = 142.2 gms.

Duration of Operation.

The time ranged from 52 minutes to 140 minutes. The average time was 86.6 minutes. The time taken for the procedure did not seem to depend on the presence or absence of risk factors or the size of the uterus. The patient who had diabetes and stayed in hospital for 21 days had a hysterectomy that took 65 minutes. The patient who had a uterus size of 599 gms took 88 minutes.

Hospital Stay.

The mean hospital stay was 2.5 days with a range of two to 21 days. Eighty six (69.4%) patients stayed for two days, 33 (26.6%) stayed for three days, and four (3.2%) stayed for four days. The only patient who stayed for 21 days is discussed below.

Blood Transfusion.

There were two (1.6%) patients who required blood transfusion. Both patients are discussed under complications below.

Complications.

There were seven patients who developed complications, giving a complication rate of 5.6%

1. Vaginal cuff infection developed in a 44 year old who had had three previous Caesarean deliveries. The indication for hysterectomy was menorrhagia. The uterus weighed 160 gms. This was treated with antibiotics and she recovered well.
2. Haemorrhage on day one post operatively, developed in one patient from the vaginal vault. She was a 43 year old who had chronic pelvic pain. She had inspection of the vaginal vault in theatre. The haemorrhage was controlled by application of a suture to the bleeder. The uterus weighed 101.3 gms. The uterus proved to have adenomyosis.
3. Faecal impaction developed in a 30 year old on day seven post operatively. She had hysterectomy for myomatous uterus. The uterus weighed 97 gms. The impaction was relieved by manual evacuation of the rectum. It was attributed to morphine which the patient had taken for analgesia.
4. Bullous skin rash which was noted on day five post operatively in a 34 year old patient who had hysterectomy for menorrhagia. The patient had a known allergy to penicillin. We attributed the reaction to the cefuroxine she had received. The reaction resolved after administration of antihistamines and steroids.
5. Anaemia was present in a 41 year old who had hysterectomy for menorrhagia. Her pre-operative haemoglobin was 5.7g/dl. She was transfused with four units of packed cells and she recovered well. The uterus weight was 170 gms.
6. Intra-abdominal sepsis developed in a 37 year old patient who had hysterectomy for menorrhagia. She had undiagnosed diabetes. She had to have laparotomy for intra-abdominal abscess drainage. She was transfused with six units of packed cells. She stayed in hospital for 21 days for control of the diabetes and

sepsis. She has since recovered fully and she is now on insulin for the diabetes.

7. The one patient who had to have the procedure abandoned for an abdominal route was a 54 year old. She had hysterectomy for post menopausal bleeding. Three previous diagnostic dilatation and curretages had failed to detect an adenocarcinoma of the uterus. Neither had it been picked up by ultrasound scan. The uterus was felt to be too soft on opening the cul-de-sac and the vaginal route was immediately abandoned. The patient was followed up with adjuvant radiotherapy.

All complications occurred in the first year of practice. This, however, could have been purely coincidental or we may suggest the surgeons were more experienced in the subsequent years.

Discussion

Complications in vaginal hysterectomy for benign disease have been reported to be mostly of a minor nature.[1,3] These are mainly related to febrile morbidity. In a study where the indications for vaginal hysterectomy were restrictive Dicker *et al.* found a complication rate of 24.5%.[4] Where less restrictive indications were used Davies *et al.* recorded a 30.1% complication rate.[3] Kovac who had a more systematic approach to patient selection had an impressively low rate of 5.3%.[2]

In our study, however, we report seven (5.6%) complications and two cases involved sepsis. We believe our complication rate was low mainly due to use of prophylactic antibiotics. All our patients had antibiotics before and at least 24 hours after surgery. The occurance of complications should not act as a deterrent to performing a vaginal hysterectomy. This should encourage surgeons since there is still the option of a conversion to the abdominal route. Conversion should not be treated as a failure and in fact all our patients were informed of the possibility of having an abdominal hysterectomy. Ahmed *et al.* has even suggested the option of mini-laparotomy assisted vaginal hysterectomy.[10] In their own words, "as everything was ready for a mini-laparotomy, the surgeon felt more secure proceeding vaginally in difficult cases of vaginal hysterectomy." All that the surgeon needs therefore is security.

The indications in our study were varied and not restricted. It is important to note that prolapse was only indicated in eight (6.5%) patients. This is the indication with which most surgeons feel comfortable. Lack of uterine prolapse and fibroids were the most common limiting factors for vaginal hysterectomy in a survey by Davies and Magos.[7] We were faced with a situation where fibroids are the commonest indication for hysterectomy and prolapse is quite uncommon. The need for being conversant with size reduction methods in these situations cannot be overemphasised. Oyawoye alludes to the fact that other factors added to the reluctance to perform vaginal surgery are high incidence of pelvic adhesions and fibroids.[11] This was also observed in Ethiopia.[12] This is certainly true in our environment where these are by far the more common occurrences. We did not find any reason not to use the vaginal route in these situations. However, the surgeon needs to be extra cautious under these circumstances.

The literature has mainly emphasised the increasing rates of vaginal hysterectomy. Davies and Magos in a postal survey of consultant gynaecologists showed that surgeons who performed laparoscopic hysterectomies also performed more vaginal hysterectomies.[7] They noted that the low rates of vaginal hysterectomy were mainly due to the surgeon's attitude and the training received. In our environment, however, it is a question of a scarce resource, not the surgeon's attitude. The surgeon trained in laparoscopic hysterectomy is very scarce and so is the equipment. It is, therefore, imperative that the technique of vaginal hysterectomy be encouraged and taught more in developing countries.

The operative time is short with the vaginal route. In cases where size reduction methods are required such as morcellation, the operative time required is significantly increased.[13] These methods which facilitate vaginal hysterectomy do not correspondingly increase operative morbidity. This is in sharp contrast to laparoscopy which increases operation time, cost and has a greater risk of injuries to the ureters.[14]

Conclusion

Our study shows vaginal hysterectomy can be performed and with very low complication rates. We also hope gynaecological surgeons particularly in developing countries will take up the challenge and perform more hysterectomies vaginally.

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