

Vaginal hysterectomies in patients without uterine prolapse: a local perspective

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Objective To review the results of vaginal hysterectomies in patients without uterine prolapse.

Design Retrospective chart review.

Setting University affiliated hospital, Hong Kong.

Patients Patients who had vaginal hysterectomies in the absence of uterine prolapse, from 1999 to 2005 inclusive.

Main outcome measures The number, indications, operative procedures, and complications of such hysterectomies.

Results A total of 94 patients who underwent vaginal hysterectomy fulfilled the inclusion criteria. They accounted for 4.3 to 8.2% of all hysterectomies performed annually for benign diseases in the department, over the inclusive period 2000 to 2004. The incidences of complications, except bladder injuries, were comparable to those reported in other studies. The incidence of vault haematoma decreased as each surgeon's experience increased and more attention was paid to 'bleeders' at the 'four and eight o'clock areas' and more cephalic regions of the vaginal incision. Increased size of the uterus was an important determinant of the risk of complications.

Conclusions Vaginal hysterectomy is an underutilised approach in Hong Kong. With more experience and better patient selection, complication rates can be further reduced. Further evaluation is suggested for the role of bleeders at 'four and eight o'clock regions' as potential causes of vault haematoma.

Introduction

Hysterectomy is a commonly performed major procedure. According to the Hong Kong College of Obstetricians and Gynaecologists' Territory-wide Audit in 1999,¹ 4133 hysterectomies were performed for benign diseases. Abdominal hysterectomy constituted more than half of the major abdominal operations performed in the same year.

The optimal route for hysterectomy has been the subject of extensive discussion. The consensus view is that vaginal hysterectomy should be the preferred route. According to a recent systematic review, as compared to abdominal hysterectomies the advantages of vaginal hysterectomies are: significantly speedier return to normal activities, shorter duration of hospital stay, and fewer unspecified infections or febrile episodes.² However, the vaginal route seems to be relatively underutilised in Hong Kong. According to the above-mentioned territory-wide audit,¹ it was estimated that in the absence of uterine prolapse only 2.7% were performed vaginally. This estimate was derived by dividing the number of vaginal hysterectomies for benign conditions performed without pelvic floor repair (n=112) by the total number of such hysterectomies (3428 abdominal procedures for benign conditions, 450 vaginal hysterectomies with and without pelvic floor repair, 255 laparoscopic hysterectomies). In this report we review our early experience of vaginal hysterectomies without uterine prolapse.

Methods

Queen Mary Hospital is a university-affiliated hospital serving the population of Hong Kong Island West. A retrospective chart review was performed for all patients who had vaginal hysterectomies in the absence of uterine prolapse carried out in the period 1999 to 2005 inclusive.

Key words

Hematoma; Hysterectomy, vaginal;
Organ size

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本地對無呈現子宮脫垂的病人進行經陰道的子宮切除手術

目的	檢討對無呈現子宮脫垂的病人進行經陰道的子宮切除手術的結果。
設計	回顧式圖表檢討。
安排	香港一所大學附屬醫院。
患者	1999年至2005年期間，沒有子宮脫垂而進行經陰道的子宮切除手術的病人。
主要結果測量	施手術次數、適應性、手術步驟和這種子宮切除手術的併發症。
結果	符合上述條件的經陰道的子宮切除手術病人有94名，佔2000年至2004年間該學系每年進行良性瘤子宮切除病例的4.3至8.2%。除了膀胱受損外，其他併發症的數字與其他研究相若。而穹窿血腫的情況，亦隨着手術經驗的增加，和對陰道切口頭部的「四點鐘」及「八點鐘」位置的「出血位」加強留意而減少。子宮增大是併發症風險的重要指標。
結論	經陰道的子宮切除手術在香港使用率偏低。相信累積更多經驗和選取適當的病人，併發症可以進一步減低。我們認為應研究「四點鐘」和「八點鐘」位置「出血位」與發生穹窿血腫的潛在關係。

Information on the indications, operative procedures, and complications were extracted and analysed.

Vaginal hysterectomy is an option only for certain patients, namely those with: uterine size equivalent to a pregnancy of less than 12 weeks, unrestricted uterine mobility, and absence of adnexal pathology.³ However, because of the retrospective nature of this study, the actual number of suitable patients that were not offered or refused this option could not be determined.

Vaginal hysterectomies were performed in the usual manner,⁴ under general anaesthesia with prophylactic antibiotics being given at induction. After making a circumferential incision at the vaginal fornix, the bladder was dissected from the uterus and the anterior vesicouterine space and the Pouch of Douglas were entered. Uterosacral ligaments and transverse cervical ligaments were clamped, cut, and transfixed together with uterine vessels. The uterus was bisected or morcellated as appropriate, whenever difficulty was encountered due to uterine size. The upper uterine pedicles including the round ligaments, uterine tubes, and ovarian ligaments were then clamped, cut, and transfixed. After inspection of the adnexal organs (ovaries and fallopian tubes) and confirmation of haemostasis, the vaginal vault was closed. With increasing local experience with this type of surgery, it was noticed that bleeders were commonly found at the 'four and eight o'clock areas' more cephalic to the vaginal incision. Therefore, in the second half of the series (starting in 2002) these areas were checked

more carefully. A pelvic drain was inserted as necessary by the operating gynaecologist.

Results

The distribution of different types of hysterectomies performed in our department for benign diseases from 2000 to 2004 is listed in Table 1. Seven gynaecologists including trainees under supervision carried out a total of 94 vaginal hysterectomies in patients without prolapse. Four of these surgeons performed 10 or more procedures each, all of whom were also competent in performing vaginal hysterectomy for uterine prolapse.

The preoperative diagnoses of the patients are listed in Table 2. Patients' symptoms and signs included: menorrhagia (n=76), dysmenorrhoea and menorrhagia (n=5), pelvic mass (n=2), urinary symptoms (n=2), and others (n=9). Among these patients, 18 had had previous caesarean sections (including three with two previous sections and two with three), and six had had a loop electrosurgical excision procedure or cone biopsy. Twenty-eight patients had other medical diseases that generally had no significant effect on the procedure.

All except eight patients received prophylactic antibiotics; 81 patients received intravenous cefazolin 1.2 g at induction of anaesthesia. The median size of the uterus was '8 weeks'. The median operating time was 68 (range, 35-197) minutes. Apart from vaginal hysterectomy, 10 patients had additional procedures. Five had excision of fimbrial/parovarian cysts, one had a salpingectomy, one had a laparoscopic ovarian cyst wall biopsy, one underwent bilateral vaginal salpingo-oophorectomy, one had excision of a vaginal fibroid, and one had transvaginal tension-free taping. The median operative blood loss of these patients was 300 (range, 50-2000) mL including the one with an estimated loss of 2000 mL and three with estimated losses of 1000 mL. Adhesions were found in the peritoneal cavity of four patients. The median uterine weight was 213 g (range, 40-504; upper 90th centile, 370 g). The uterus was removed intact in 15 patients, bisection was performed in 30, and morcellation in 48; the median uterine weights in these three groups were 109, 179, and 271 g, respectively. The remaining patient underwent laparotomy because of haemorrhage and the uterus was removed abdominally. A drain was inserted at the end of the procedure in 24 patients. Thirty-two patients received no analgesic after their operation.

The median hospital stay was 3 days; nine patients stayed longer than 5 days. The complications related to the procedure were: unexplained fever (n=4), bowel injury (n=0), bladder injury (n=3), urinary tract infection (n=3), operative blood loss requiring blood transfusion (n=9), intra-operative haemorrhage managed by laparotomy (n=1) and laparoscopy (n=1), postoperative haemorrhage for which laparotomy was performed (n=2), postoperative

TABLE 1. Patient numbers in our department having different types of hysterectomies for benign diseases

Year	Vaginal hysterectomy		Open hysterectomy	Laparoscopically assisted vaginal hysterectomy
	Without prolapse*	With prolapse		
2000	13 (5.7%)	38	123	55
2001	23 (8.2%)	36	160	62
2002	11 (4.3%)	36	156	54
2003	22 (8.1%)	38	160	52
2004	24 (8.2%)	32	166	70

* Figures in parenthesis refer to vaginal hysterectomies without prolapse expressed as a percentage of all hysterectomies for benign disease

TABLE 2. Preoperative diagnoses

Preoperative diagnosis	No. of patients
Uterine fibroid	77 (81.9%)
Microinvasive carcinoma of cervix/cervical intraepithelial neoplasia	6 (6.4%)
Adenomyosis	5 (5.3%)
Dysfunctional uterine bleeding	3 (3.2%)
Endometrial hyperplasia	1 (1.1%)
Other	2 (2.1%)

TABLE 3. Complication rates associated with vaginal hysterectomy

Complication	Current series (%)	Previous studies (%)
Unexplained fever	4.3	5-8 ⁷
Bowel injury	0	0.1-0.8 ⁷
Bladder injury	3.2	0.5-1.5 ⁷
Transfusion rate	9.6 (6.4 after excluding patients with a low preoperative haemoglobin level)	2-8 ⁷
Vault haematoma	11.7	3.9-10 ⁸

haemorrhage managed laparoscopically (n=1), unplanned readmission (n=8), and vault haematoma (n=11). All three bladder injuries occurred within the first 10 cases operated on by the respective gynaecologists; one of the patients had a history of a prior caesarean section. Of the nine patients who received blood transfusions, three had preoperative haemoglobin levels of less than 100 g/L. The uterine weights of the two patients treated by laparoscopy or laparotomy to control bleeding were 406 and 483 g (ie >upper 90th percentile value of 370 g). The three patients treated by postoperative laparotomy or laparoscopy were 145, 374, and 504 g. In the eight patients with unplanned readmission, one was due to partial intestinal obstruction, which responded to conservative treatment; the remainder had vault haematomas and presented with abdominal pain. The diagnosis was confirmed by pelvic sonogram. Eight of the 11 vault haematomas occurred in the first half of the series of operations. The difference in the incidence of haematomas in the two periods was not statistically significant (P>0.05, Fisher's exact test).

Discussion

Among hysterectomies for benign diseases in our department, the annual percentages for those performed vaginally in patients without uterine prolapse varied from 4.3 to 8.2% during the period from 2000 to 2004. In 2001, 2003, and 2004, the percentages were 8.2, 8.1, and 8.2 respectively. The trend seems to suggest that a realistic target in our population using the conventional selection criteria is perhaps 10%, although a much higher

proportion, eg 50%, was proposed in the literature.⁵ Apart from availability of technical expertise, other factors like local patient characteristics may differ, and therefore based on our experience a more conservative target is proposed.

The operating time, operative blood loss, and postoperative hospital stay in our department's first series of patients undergoing vaginal hysterectomy, were similar to what others have reported.⁶ Bisection or morcellation were required in 83% of the patients. The overall complication rate appeared higher than that in other studies,^{7,8} but if bladder injuries were excluded, the rate was comparable (Table 3). The transfusion rate was 6.4%, if patients with a low preoperative haemoglobin level were excluded.

A surgeon's learning curve for vaginal hysterectomy had an influence on the distribution of complications. All three bladder injuries were incurred within the first 10 cases of the respective surgeon. Most of the vault haematomas occurred in the first half of the series. However, there was no statistically significant difference between the first and second half of the series with respect to the proportion of patients with this complication (probably due to the small sample size). We speculate that vault haematomas were from 'bleeders' in the vaginal vault around the uterosacral ligaments, where sutures were inserted at the beginning of the procedure and become dislodged during course

of the operation. After more attention directed to these areas, the incidence of vault haematoma was dramatically reduced. The role of 'bleeders' at 'four and eight o'clock regions' are worth further study in a larger series of patients. Uterine size was another important determinant for the risk of complications. Four of the five patients who required laparoscopy or laparotomy to control bleeding had uterine weights exceeding the upper 90th percentile (370 g). This supports the use of a cut-off size equivalent to a 12-week gravid uterus (average, 207 g; standard deviation, 97 g).⁹ With more experience and better selection of patients, complication rates may be further reduced. For large uterine size, preoperative shrinking with a course of gonadotropin-releasing hormone agonist may increase the chance of

successful vaginal hysterectomy.¹⁰

Conclusion

Vaginal hysterectomy for non-malignant conditions is an underutilised approach for hysterectomy in Hong Kong, accounting for only 2.7% of such procedures being performed in the absence of prolapse. A target rate of 10% is recommended based on our department's perspective. With more experience and better patient selection, complication rates can be further reduced, so that it becomes the treatment of choice (except for special cases). Further evaluation of the role of bleeders at 'four and eight o'clock regions' is suggested, as a possible cause of vault haematoma.

References

1. Territory-wide audit in obstetrics and gynaecology Hong Kong 1999. The Hong Kong College of Obstetricians and Gynaecologists; 2003.
2. Johnson N, Barlow D, Lethaby A, Tavender E, Curr L, Garry R. Methods of hysterectomy: systematic review and meta-analysis of randomised controlled trials. *BMJ* 2005;330:1478.
3. Sheth SS. Preoperative assessment. In: Sheth SS, Studd J, editors. *Vaginal hysterectomy*. 1st ed. Hampshire: Martin Dunitz; 2002:21.
4. Sheth SS. Vaginal hysterectomy. *Best Pract Res Clin Obstet Gynaecol* 2005;19:307-32.
5. Meeks GR, Harris RL. Surgical approach to hysterectomy: abdominal, laparoscopy-assisted, or vaginal. *Clin Obstet Gynecol* 1997;40:886-94.
6. Johnson N, Barlow D, Lethaby A, Tavender E, Curr E, Garry R. Surgical approach to hysterectomy for benign gynaecological disease. *Cochrane Database Sys Rev* 2006;2: CD003677.
7. Hill DJ. Complications of hysterectomy. *Baillieres Clin Obstet Gynaecol* 1997;11:181-97.
8. Thomson AJ, Farquharson RG. Vault haematoma and febrile morbidity after vaginal hysterectomy. *Hosp Med* 2000;61:535-8.
9. Cantuaría GH, Angioli R, Frost L, Duncan R, Penalver MA. Comparison of bimanual examination with ultrasound examination before hysterectomy for uterine leiomyoma. *Obstet Gynecol* 1998;92:109-12.
10. Gutmann JN, Corson SL. GnRH agonist therapy before myomectomy or hysterectomy. *J Minim Invasive Gynecol* 2005;12:529-37.