

VAGINAL HYSTERECTOMY: EXTRAPERITONEAL VERSUS INTRAPERITONEAL APPROACH

Thesis

*Submitted for the Partial Fulfillment
Of M.D in Obstetrics and Gynecology*

By

Rasha Mahmoud Medhat Abdel Hadi

Bachelor Medicine and Surgery 2006
Master Degree of Obstetrics and Gynecology 2010
Ain Shams University

Supervised By

Dr. Helmy Motawe Elsayed

*Professor of Obstetrics and Gynecology
Faculty of Medicine – Ain Shams University*

Dr. Ahmed Mohamed Ibrahim

*Assistant Professor of Obstetrics and Gynecology
Faculty of Medicine – Ain Shams University*

Dr. Mohamed Saeed El Din El Safty

*Lecturer of Obstetrics and Gynecology
Faculty of Medicine – Ain Shams University*

*Facutly of Medicine
Ain Shams University*

2011

Introduction

Hysterectomy's the most commonly performed gynecological procedure. Abdominal and vaginal routes have traditionally been the most common surgical approaches (*Gendy et al., 2011*).

Whether the uterus should be removed vaginally or abdominally has been always the subject of controversy.

There is a fact that vaginal hysterectomy's associated with a lower morbidity, less operative time, shorter hospital stay, and to a more rapid post operative recovery than abdominal hysterectomy with no visible scar, thus, the vaginal route tends to become the preferred surgical approach for hysterectomy (*Pierluigi et al., 2003*).

This was confirmed by *Van Den et al. (1998)*, when concluded that Vaginal Hysterectomy scored the most points in terms of patient's satisfaction and well being.

Ottosen et al. (2000), showed that vaginal hysterectomy should be considered the primary method for hysterectomy. This is especially in the obese who should discourage the abdominal route as the production of an abdominal wound renders post operative recovery more complex increasing the risk of morbidity and mortality, therefore, the surgeon should offer the least invasive surgery (*Shirish, 2010*).

There is a number of pre-existing clinical conditions that are generally accepted as contraindications to vaginal hysterectomy or, in other words, relative contraindications, like moderate to excessive uterine enlargement, nulliparity, previous pelvic surgeries, and the presence of adenaxal pathology (*Pierluigi et al., 2004*).

However, experienced surgeons find adhesiolysis easier to performed vaginal than from above at laparotomy (*Shirish, 2009*), and the operator may be surprised that vaginal adenectomy is usually possible (*Shirish, 2002*).

Indeed the more tools in the surgeon's armamentarium the more confident he becomes when meeting challenges during vaginal hysterectomy when there're fewer alternatives available to manage unexpected findings (*Ottosen et al., 2000*).

One of the most difficult and potentially frustrating aspects of vaginal hysterectomy can be the failure to safely enter the peritoneal cavity early in the procedure. This is often because of an excessively long cervix, minimal uterine descent, and high post peritoneum or an obliterated Cul de Sac. Concerns about injury to the bladder and rectum, unnecessary blood loss or later failure to complete it vaginally may lead to unnecessary abandonment of the planned vaginal route.

Here extraperitoneal approach of vaginal hysterectomy appears as a potential solution. It starts by an extraperitoneal dissection of the uterosacral ligaments to obtain more uterine descent and thus improve the access to the posterior peritoneal fold (*Unger, 1997*).

It can be more extensive extraperitoneal dissection or "climb up" technique involving not only the uterosacrals but the cardinal ligaments and uterine vessels as well and sometimes extraperitoneal uterine morcellation (*Krige, 1965*).

AIM OF THE WORK

To compare the procedure of extraperitoneal vaginal hysterectomy to the intraperitoneal approach regarding: the operative time, uterine weight, heamoglobin decrease, the hospital stay and finally the operative and post operative complications, aiming to evaluate the safety and the efficacy of the technique and to study whether it can be used as a standard technique for vaginal hysterectomy.

PATIENTS AND METHODS

This study will be performed at Ain Shams Maternity hospital. The type of the study is a double armed randomized clinical trial including 54 cases, the cases will be divided into two groups:

Group A patients:

Formed of 27 cases, and will be subjected to the intraperitoneal approach or the standard method of vaginal hysterectomy, in which the posterior peritoneal fold is identified and opened, then the uterosacral ligaments and the cardinal ligaments are clamped, incised and sutured. Then the anterior peritoneum is next identified and opened to proceed in the further steps of vaginal hysterectomy.

Group B patients :

Formed of 27 cases, and they'll be subjected to the extraperitoneal approach of vaginal hysterectomy, in which the uterosacrals and cardinal ligaments will be clamped and cut extraperitoneally. Care should be taken to avoid injury to the rectum during this dissection. The bladder pillars will be also taken, particularly if they are prominent or to ensure complete dissection of the urinary bladder. The uterine vessels will be clamped and ligated in an extraperitoneal manner as well.

At this point, the posterior peritoneum will be identified and sharply opened, then the anterior peritoneum next, identified and opened to proceed in the steps of vaginal hysterectomy in the usual manner, and other operative procedures will be performed as indicated or planned.

All cases will be blinded, i.e the study will be carried out as a single blinded study and they will return for follow up and recommended postoperative examination during 4 to 8

weeks after surgery. Charts will be available for review of all patients.

All patients will have:

- Careful history taking.
- General examination.
- Local examination.

Preoperative laboratory investigations:

- Complete blood count
- Liver and kidney function tests
- Blood glucose levels
- Coagulation profile.
- Transvaginal ultrasound assessment.

And the indication of every case will be documented as well as a legal consent from the patient, will be taken to be included in the study

The inclusion criteria of the selected cases:.

- A uterine size < 16 weeks.
- At least first degree of uterine descent.
- Mobile uterus.
- Voluminous cervix.
- Absence of adenxal pathology.
- No previous vaginal surgeries.

The exclusion criteria:

- Excessively large uterus, > 16 weeks.
- No degree of uterine descent.
- Nulliparity or no Prior vaginal delivery
- Restricted uterine mobility.
- Endometriosis
- Cervix flush with the vagina or inaccessible cervix
- Previous vaginal surgery

Sample size justification:

Sample size was calculated using STATA[®] version 11 program, setting the type-1 error (α) at 0.05 and the power ($1-\beta$) at 0.08 Results from a previous study (Unger, 1997) showed that mean operative time in intraperitoneal technique was 52.9 ± 24.1 , while for extraperitoneal technique it was 71.9 ± 25.6 . Calculation according to these values produced a minimal sample size of 27 cases for each study group.

Reference for program :

StataCorp. 2001. Statistical Software : Release 7.0. College Station, TX: Stata Corporation.

Statistical methods:

Statistical analysis is to be performed using statistical package for social science (SPSS) for windows version 15.0 measured data will be described as range, mean and standard deviation (for parametric variable), range, median and interquartile range (for non parametric variables), number and percentage (for categorical variables). Difference between two unrelated groups will measured using unpaired student's t-test (for parametric variables), Mann-Whitney's U-test (for non-parametric variables) and Chi-squared test (for categorical variables). Association between variables will be assessed using Pearson's correlation coefficient (for parametric variables) and spearman's rank correlation coefficient (for non-parametric variables). Significance level will be set at 0.05.

Bibliography:

The References will be alphabetically arranged... and for the same author, it will be chronologically arranged.

REFERENCES

- Gendy Rasha, Walsh Colin A., Walsh Stewart R. and Emmanuel Karantanis (2011):** Vaginal hysterectomy versus total laparoscopic hysterectomy for benign disease: a metaanalysis of randomized controlled trials. American Journal of Obstetrics & Gynecology; Vol. 204 Issue 5, Pages 388.e1-388.e8, May 2011.
- Krige C.F. (1965):** Vaginal Hysterectomy and Genital Prolapse Repair. A Contribution to the Vaginal Approach to Operative Gynecology. Johannesburg, South Africa, Witwatersrand University Press, P. 57-70.,1965. (Quoted from Unger, 1997).
- Ottosen C, Lingman G, Ottosen L.** Three methods for hysterectomy: a randomized prospective study of short-term outcome. Br J Obstet Gynecol, 107: 1380-5.,2000.
- Pierluigi Paparell. Onella Sizzi. Alfonso Rossetti. et al., (2004):** Vaginal hysterectomy in generally considered contraindications to vaginal surgery. Arch Gynecol Obstet, 270:104-109..
- Shirish S. (2002):** Adnexectomy for benign pathology at vaginal hysterectomy without laparoscopic assistance. BJOG: an international Journal of obstetrics and Gyneacology. December, Vol. 109, pp. 1401-1405,.
- Shirish S. Sheth, A., (2009):** Surgical window to access the obliterated posterior cul-de-sac at vaginal hysterectomy. International Journal of Gynecology and Obstetrics 107,244-247.

- Shirish S. Sheth (2009):** Department of Gynecology, Breach Candy, Sir Hurkisondas and Saifee Hospitals, and Sheth Gynecological Nursing Home, Mumbai, Maharashtra, India, Vaginal Hysterectomy as a primary route for morbidly obese women *Acta Obstetricia et Gynecologica*; Early Online, 1-4.,.
- Unger M.D., James B. (1997):** Department of Obstetrics and Gynecology, Marshfield Clinic, Marshfield, Wisconsin, The Extraperitoneal Approach of vaginal hysterectomy.
- Van Den E, Glasser M., Mathais S.D., et al., (1998):** Quality of life health care utilization and costs among women undergoing hysterectomy in a managed care setting. *Am J Obstet Gynecol* 178: 91-110.

LIST OF CONTENT

List of tables.....	ii
List of figures.....	iv
LIST OF ABBREVIATIONS.....	vi
Introduction.....	1
The History of Vaginal Hysterectomy	6
Indications of Vaginal Hysterectomy.....	38
Contraindications of Vaginal Hysterectomy	46
Complications of Vaginal Hysterectomy	55
Preoperative evaluation and patient assessment before	
Vaginal Hystrectomy	70
The Extraperitoneal approach to vaginal hysterectomy.....	92
Patients and Methods	121
Results	138
Discussion.....	155
Summary.....	173
Conclusions and Recommendations	176
References.....	178
Arabic Summary	

LIST OF TABLES

<i>Table</i>	<i>Title</i>	<i>Page</i>
1	Uterine volume in cm ³ and vaginal hysterectomy.	78
2	Uterine volume in cm ³ and vaginal hysterectomy.	86
3	Modified Sheth's Score for Preoperative Assessment of Procedural Difficulty in Vaginal Hysterectomy.	125
4	Description of personal and medical data among group A cases (the intraperitoneal arm)	138
5	Description of clinical data among group A cases (the intraperitoneal arm)	139
6	Description of Hb before and after operation and the change in Hb among group A cases (the intraperitoneal arm).	139
7	Description of operative time and type of anaesthesia used among group A cases (the Intraperitoneal arm).	140
8	Description of intra operative complication among group A cases (the Intra peritoneal arm).	140
9	Description of uterine weight and post operative complication among group A cases (the Intraperitoneal arm).	141
10	Description of hospital stay, need for readmission and secondary haemorrhage among group A cases (the Intraperitoneal arm)	142
11	Description of personal and medical data among group B cases (the Extra peritoneal arm).	142

<i>Table</i>	<i>Title</i>	<i>Page</i>
12	Description of clinical data among group B cases (the Extraperitoneal arm).	143
13	Description of Hb before and after operation and the change in Hb among group B cases (the Extraperitoneal arm)	143
14	Description of operative time and type of anaesthesia used among group B cases (the Extra peritoneal arm)	144
15	Description of intra operative complication among group B cases (the Extra peritoneal arm).	144
16	Description of uterine weight and post operative complication among group B cases (the Extraperitoneal arm)	145
17	Description of hospital stay, need for readmission and secondary haemorrhage among group B cases (the Extraperitoneal arm)	145
18	Comparison between group A and B as regard personal and medical data	146
19	Comparison between group A and B as regard clinical data	147
20	Comparison between group A and B as regard pre and post operative Hb level	149
21	Comparison between group A and B as regard change and in Hb after operation	150
22	Comparison between group A and B as regard operative time	150
23	Comparison between group A and B as regard intraoperative complication	151
24	Comparison between group A and B as regard uterine weight and post operative complication	152
25	Comparison between group A and B as regard hospital stay need for readmission and secondary haemorrhage	153

LIST OF FIGURES

<i>Figure</i>	<i>Title</i>	<i>Page</i>
1	Coring of the uterus.	25
2	Uterine hemisection or bivalving	26
3	Bisection & Myomectomy	27
4	Use the index finger to palpate the bladder reflection	95
5	Bladder reflection with marking	96
6	The cervix is grasped with two single-toothed tenaculi.	98
7	A circular incision around the cervix	99
8	A sharp and deep incision aids in identification of the appropriate plane	99
9	dissection of the bladder off the anterior lower uterine segment	101
10	Sharp dissection to free the bladder from the uterus	103
11	Sharp entry into the peritoneal cavity	104
12	cervical elongation	106
13	Extraperitoneal dissection of the uterosacral ligament	110
14	Securing the uterosacral ligament.	111
15	Clamping cardinal ligament	112
16	The uterine artery is secured extraperitoneally	113
17	Once the uterine vessels have been controlled, morcellation may begin	115
18	Bi-valve the cervix in the midline, following the endocervical canal.	115
19	Dissection of uterine myoma helps the reduction in the uterine size	116
20	Clamping and cutting the round ligament on each side.	117

<i>Figure</i>	<i>Title</i>	<i>Page</i>
21	Delivering the fundus into the vagina and places tension on the infundibulopelvic ligament.	118
22	Briesky-Navratil vaginal retractors	128
23	Deaver –retractors	129
24	Steiner Auvard Weighted Vaginal Speculum.	130
25	the uterosacral ligament is identified and clamped extraperitoneally	133
26	Uterine arteries were secured extraperitoneally	133

LIST OF ABBREVIATIONS

AH	: Abdominal hystrectomy.
ALT	: Alanine transaminase
AP	: Anteroposterior
AST	: Aspartate transaminase
DUB	: Dysfunctional uterine bleeding
GnRH	: Gonadotropin-releasing hormone
Hb	: Haemoglobin
HCV	: hepatitis C virus
LAVH	: Laparoscopic assisted vaginal hysterectomy.
SD	: Standard deviation
TVS	: Transvaginal ultrasonography
VH	: Vaginal hystrectomy