Comparison between Bisection and Myometrial Coring as an Effective Technique in Uterine Debulking During Vaginal Hysterectomy

Thesis

Thesis submitted for partial fulfillment of the M.D degree in ***Obstetrics and Gynecology***

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2014

سورة البقرة الآية: ٣٢

Acknowledgement

First of all, all gratitude is due to **God** *almighty for blessing this work, until it has reached its end, as a part of his generous help, throughout my life.*

Really I can hardly find the words to express my gratitude to **Prof. Magdy Mohammed Kamal,** *Professor of Obstetrics and Gynecology, faculty of medicine, Ain Shams University, for his supervision, continuous help, encouragement throughout this work and tremendous effort he has done in the meticulous revision of the whole work. It is a great honor to work under his guidance and supervision.*

I would like also to express my sincere appreciation and gratitude to **Prof. Mohammad AbdEl-Hameed M. Nasr-AdDeen,** *Professor of Obstetrics and Gynecology, faculty of medicine, Ain Shams University, for his continuous directions and support throughout the whole work.*

I would like to express my gratitude to **Dr. Ahmed Hamdy Naguib Abdel-Rahman,** *Assistant Professor of Obstetrics and Gynecology faculty of medicine, Ain Shams University, for the benefit of his extensive experience, knowledge, kind advice and planning to the present study.*

Especially I am obliged to **Dr. Adel Shafik Salah El-Din** *Assistant Professor of Obstetrics and Gynecology, Faculty of Medicine, Ain shams University, who offered his great help and his professional experience for completion of this work.*

Last but not least, I dedicate this work to my family, whom without their sincere emotional support, pushing me forward this work would not have ever been completed.

Mohammed Esmat Abbass Shawky

Contents

List of Abbreviations

A.D	:	Anno Domini
AH	:	Abdominal hysterectomy
ALT	:	Alanine transaminase
AST	:	Aspartate transaminase
CI	:	Confidence Interval
CO_2	:	Carbon dioxide
CPP	:	Chronic pelvic pain
CREST	:	Collaborative review of sterilization
CT	:	Computed tomography
D&C	:	Dilatation and curettage
DUB	:	Dysfunctional uterine bleeding
ECG	:	Electrocardiogram
EUA	:	Examination under anaesthesia
Fr	:	French
g	:	Gram
Hb	:	Hemoglobin
HBV	:	Hepatic B virus
HCV	:	Hepatitis C virus
HIV	:	Human immunodeficiency virus
HRT	:	Hormone replacement therapy
ICCU	:	Intensive cardiac care unit
IQR	:	Interquartile range
IV	:	Intravenous
Kg	:	Kilogram
LARVH	:	Laparoscopic assisted radical vaginal hysterectomy
LAVH	:	Laparoscopically assisted vaginal hysterectomy
LH	:	Laparoscopic hysterectomy
m	:	Meter
MHz	:	MegaHertz
min	:	Minute
mL	:	MilliLiter

List of Abbreviations (Cont.)

mm	:	Millimeter
MRI	:	Magnetic resonance imaging
MS	:	MicroSoft
NS.	:	Non-significant
NSAIDs	:	Non-steroidal anti-inflammatory drugs
OR	:	Odds ratio
RLH	:	Radical laparoscopic hysterectomy
RR	:	Relative risk
S.	:	Significant
SD	:	Standard Deviation
SICU	:	Surgical intensive care unit
SPSS	:	Statistical Package for Social Sciences
TLH	:	Total laparoscopic hysterectomy
TOT	:	Transobturator tape
TVS	:	Transvaginal ultrasonography
UK	:	United Kingdom
USA	:	United States of America
VH	:	Vaginal hysterectomy

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Introduction

Hysterectomy is the most common non-pregnancy-related gynecological surgical procedure performed all over the world, with one in three women having a hysterectomy by the age of 60 in the United States ***(Farquhar and Steiner, 2002)***.

Hysterectomy can be performed abdominally, vaginally or laparoscopically. The abdominal route offers the surgeon an optimal view and allows a uterus of any size to be resected **(*Garry et al., 2004).***

Vaginal hysterectomy (VH) dates back to ancient times and was first performed in 120A.D by Soranus of Ephesus. During this era the indication was almost always an inverted uterus and chances of survival were low. Patients died of haemorrhage, peritonitis and exhaustion as there is a reason to believe that the early hysterectomies were fraught with hazard. At the end of the 19^{th} century, with the introduction of anaesthesia, antibiotics, antisepsis, specially modified instrumentation, blood transfusions and intravenous therapy the mortality rate for vaginal hysterectomy decreased significantly: 15% by 1886, 10% by 1890 and 2.5% by 1910 ***(Sutton, 1997)***.

Abdominal hysterectomy (AH) lagged far behind and in 1872 was formally condemned by the Academy of Medicine of Paris. In 1880, Thomas reported a mortality rate of 70% on 365 collected cases. In the 20^{th} century AH changed from subtotal to total abdominal hysterectomy and the less disfiguring transverse incision was introduced by Johannes Pfannestiel. Mortality rates had fallen to 0.12% ***(Amirkiah and Evans, 1979)***.

Over the last few decades, AH has been the most frequently used technique. Whether this can be justified in

spite of the greater morbidity associated with abdominal surgery remains a matter of debate. The introduction of laparoscopic hysterectomy (LH) ***(Reich et al., 1989)*** and laparoscopically assisted vaginal hysterectomy (LAVH) ***(Kovac et al., 1990)*** created additional surgical options for removal of the uterus.

Vaginal hysterectomy- assisted or not- by laparoscopy has gained popularity among gynecologic surgeons. This approach has already proved its superiority over laparotomy in terms of perioperative complications, blood loss, hospital stay and costs ***(Darai et al., 2001).***

A Cochrane review of surgical approaches to hysterectomy for benign gynecological diseases concluded that, wherever possible, vaginal hysterectomy should be performed in preference to abdominal hysterectomy **(*Johnson et al., 2005)***.

Various studies have demonstrated the advantages of VH over AH in terms of postoperative morbidity. In 1982, the collaborative review of sterilization (CREST) study, based on perioperative complications associated with 1851 hysterectomies from nine hospitals in the USA (1978-1981) was reported. This study, involving patients undergoing hysterectomy for benign disease, concluded that an average woman of reproductive age with no pre-existing medical condition, no previous abdominal surgery, and who received prophylactic antibiotics, was best served by VH rather than by AH. The results showed that only 7.2% of patients undergoing VH developed unexplained pyrexia as opposed to 16.8% of patients undergoing AH. The overall incidence of perioperative complications, after treatment with antibiotics, was 24.5% after VH as compared to 42.7% after AH with a respective risk of blood transfusion of 8.3 and 15.4% ***(Dicker et al., 1982)***.

A 5-year retrospective review of 2088 hysterectomies (1992-1996) of which 1244 (60%) were abdominal and 844 (40%) were vaginal, showed the surgical morbidity for abdominal hysterectomy (6.2%) was twice that for vaginal hysterectomy (3.2%). The associated morbidity of 4% for the former was twice that of the latter (0.9%) ***(Baskett and Clough, 2000)***.

However, laparotomy is still the main route for hysterectomy in many countries due to lack of experience of surgeons and fear of complications. ***(Gimbel et al., 2001)***.

Varma et al. (2001) studied hysterectomy practice over 5 years in a district general hospital. After excluding patients with uterovaginal prolapse, leiomyomas larger than 16 weeks in size, adnexal disease and malignancy, they made a decision to deliberately carry out all hysterectomies vaginally, if technically possible. At the start of the study 68% of hysterectomies were being performed abdominally and 32% vaginally. By the end of the fifth year the pattern had changed dramatically to 95% VH and 5% AH. The authors concluded that a major determinant of the route of hysterectomy was not the clinical situation but the attitude of the surgeon and that the number of VH could be increased if a deliberate decision was made to carry them out.

A large uterus should not be a contraindication to vaginal hysterectomy as techniques that reduce its size prior to extraction are available ***(Nazah et al., 2003).***

Various techniques have been described to reduce the size of the enlarged uterus making VH possible. These include uterine bisection, myomectomy, morcellation, Lash intramyometrial coring and wedge debulking ***(Unger, 1999)***.

Significant contributions to morcellation techniques were made by ***Pryor*** of New York ***(1899)***, and ***Doyen*** of Paris

(1920), in the 1980s. Pryor popularized vaginal hysterectomy by bisection as an effective approach to the treatment of advanced pelvic inflammatory disease, achieving a remarkable 0.4% mortality rate in 228 consecutive cases. Doyen, whose career extended from 1885 through the First World War, described a very efficient method of morcellating enlarged, solid myomas with coring tubes.

Intramyometrial coring was introduced by ***Lash***, of Chicago, in ***(1941)***. In his presentation to the Chicago Gynecological Society, Lash advocated the method as a means of reducing uterine size without entering the uterine cavity in cases of pyometra, and with cancers of the isthmus and corpus. Although his rationale was questioned, the technique was well received for the treatment of benign uterine enlargement.

The authors noticed a modest increase in operative time in comparison to VH for the normal size uterus and attributed their success to morcellation techniques that obviated the need for either AH or LAVH ***(Unger, 1999)***. VH was successfully accomplished in 14 patients, with uteri weighing between 380 and 1100g, using morcellation techniques. Bisection combined with myomectomy and morcellation were used in most cases to obtain reduction in uterine size, whereas coring was only utilized in two cases. The mean operating time was 84.3 min with a range of 30 to 150 min. The only complications were transient haematuria and superficial vaginal grazes. One of the women required a blood transfusion. The mean post-operative hospital stay was 3.7 days ***(Magos et al., 1996)***. Transvaginal morcellation was also found to be an effective procedure for the removal of moderately large uteri as compared with AH. Both procedures were comparable in operative time, blood loss and complications but ovaries were more likely to be removed with AH. The vaginal approach was superior in terms of recovery and cosmoses ***(Hoffman et al., 1994)***.

The size reducing techniques should be promoted in teaching programs and the indications of vaginal hysterectomy should be extended to enlarged uteri. As for large uteri (up to 700grams weight) operated upon vaginally with these reducing techniques, it has been reported a low complication rate that is not significantly different from those resulting from vaginal hysterectomies for uteri under 200g **(*Unger, 1999).***

Comparing the two techniques, Bisection-morcellation and myometrial coring, ***Nazah et al. (2003),*** found that the only significant factor that increased myometrial coring failure rate was a reduced uterine size. Conversely, other uterine characteristics, and uterine weight in particular, do not appear to influence this failure rate. When the uterine width is reduced, dissection within the myometrium might be difficult to achieve. However, when myometrial coring is not feasible, bisection-morcellation could be an easy alternative. Shifting from one technique to another does not have a negative effect on operative or postoperative events except perhaps on reduction of operative time.

Schwartz (2000), found that these vaginal reducing techniques appear as valuable as laporoscopic morcellation.

Finally, bisection-morcellation and myometrial coring appear to be safe and effective techniques regarding reducing large uteri ***(Nazah et al., 2003).***