بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

MONA MAGHRABY

Relationship between Transvaginal Ultrasound Endometrial Volume, Body Mass Index and Endometrial Pathology in Women with Postmenopausal Bleeding

Thesis

Submitted for Partial Fulfillment of Master Degree
in ***Obstetrics & Gynecology***

By

Rowyna Hany Mohamed El Helw
M.B.B.Ch., Faculty of Medicine –Mansoura University (2013).

Under Supervision of

Prof. Dr. Mohammed Salah El Sokkary
Professor of Obstetrics and Gynecology
Faculty of Medicine – Ain Shams University

Dr. Mahmoud Mohamed Ghaleb
Lecturer of Obstetrics and Gynecology
Faculty of Medicine – Ain Shams University

Faculty of Medicine - Ain Shams University
2020

سورة البقرة الآية: ٣٢

Acknowledgments

First and foremost, I feel always indebted to ***Allah*** *the Most Beneficent and Merciful.*

I wish to express my deepest thanks, gratitude and appreciation to ***Prof. Dr. Mohammed Salah El Sokkary****, Professor of Obstetrics and Gynecology, Faculty of Medicine, Ain Shams University, for his meticulous supervision, kind guidance, valuable instructions and generous help.*

Special thanks are due to ***Dr. Mahmoud Mohamed Ghaleb****, Lecturer of Obstetrics and Gynecology, Faculty of Medicine, Ain Shams University, for his sincere efforts, fruitful encouragement.*

Special thanks to Dr. Monira Ali sonographer at Ultrasound special care unit for the fetus for her unlimited efforts.

Special thanks to Dr. Hala Mohy El sallaly at histopathology unit at Ain Shams Maternity Hospital for her support.

Rowyna Hany Mohamed El Helw

List of Contents

List of Tables

List of Figures

List of Figures cont...

List of Abbreviations

Abb.	Full term
2D	*Two dimensional*
3D	*Three dimensional*
3D-PDA	*Three dimensional power Doppler angiography*
ACOG	*American College of Obstetricians and Gynecologists*
AUC	*Area under the curve*
BMI	*Body mass index*
CAMS	*Council of Affiliated Menopause Societies*
CLD	*Chronic liver disease*
COPD	*Chronic obstructive pulmonary disease*
CT	*Computerized tomography*
D&C	*Dilatation and curettage*
DH	*Diagnostic hysteroscopy*
DM	*Diabetes mellitus*
EA	*Endometrial atrophy*
EC	*Endometrial carcinoma*
EH	*Endometrial hyperplasia*
EMB	*Endometrial biopsy*
EMP	*Endometrial polyp*
FT	*Flow index*
HNPCC	*Hereditary Non Polyposis Colorectal Cancer*
IM	*International Menopause Society*
IV	*Intravenous*

List of Abbreviations cont...

Abb.	Full term
MRI	*Magnetic resonant imaging*
PMB	*Postmenopausal bleeding*
ROC	*Receiver-operator characteristic*
RR	*Relative Risk*
SRU	*Society of Radiologists in Ultrasound*
TVS	*Transvaginal ultrasonography*
UKCTOCS	*United Kingdom collaborative trial of ovarian cancer screening*
US	*Ultrasound*
VFI	*Vascularization flow index*
VI	*Vascularization index*
VIs	*Vascularization indices*
VOCAL	*Virtual Organ Computer-aided Analysis*
WHO	*World health organization*

INTRODUCTION

Menopause is recognized to have occurred after one year of amenorrhea, for which there is no other obvious pathological or physiological cause ***(Koirala et al., 2018).***

Perimenopause should include the period immediately prior to the menopause (when the endocrinological, biological and clinical features of approaching menopause commence) and the first one year after menopause ***(Monteleone et al., 2018).***

Menopausal transition should be reserved for that period of time before the final menstrual period when the variability in the menstrual cycle is usually increased ***(Harlow et al., 2018).*** **Premenopause** often used ambiguously to refer to the one or two years immediately before the menopause, or to refer to the whole of the reproductive period prior to the menopause ***(De Kat et al., 2017).***

Post menopause defined as dating from the final menstrual period, regardless of whether the menopause was induced or spontaneous ***(Tripathy et al., 2017).***

Premature menopause should be defined as menopause that occurs at an age more than two standard deviations below the mean that estimated for the reference population. In practice, the age of 40 years is frequently used as an arbitrary

cutoff point, below which menopause is said to be premature ***(Tehrani et al., 2016).***

Endometrial cancer and Postmenopausal Bleeding

Endometrial cancer is the most common gynecologic cancer in developed countries and accounts for nearly 5% of cancer cases and more than 2% of deaths due to cancer in women worldwide ***(Ferlay et al., 2015***). In regions such as North America and parts of Europe, the incidence of endometrial cancer is disproportionately higher than in other developed countries, which may be attributed to higher rates of obesity, as well as other important risk factors such as aging, early menarche, late menopause, nulliparity, and postmenopausal estrogen therapy use. Unlike most cancers, the incidence of endometrial cancer and associated mortality rates have increased in recent years and are projected to rise during the next 10 years ***(Jamison et al., 2013).***

Most endometrial cancers are diagnosed at a localized stage and are often curable with surgery, with a 5-year survival of approximately 95%. In contrast, 5-year survival for late-stage (stage IV) endometrial cancer ranges from 16% to 45% ***(Weiderpass et al., 2014).*** However, studies evaluating early detection strategies for endometrial cancer are lacking, and at present no recommendation for population-based screening exists. In the era of precision prevention, emphasis on identifying individuals at high risk to maximize the positive

outcomes of clinical interventions while avoiding unnecessary harms is growing ***(Kitson et al., 2017)***.

Rather than targeting the whole population, early detection strategies for endometrial cancer could focus on women at high risk of developing endometrial cancer, while excluding most women at low risk. Postmenopausal bleeding (PMB) is a common symptom of endometrial cancer and accounts for approximately two-thirds of all gynecologic visits among perimenopausal and postmenopausal women ***(van Hanegem et al., 2011).***

Women presenting with PMB undergo additional clinical testing using a combination of transvaginal ultrasonography (TVUS), hysteroscopy, endometrial biopsy, and/or dilation and curettage, and workup varies widely among different settings ***(Breijer et al., 2010).***

However, PMB is often associated with benign conditions such as endometrial polyps or may result from unscheduled bleeding in women using hormone therapy (HT) ***(Burbos et al., 2012).*** The risk of endometrial cancer in women with PMB varies widely in individual studies from 3% to 25% ***(Burbos et al., 2012).***

Accurate estimates of the prevalence of PMB in endometrial cancers (equal to the sensitivity of PMB for detecting endometrial cancer) and the risk of endometrial