THE ROLE OF 3D ULTRASONOGRAPHY AND DOPPLER STUDIES IN CORRELATION WITH HYSTEROSCOPY AND HISTOPATHOLOGY IN DIAGNOSIS OF ABNORMAL UTERINE BLEEDING IN PREMENOPAUSAL WOMEN

A THESIS
SUBMITTED IN FULFILLMENT OF THE DEGREE
OF MEDICAL DOCTORATE (M. D.)
IN
OBSTETRICS AND GYNECOLOGY

BY
Mohamed Hamam Abd manaf
ASSISTANT LECTURER OF OBSTETRICS AND GYNECOLOGY

SUPERVISED BY
PROF. Maher M. Abd EL-Wahab
PROFESSOR OF OBSTETRICS AND GYNECOLOGY
FACULTY OF MEDICINE -CAIRO UNIVERSITY

PROF. Mohamed Mahmoud Wali
PROFESSOR OF OBSTETRICS AND GYNECOLOGY
FACULTY OF MEDICINE - CAIRO UNIVERSITY

DR. Ahmed Abd EL-Meguid Abd EL-Tawab
LECTURER OF OBSTETRICS AND GYNECOLOGY
FACULTY OF MEDICINE - CAIRO UNIVERSITY

FACULTY OF MEDICINE
CAIRO UNIVERSITY
2009

بسم الله الرحمن الرحيم

"قل اللهم مالك الملك

تؤتى الملك من تشاء وتنزع الملك ممن تشاء

وتعز من تشاء وتذل من تشاء

بيدك الخير انك على كل شئ قدير"

صدق الله العظيم

" ال عمران **26**"

A huge bunch of flowers
are offered to
the soul of my dearest mother
who was always
loving, giving , caring
and impressed me a lot

MERCY OF ALLAH
BE UPON HER

جامعة القاهرة / كلية الطب
الدراسات العليا

محضر
اجتماع لجنة الحكم على الرسالة المقدمة من
الطبيب / محمد همام عبد مناف عوض
توطئة للحصول على درجة الدكتوراه
فى التوليد وأمراض النساء

عنوان الرسالة باللغة الإنجليزية :

THE ROLE OF D ULTRASONOGRAPHY AND DOPPLER STUDIES IN CORRELATION WITH HYSTEROSCOPY AND HISTOPATHOLOGY IN DIAGNOSIS OF ABNORMAL UTERINE BLEEDING IN PREMENOPAUSAL WOMEN

عنوان الرسالة باللغة العربية :

دورالموجات فوق الصوتية ثلاثية الأبعاد ودراسات الدوبلر فى تشخيص النزيف الرحمى فى سن ما قبل انقطاع الطمث ومقارنتهما بنتائج المنظارالرحمى والهيستوباثولجى

بناء على موافقة الجامعة بتاريخ **2009/4/6** تم تشكيل لجنة الفحص والمناقشة للرسالة المذكورة أعلاه على النحو التالى:

أ0د0 ماهر محمد أحمد عبد الوهاب	أستاذ التوليد وأمراض النساء	كلية الطب جامعة القاهرة	عن المشرفين
أ0د0 هانى حسن مصطفى	أستاذ التوليد وأمراض النساء	كلية الطب جامعة القاهرة	ممتحن داخلى
أ0د0 سعد محمد الصادق	أستاذ التوليد وأمراض النساء	كلية الطب جامعة الأزهر	ممتحن خارجى

بعد فحص الرسالة بواسطة كل عضو منفردا وكتابة تقارير منفردة لكل منهم انعقدت اللجنة مجتمعة فى يوم الأحد بتاريخ 2009/4/12 بقاعة مناقشة الرسائل – مركز المؤتمرات- كلية الطب جامعة القاهرة وذلك لمناقشة الطالب فى جلسة علنية فى موضوع الرسالة والنتائج التى توصل اليها وكذلك الأسس العلمية التى قام عليها البحث

قرار اللجنة

قررت اللجنة أن الرسالة مفيدة ومرضية بوجه عام وتشمل مراجعة شاملة وملمة بالموضوع وترى اللجنة قبول الرسالة

توقيعات أعضاء اللجنة:

المشرف الممتحن　　الممتحن الداخلى　　الممتحن الخارجى

ACKNOWLEDGEMENT

First and foremost;

*Thanks are due to **ALLAH**; the most gracious; the most merciful.*

My sincere thanks and deep appreciation are offered to my Prof. ***Maher M. Abd El-Wahab****, Prof. of Obstetrics and Gynecology, Faculty of medicine, Cairo University, for his kind guidance; keen supervision; encouragement.*

I would like also to thank my Prof. ***Mohamed Waly****, Prof. of Obstetrics and Gynecology, Faculty of medicine, Cairo University, for giving me the honor to work under his supervision and learning from him.*

I wish I could properly express my sincere gratitude to Dr. **Ahmed Abd EL-Meguid**, *Lecturer of Obstetrics and Gynecology, Faculty of medicine, Cairo University, for his invaluable help; great support and his patience with me until this work has been completed.*

A huge bunch of flowers are offered to the soul of my dearest mother, who was always loving, giving and caring.

Special appreciation to the memory of my dear father; who impressed me a lot.

Finally, I would like to thank my family for their encouragement and patience.

Mohamed Hamam

Abstract

Abnormal uterine bleeding is one of the commonest manifestations of the premenopausal period. Although Dysfunctional bleeding is one of the important causes, yet endometrial focal lesions are considered one of the debilitating etiologies and common causes of failure of blind medical treatment.

The aim of this study was to evaluate the role of each of 3D ultrasound, Doppler studies versus hysteroscopy and endometrial biopsy in comparison to each other, in screening and detection of endometrial pathologies in premenopausal bleeding.

Material and methods: 50 cases, recruited from the outpatient gynaecological clinic, Kasr El-Ainy Hospitals, were included in the study. All cases presented with premenopausal bleeding. All patients were subjected to 3D transvaginal ultrasonographic evaluation of the endometrium , Doppler velocimetric study of the uterine arteries , hysteroscopy and the results were correlated to the histopathological picture of the endometrium.

Results: The age ranged between 41 and 50 years with a mean of 45.7 years. They had a mean parity of 3.7. The most common endometrial histopathology was hyperplasia (26 cases , 52%) followed by disordered proliferative endometrium (14 cases, 28%) then endometrial polyps (8 cases, 16 %) with 1 case of atrophic endometrium (2%) and 1 case of endometrial carcinoma (2%). Endometrial volume measurement and Uterine artery PI were significant investigations to differentiate between atrophic endometrium, benign endometrial pathology and endometrial carcinoma in premenopausal patients but not a significant tools in differentiating hyperplasia from polyp. Hysteroscopy is the best single investigation to use, to predict the endometrial pathology. However, histopathologic diagnosis is always needed to confirm the suspicion.

Keywords: Three Dimensional ultrasound, Doppler, hysteroscopy, endometrial biopsy, premenopausal bleeding.

List of tables

List of Figures

CONTENTS

Introduction and aim of work

Abnormal uterine bleeding is one of the most common presenting complaints in women of premenopausal age. It is a complicated clinical problem with myriad causes. However, physicians with a solid knowledge of menstrual physiology and a thorough approach to differential diagnosis can evaluate and manage the problem with confidence ***(Brenner, 1996).*** One national study found that menstrual disorders were the reason for 19.1% of 20.1 million visits to physician offices for gynaecologic condition over a two-year period ***(Nicholson et al, 2001).*** Furthermore, a reported 25% of gynaecologic surgeries involve abnormal uterine bleeding ***(Goodman, 2000).*** Several types of abnormal uterine bleeding are described. It is important to understand, however, that although trends exist for each type, there are no consistent relationships between abnormal uterine bleeding patterns and their causes ***(Petrozza and Poley, 1999).*** Causes include: Fibroids, endometrial hyperplasia polyps and endometrial carcinoma, cervical and ovarian carcinoma atrophic endometrium, atrophic vaginitis and dysfunctional uterine bleeding ***(Weber et al, 1997).***

Various imaging techniques are used to enable the precise localization and characterization of uterine pathology ***(Karasick et al., 1992).***

Transvaginal ultrasound with high resolution probes is a widely performed investigation prior to surgery. This technique is however an operator dependent and the 2D hard copy images can be difficult for a third party to interpret. Assessment of the uterine cavity and its distortion by an adjacent uterine mass can be particularly difficult if the endometrial lining is not well defined ***(Batten et al., 1993.)***

Three dimensional sonography allows simultaneous visualization of the three orthogonal planes along with the three dimensional rendering mode. Three dimensional rendering mode of the uterine cavity allows ruling out endometrial pathology with

almost absolute certainty. Three dimensional rendering did allow distinguishing with much more clarity between atrophic endometrium, polyps, focal and generalized hyperplasias and carcinomas. Polyps of just few millimeters in size could be observed with shape, size and precise location of the implantation base of the polyp ***(Bonilla-musoles et al., 1997).***

Furthermore the ability to use color and power Doppler mapping became an essential part of our everyday scanning practice. They added more diagnostic power in different fields including Reproductive Medicine, Oncology and Obstetrics. A simple example in the office would be to switch on the color Doppler to help in the diagnosis of a suspected endometrial polyp by showing the feeding vessels. The same could be true is cases of suspected fibroids when colour Doppler shows blood vessels around but not into the uterine mass.

Hysteroscopy is an important method for the diagnosis of intrauterine pathology in several gynecologic complaints including abnormal uterine bleeding, infertility, recurrent abortion and retained IUCD. This technique has replaced dilatation and curettage as a blind technique; with high diagnostic failure. Stock & Kanbour, 1975 reported on a series of patients who under went dilatation and curettage prior to hysterectomy that in 60% of the hysterectomy specimens less than half of the endometrial lining had been sampled ***(Dectoedt & Fenton, 1999).***

AIM OF WORK

The aim of this work is to evaluate the role of 3D ultrasonography and Doppler studies versus hysteroscopy and endometrial sampling, in comparison to each other, in detection of endometrial pathologies in premenopausal women having abnormal uterine bleeding**.**