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شبكة المعلومات الجامعية

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التوثيق الالكتروني والميكروفيلم

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Comparative Study between 3D Ultrasound & Power Doppler versus Hysteroscopy in Diagnosis of Cavitary Uterine Lesions

Thesis

Submitted for the Partial Fulfillment of the Master's Degree in Obstetrics & Gynecology

By

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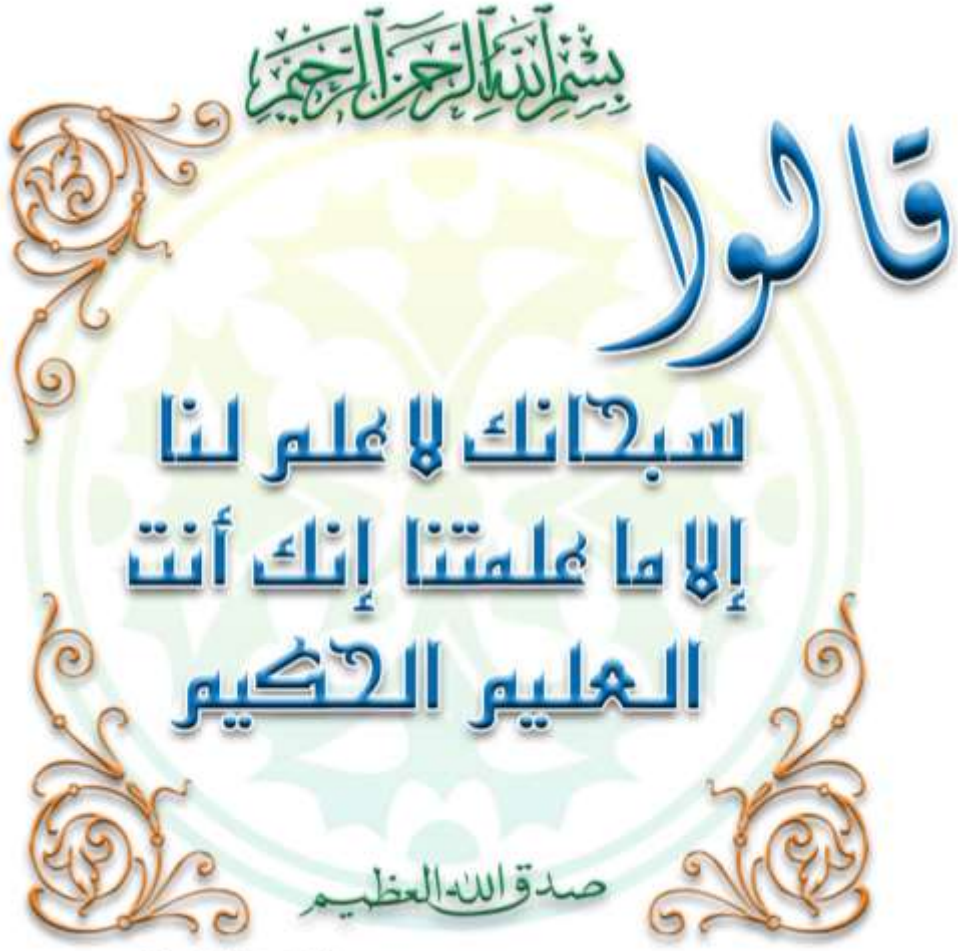

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Maha Mohammed

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List of Abbreviations

Abb.	Full term
3D	*Three-Dimensional*
3D-PDA	*3D-Power Doppler Angiography*
3DPDVI	*3D Power Doppler Vascular Indices*
ACOG	*American College of Obstetricians and Gynaecologists*
EV	*Endometrial Volume*
HSG	*Hysterosalpingography*
MRI	*Magnetic Resonance Imaging*
OH	*Office Hysteroscopy*
OR	*Operating Room*
PD	*Power Doppler*
PID	*Pelvic Inflammatory Disease*
ROI	*Region of Interest*
SD	*Standard Deviation*
SHG	*Sonohysterography*
TVS	*Transvaginal Ultrasound*
VFI	*Vascularization Flow Index*
VI	*Vascularization Index*
VOCAL	*Virtual Organ Computer-Aided Analysis*

Comparative study between 3D ultrasound & power Doppler versus hysteroscopy in diagnosis of cavitary uterine lesions

ABSTRACT

Background: Structural pathologies in the uterine cavity such as Müllerian duct anomalies (MDAs) and intrauterine lesions (fibroids, polyps, synechiae) may have important roles in subinfertility, implantation failure and adverse pregnancy outcomes. Various modalities such as hysterosalpingography (HSG), sonography, laparoscopy and hysteroscopy are used in the evaluation of MDAs and intrauterine lesions. Three-dimensional ultrasound (3DUS) has been introduced as a non-invasive technique that permits the obtaining of anatomic images of endometrium and myometrium, accurate depiction of the septate uterus, and even the measurement of septal height and thickness.

Aim of the work: The aim of the study is to assess diagnostic accuracy of 3D ultrasound with power Doppler compared with hysteroscopy in detecting uterine cavity abnormalities in infertile women considering that hysteroscopy is the gold standard.

Patients and Methods: This prospective study was conducted at Ain shams university maternity hospital. A total of 379 infertile women suspected with uterine cavity lesions by 2D/US included in the study. Patients were included in the study according to the following inclusion criteria: Female with suspected Mullerine lesions in 2D US and exclusion criteria: contraindication for hystreoscopy (pelvic infection-endomertial cancer-excessive bleeding –sever vaginitis).

Results: There was significant high agreement between 3D US and Hysteroscopy regarding overall diagnosis of intracavitary lesions with (sensitivity 92.2%, specificity 100%, PPV 100%, NPV 89.5%, DA 95.6%). Regarding the power Doppler flow mapping characteristics, Single vessel was significantly most frequent in polyp. Rim-like vessel was significantly most frequent in fibroid. No significant difference according to Hysteroscopy diagnoses regarding multiple vessels.

Conclusion: As evident from the current study, as regard correlation between 3D ultrasound with power Doppler compared with hysteroscopy, 3D US with power Doppler flow mapping are a valuable tool for diagnosing focal endometrial pathology and is useful in distinguishing between focal endometrial lesions such as submucosal fibroids and endometrial polyps with results comparable to hysteroscopy.

Keywords: Uterine cavity abnormalities, 3D ultrasound with power Doppler.

PROTOCOL OF A THESIS FOR PARTIAL FULFILMENT OF MASTER DEGREE OF OBSTETRICS AND GYNECOLOGY

Title of the Protocol: Comparative study between 3D ultrasound & power Doppler versus hysteroscopy in diagnosis of cavitary uterine lesions

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What is already known on this subject? AND
What does this study add?

A lot of studies had been shown that 3D ultrasound with power Doppler is more efficient than hysteroscopy as regard in diagnosis.

1.INTRODUCTION/ REVIEW

Structural pathologies in the uterine cavity such as Müllerian duct anomalies (MDAs) and intrauterine lesions (fibroids, polyps, synechiae) may have important roles in subinfertility, implantation failure and adverse pregnancy outcomes. Various modalities such as hysterosalpingography (HSG), sonography, laparoscopy and hysteroscopy are used in the evaluation of MDAs and intrauterine lesions. Three-dimensional ultrasound (3DUS) has been introduced as a non-invasive technique that permits the obtaining of anatomic images of endometrium and myometrium, accurate depiction of the septate uterus, and even the measurement of septal height and thickness ***(Firoozeh Ahmad, Vosough Taqi Dizaj, 2011).***

MDAs are relatively common disorders associated with adverse reproductive outcomes. Critical analyses of studies suggest that the prevalence of uterine malformations in woman with repeated pregnancy loss is about 3%. Uterine malformations may result from arrested development of the Müllerian ducts, failure of fusion of the Müllerian duct or failure of resorption of the median septum ***(Salem and Wilson, 2006).***

Although fluid instillation into the endometrial cavity enhanced endometrial visualization during transvaginal ultrasound, intrauterine lesions (e.g., polyps, fibroids and synechiae) can be diagnosed sonographically in the initial investigation without the need for fluid instillation. Using 3DUS gives the ability to visualize both the endometrium and the myometrium facilitates correct diagnosis of uterine abnormalities **(*Raga and Bonilla, 2007).***

Unlike 2-D ultrasound, real time three dimensional ultrasound (3-DUS) can view the coronal surface of the uterus, and it is an important alternative method in the diagnosis of congenital uterine anomalies. Three-dimensional ultrasonography permits the obtaining of planar reformatted sections through the uterus, which allow precise evaluation of the fundal indentation and the length of the septum ***(Gaucherand and Awada, 2007).***