# Transperineal versus Transvaginal Sonography in First Trimister Bleeding: the Systematic Differences

Thesis
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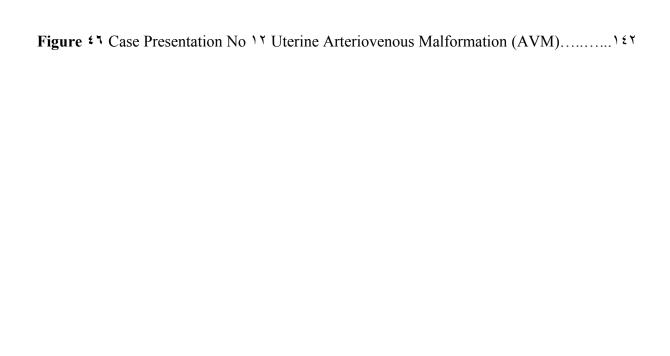
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#### **ABBREVIATIONS**

AF Amniotic fluid AFP Alpha-fetoprotein

ALARA As low as reasonably achievable ART Assisted reproductive technologies

AV Arteriovenous

AVM Arteriovenous malformation

CFD Color flow Doppler

CHM Classic hydatidiform moles

CRL Crown rump length
D&C Dilatation and curettage
DDS Double decidual sac

ELISA Enzyme Linked ImmunoSorbent Assay

EO External os

EP Ectopic pregnancy

FDA Food and Drug Administration

FH Fetal head

FSH Follicle stimulating hormone

GI Gastrointestinal GS Gestational sac

GTD Gestational trophoblastic disease hCG Human chorionic gonadotrophin HIV-' Human immunodeficiency virus-'

IgAImmunoglobulin AIgGImmunoglobulin GIgMImmunoglobulin M

IHM Invasive hydatidiform moles IRP International reference preparation

Intrauterine devise **IUD IUDs** Intrauterine devices **IUGS** Intrauterine gestation sac Intrauterine hematoma IUH **IUP** Intrauterine pregnancy In-vitro fertilization **IVF** LH Lutinizing hormone LMP Last menstrual period

MHz Megahertz

MI Mechanical index

MRI Magnetic resonance imaging

MSD Mean sac diameter

PAPP-A Pregnancy-associated plasma protein A

PHM Partial hydatidiform moles
PID Pelvic inflammatory disease

PPROM Preterm premature rupture of membranes

PPV Positive predictive value

PSTT Placental site trophoblastic tumors

PVA Poly vinyl alcohol
RI Resistive index
RIA Radioimmunoassay
ROS Reactive oxygen species
TAS Transabdominal sonography
TAUS Transabdominal ultrasound
TGC Time-gain compensation

TI Thermal index

TPS Transperineal sonography
TSH Thyroid stimulating hormone

TV Transvaginal

TVCFD Transvaginal color Doppler
TVS Transvaginal sonography
TVUS Transvaginal ultrasonography

US Ultrasound

VEGF Vascular endothelial growth factor

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#### INTRODUCTION

First trimester bleeding is a common presentation in the emergency room. Half of these patients undergo spontaneous abortion and the other half continue to term delivery.

(Paspulati, Bhatt et al. Y · · ²) First trimester bleeding occurs in Yo-Yo? of all pregnancies, and is associated with an increased risk of miscarriage and other complications. (Falco, Zagonari et al. Y · · Y)

The important causes of first trimester bleeding include spontaneous abortion, ectopic pregnancy, and gestational trophoblastic disease; o.% to v.% of spontaneous abortions are due to genetic abnormalities. Ultrasound evaluation of patients with first trimester bleeding is the mainstay of the examination. (**Dogra, Paspulati et al. Y...o**)

Endovaginal ultrasound has become an important tool in obstetric and gynecological practice. Because of the better images it produces of the pelvic organs, vaginal ultrasound is preferred over transabdominal ultrasound for the evaluation of most gynecological conditions and for the assessment of first-trimester pregnancy. Vaginal ultrasound is also useful in later pregnancy for measuring cervical effacement, checking the position of a low-lying placenta and for morphological assessment of fetal parts which are close to the cervix. (Bennett and Richards '...) In spite of its usefulness, it seems possible that vaginal ultrasound might not be well received by some patients, who could find it uncomfortable, embarrassing or intrusive. In this respect, it may be similar to the female pelvic examination. Studies have shown that many women experience discomfort with a pelvic examination (Larsen and Kragstrup ' ' ' '), (Broadmore,

Carr-Gregg et al. 1944) and that the majority consider it a negative experience. (Weiss and Meadow 1949), (Smilkstein 1941)

Transvaginal ultrasound imaging, although getting widespread acceptance in the field of obstetrics and gynecology, has the main disadvantage of the need to penetrate the vagina and the requirement of special transducers for the purpose. In virgins, and in some ethnic groups, vaginal examination and sonography are met with great reluctance. (Chan, Chau et al. 1997)

Traditional transabdominal ultrasound, on the other hand, has great limitations in obese women, especially in the elderly who often cannot hold a full bladder. The resolution of images is also limited by the relatively lower frequency transducers that are required to give the degree of penetration needed. (Chan, Chau et al. 1997)

Transperineal sonography has been found to be useful as a supplement in various special clinical situations, such as in the assessment of patients with posterior placenta previa; cervical incompetence; preterm labor (Jeanty, d'Alton et al. 1944; Mahony, Nyberg et al. 1944; Hertzberg, Bowie et al. 1944); stress incontinence and vaginal prolapse (Kohorn, Scioscia et al. 1944; Kolbl, Bernaschek et al. 1944; Creighton, Pearce et al. 1944); vaginal atresia (Graham and Nelson 1944; Scanlan, Pozniak et al. 1944); imperforate anus (Donaldson, Black et al. 1944); and others, including measurement of pelvic floor muscle thickness. (Bernstein, Juul et al. 1941)

No studies were conducted on the role of Transperineal Ultrasound in the evaluation of first trimester bleeding.

#### AIM OF THE WORK

The aim of this thesis is to evaluate the role of Transperineal sonography in the assessment of first trimester bleeding, and to study the systematic differences between Transperineal sonography and the gold standard Transvaginal sonography.