شبكة المعلومات الجامعية

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بسم الله الرحمن الرحيم

HANAA ALY

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قسم

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The Effect of Routine Combined utero-ovarian and Uterine vs. Uterine Artery Ligation in Patients with Partially Separated placenta as part of Placenta Accreta Spectrum Undergoing Elective Cesarean Section

A Thesis

Submitted for partial fulfillment of M.D. degree
in Obstetrics & Gynecology

By

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إلا ما علمتنا إنك أنت
العليم الحكيم
صدق الله العظيم
سورة البقرة الآية: ٣٢

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Mohamed Ibrahim Ahmed Ibrahim Abdallah

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List of Abbreviations

Abbr.	Full-term
ACOG	**:** American College of Obstetricians and Gynecologists
Ang	**:** Angiopoietin
ART	**:** Assisted reproductive technology
CI	**:** Confidence interval
EMT	**:** EPITHELIAL-to-mesenchymal transition
EVT	**:** Extravillous trophoblasts
FFP	**:** Fresh frozen plasma
FIGO	**:** International Federation of Gynecology and Obstetrics
hCG	**:** Human chorionic gonadotropin
ICD	**:** International Statistical Classification of Diseases
INSL4	**:** Insulin-like protein 4
IVF	**:** In vitro fertilization
MMP	**:** Matrix metalloproteinase
MRI	**:** Magnetic resonance imaging
mRNA	**:** Messenger ribonucleic acid
PAS	**:** Placenta accreta spectrum
PRBCs	**:** Packed red blood cells
RCOG	**:** Royal College of Obstetricians and Gynecologists
Rh	**:** Rhesus factor
SD	**:** Standard deviation

sFlt-1 **:** Soluble fms-like tyrosine kinase 1

SOGC **:** Society of Obstetricians and Gynecologists of Canada

SPSS **:** Statistical Package for Social Science

VEGF **:** Vascular endothelial growth factor

WHO **:** World Health Organization

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Introduction

Placenta previa refers to the presence of placental tissue that extends over the internal cervical os ***(ACOG, 2002)***.

Placenta previa and placenta accreta are associated with high maternal and neonatal morbidity and mortality ***(silver, 2015).***

The rates of placenta previa and accreta have increased and will continue to do so as a result of rising rates of caesarean deliveries, increased maternal age and use of assisted reproductive technology (ART) ***(Bowman et al., 2014).***

The estimated incidence of placenta previa at term is 1 in 200 pregnancies ***(Silver, 2015).***

Placenta accreta is a histopathological term first defined by Irving and Hertig in 1937, as the "abnormal adherence of the afterbirth in whole or in parts to the underlying uterine wall in the partial or complete absence of decidua***"(Irving and Hertig,1937).***

Depending on the depth of villous tissue invasiveness, placenta accreta was subsequently subdivided by modern pathologists into 'creta' or 'adherenta' where the villi adheres superficially to the myometrium without interposing decidua; 'increta' where the villi penetrate deeply into the uterine myometrium down to the serosa; and 'percreta'

where the villous tissue perforates through the entire uterine wall and may invade the surrounding pelvic organs, such as the bladder ***(Fox et al., 2007).***

Thus, placenta accreta is a spectrum disorder ranging from abnormally adherent to deeply invasive placental tissue ***(Luke et al., 1996).***

The current reported prevalence of placenta accreta ranges between 1 in 300 and 1 in 2000 pregnancies ***(Benirschke et al., 2012).***

A cesarean delivery is always indicated when there is sonographic evidence of placenta previa and a viable fetus ***(Zosmer et al., 2012).***

Advances in antenatal surveillance and early diagnosis have led to significant improvements in outcomes associated with placenta previa. Current surgical, anesthetic, and blood component therapeutics have also greatly improved maternal and fetal morbidity and mortality ***(Lede´e et al., 2001).***

Nonetheless, placenta previa and placenta accreta continue to present clinical challenges with many associated complications. Hemorrhage remains the major complication of abnormal placentation, often necessitating premature delivery with its own perinatal impact. Emergent surgical intervention due to hemorrhage is associated with multiple

risks and may require hysterectomy to control blood loss ***(Kastner et al., 2002).***

The blood supply of the uterus arises from the anterior division of the internal iliac artery which gives origin to the uterine artery ***(Pelage et al., 1999).***

However, complex anastomosis between the aorta and branches of the internal iliac artery ensure adequate blood supply to the uterus such as the anastomosis between the ovarian artery which is a direct branch from the aorta and the uterine artery. Ligation of these arteries can dramatically decrease the blood flow to the uterus and hence arrest bleeding ***(O'Leary, 1995).***

The stepwise uterine devascularization was successful as a conservative form of surgical management of placenta previa and accrete with preserving the uterus and fertility, saving patient's life and minimizing major surgical interventions in all patients ***(Palacios et al., 2004).***

Surgical uterine de-vascularization may represent the first-line procedure to control persistent hemorrhage during a cesarean section ***(Kelekci et al., 2015).***

Optimal uterine devascularization may necessitate multiple arterial ligations; these include bilateral uterine arteries (O'Leary stitch), ovarian arteries and internal iliac arteries ***(Walker et al., 2013).***