

**Uterine artery and ovarian artery devascularization plus tranexamic acid-
A new technique in management of major degree placenta previa.**

*Thesis submitted for partial fulfillment of Master degree in Obstetrics and
Gynecology*

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List of abbreviations

BL.....	Basal lamina
B-LUVS.....	Bilateral looped vessels sutures
BT-Cath.....	Balloon tamponade
Cap.....	Capillary
CC.....	Cubic centimeter
Cm.....	Centimeter
Cm ²	Centimeter square
Cy.....	Cytotrophoblast
DHEA.....	Dehydropiandrosterone
DHEAS.....	Dehydropiandrosterone sulphate
EBV.....	Estimated blood volume
En.....	Endothelium
F.....	French
Fig.....	Figure
g/dl.....	Gram per deciliter
Hbf.....	Fetal hemoglobin
HCG.....	Human chorionic gonadotrophin

Hct _f	Hematocrit final
Hct _i	Hematocrit initial
ICU.....	Intensive care unit
IM.....	Intramuscular
IQR.....	Interquartile range
IU.....	International unit
IUFD.....	Intrauterine fetal death
IV.....	Intravascular
Kg.....	Kilogram
LH.....	Luteinizing hormone
LSCS.....	Lower segment cesarean section
Mg/dl.....	Milligram per deciliter
Min.....	Minute
ml.....	Milliliter
MRI.....	Magnetic resonance imaging
N.....	Number of patients
No.....	Number
P.....	Platelets
PO.....	Per oral
PR.....	Per rectum
QBL.....	Quantified blood loss
RBCs.....	Red blood cells
rFVIIa.....	Recombinant activated factor 7

SD.....	Standard deviation
SL.....	Sub-lingual
Sy.....	Syncytiotrophoblast
TAS.....	Trans-abdominal ultrasound
TVS.....	Trans-vaginal ultrasound
U/S.....	Ultrasound
U.....	Unit

Abstract

Purpose: to assess the efficacy of this technique in the management of women with major degree placenta previa and decreasing blood loss during LSCS through measurement of amount of bleeding & the rate of transfusion and compare the results with those of conventional management method.

The secondary outcome which was ICU admission, cesarean hysterectomy due to failure of conservative management and number of packed RBCs units transfused.

Materials and methods: Patients admitted to casualty of El-Demerdash hospital with major degree placenta previa, these patients was divided into two groups each one has 30 patients (the new technique group and the conventional method group). In the new technique uterine artery and ovarian artery devascularization plus tranexamic acid was done. Before admitting the included patients for surgery; an elaborate personal, obstetric, gynecologic, family, and surgical history was taken. Confirming the diagnosis of placenta previa and it's degree using ultrasound. Complete blood count including hemoglobin level and hematocrit percent preoperative. After the surgery another Complete blood count was done to evaluate the finale hemoglobin level and hematocrit percent after 24 hours that was used to calculate blood loss using the blood loss equation. Also follow up for any intensive care unit admission, number of blood units given to any of the included patients, and how many patients underwent cesarean hysterectomy.

Results: the amount of blood in drain removed after 24 hours the P value was 0.00 which was highly-significant. The amount of blood in suction between the two groups the P value was 0.431 which was non significant. The mean amount of total blood loss between the two groups the P value was found to be 0.044 which was significant.

Conclusion: Using uterine artery and ovarian artery devascularization plus tranexamic acid, can lead to less rate of hysterectomies among included patients with major degree placenta previa and decreasing blood loss during surgery.

Key word:

Kg: Kilogram, IV: Intravascular, Min: Minute

PROTOCOL OF A THESIS FOR PARTIAL
FULFILMENT OF
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Title of the Protocol: Uterine artery and ovarian artery devascularization plus tranexamic acid- A new technique in management of major degree placenta previa. A single arm clinical trial.

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What is already known on this subject? AND

What does this study add?

Several techniques have been used to decrease uterine bleeding such as: (1) Bakri intrauterine balloon (2) Uterine compression sutures (3) Uterine artery ligation (4) Angiographic embolization (5) Hysterectomy. The new surgical technique is intended to decrease blood loss during LSCS, also decrease blood transfusion, ICU admission, hysterectomy, and so decreasing the maternal morbidity and hence mortality.

1. INTRODUCTION/ REVIEW

When the placenta implants such that the placental tissue is located adjacent to or overlying the internal cervical os, it is called placenta previa. Placenta previa is the leading cause of third-trimester bleeding, complicating 4 in 1000 pregnancies over 20 weeks. The incidence of bleeding is higher in early pregnancy prior to the development of the lower uterine segment, and most of these previas resolve as the pregnancy progresses. (*Robinson, et al; 2010*).

Risk factors for placenta previa:

- Previous placenta previa (*Ananth, et al; 1997*).
- Previous caesarean sections (RR 2.6, 95% CI 2.3–3.0 with a background rate of 0.5%) One previous caesarean section OR 2.2 (95% CI 1.4–3.4 with a background rate of 1) Two previous caesarean sections OR 4.1 (95% CI 1.9–8.8) Three previous caesarean sections OR 22.4 (95% CI 6.4–78.3) %) (*Hendricks, et al; 1999*).
- Multiparity
- Advanced maternal age (>40 years)

- Smoking
- Deficient endometrium due to presence or history of uterine scar, endometritis, manual removal of placenta, curettage or submucous fibroid.
- Assisted conception (**Parazzini, et al; 1994**).

Whenever there is a painless vaginal bleeding in a pregnant women placenta praevia must be considered and until confirmation of the diagnosis by ultrasound, no digital pelvic examination can be performed as to avoid haemorrhage, as even the most gentle examination may lead to an episode of bleeding (**Sabourin, et al; 2012**).

Quick and accurate diagnosis of placenta previa can be done using ultrasound when the placental location is within the lower uterine segment and whether it is low lying placenta previa or complete placenta previa (**Dashe, et al; 2013**).

In many cases the transabdominal ultrasonography is confirmatory with accuracy 96% (Laing, 1996). Transvaginal U/S is more superior to transabdominal U/S as proven in many previous studies reporting that in many cases the placenta reaching the internal os of cervix is seen in all transvaginal U/S and only in 70% of the transabdominal U/S (Farine, et al; 1988). Transperineal U/S is also accurate in identifying placental location and diagnosis of placenta previa (**Hertzberg, et al; 1992**).

MRI has shown great significance in diagnosis of placenta previa also difficult to replace U/S as a screening test or as the modality of choice for diagnosis (**Maher, et al; 2013**).

A classification of placenta previa was done: it is graded in two ways, as either grades 1–4 or minor/major.

- Grade 1: the placental edge is in the lower segment, but does not reach the internal os.
- Grade 2: the placental edge reaches but does not cover the internal os.

These grades represent a minor degree of placenta previa.

- Grade 3: the placenta covers the internal os and is asymmetrically situated.
- Grade 4: the placenta covers the internal os and is centrally situated.

These grades represent a major placenta previa. (*Kean, et al; 2010*). Average blood loss during delivery is progressively more with the type of delivery, vaginal delivery (500 mL of blood), cesarean delivery (1000 mL), and emergency hysterectomy (3500 mL). (*Feitsa, et al; 2005*). Considering these numbers the bleeding with presence of placenta previa is even more risky and has more chance of maternal mortality and morbidity. Some of the patients required up to 12-18 units of blood transfused. (*Dinsmoor, et al; 1995*).

Morbidly adherent placentae occur approximately 1 in 200-400 deliveries in the United States and 1 in 800 deliveries in the United Kingdom. The major risk factor is uterine scarring, and thus the incidence is increasing with caesarean section rate. Three degrees of adherence have been described, accreta, increta, percreta, where the placenta adheres to or invades into or through the uterine wall because of abnormal development of the decidua basalis. Accreta is the most common, comprising 80 percent. (*Oppenheimer, et al; 1991*).

Findings suggestive but not diagnostic of a placenta accreta, on antenatal ultrasound include:

- Loss of the normal hypoechoic rim of myometrial tissue beneath the placenta.
- Loss of the normal hyperechoic uterine serosa-bladder wall interface.
- Presence of tissue of placental echotexture extending beyond the uterine serosa, sometimes seen within the lumen of the bladder.
- Sometimes multiple or large placental venous lakes are seen, giving the placenta a “moth-eaten” appearance.