Cervical length assessment in induction of second trimestric abortion: a prospective observational study

A Thesis

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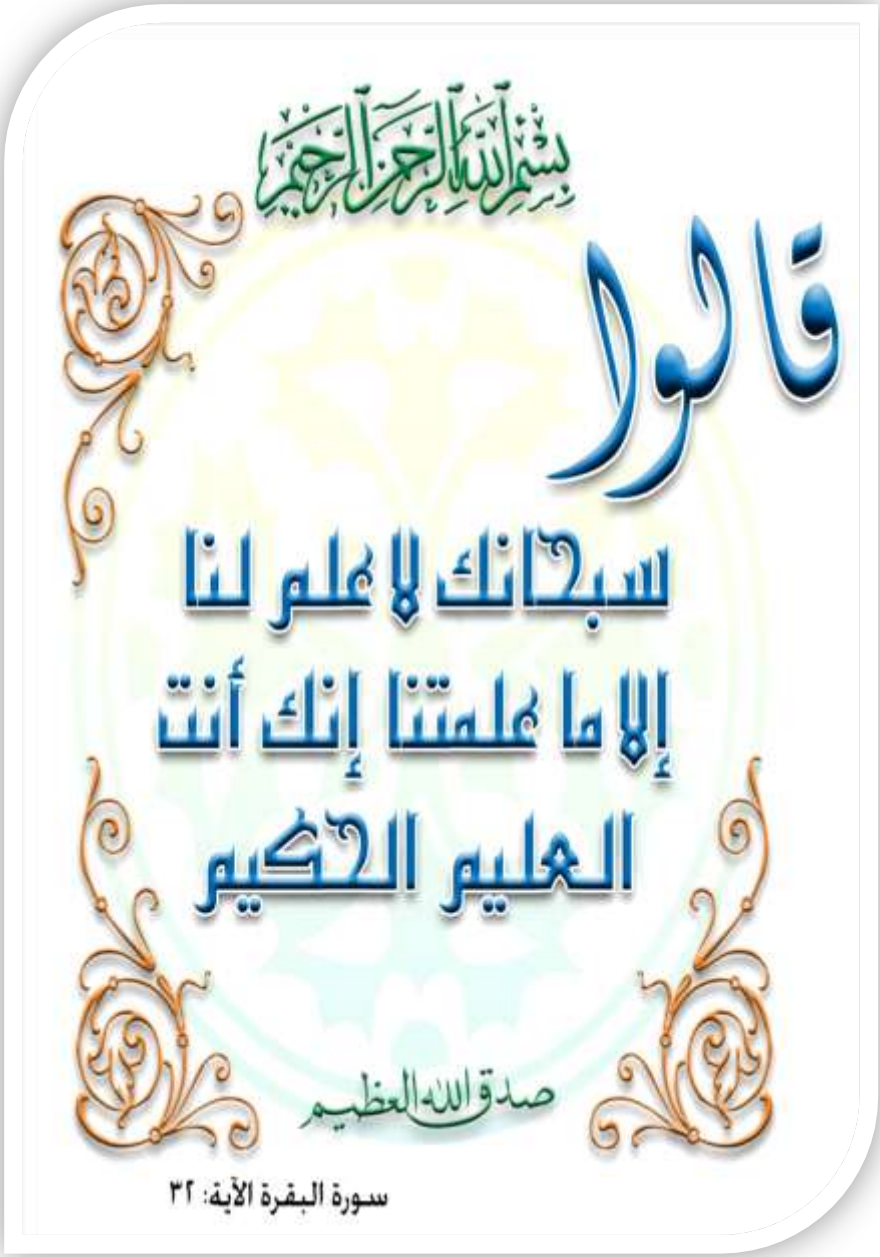
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List of Abbreviations

Abbr.	term
ACOG	**:** American College of Obstetricians and Gynecologists
AEPU	**:** Association of Early Pregnancy units
CL	**:** Cervical length
CMV	**:** Cytomegalovirus
CVS	**:** Chorionic villus sampling
D&C	**:** Dilation and curettage
D&E	**:** Dilation and evacuation
DES	**:** Diethylstilbestrol
EM	**:** Expectant management
EVA	**:** Electric vacuum aspiration
FIGO	: International Federation of Gynecology and Obstetrics
HbA1c	**:** Hemoglobin A1c
IDDM	**:** Insulin-dependent diabetes mellitus
IUD	**:** Intrauterine device
MPA	**:** metabolite misoprostol acid

MVA **:** Manual vacuum aspiration

NSAIDs **:** Non-steroidal anti-inflammatory drugs

PGE **:** Prostaglandin E

RCOG **:** Royal College of Obstetricians and Gynecologists

SD **:** Standard deviation

SLE **:** Systemic lupus erythematosus

SPSS **:** Statistical package for social science

TVU **:** Transvaginal ultrasound

WHO **:** World Health Organization

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Protocol

What is already known on this subject?

Abortion-related morbidity and mortality increases significantly as gestation advances. Abortions after 14 weeks of pregnancy constitute 10-15% of all abortions; however, they are responsible for two-thirds of all abortion-related complications and 50% of abortion related deaths **(Dilek et al, 2011).**

What does this study add?

To evaluate the value of cervical length as a predictor of successful induction of abortion by misoprostol in second trimester pregnancy termination.

1)INTRODUCTION /REVIEW

Abortion-related morbidity and mortality increases significantly as gestation advances. Abortions after 14 weeks of pregnancy constitute 10-15% of all abortions; however, they are responsible for two-thirds of all abortion-related complications and 50% of abortion related deaths **(Dilek et al, 2011).**

The development of safe and effective abortion techniques for second trimester pregnancy terminations and fetal demise are a major clinical challenge. The main aim of abortion induction is rapid, uneventful, and complete expulsion or delivery of a fetus. Time period between beginning of induction to abortion or delivery of products of conception can be prolonged in the second trimester of pregnancy due to uterine unresponsiveness and unfavorable cervix **(Dilek et al., 2011).**

Modern medical abortion methods include the use of one or more of the following: prostaglandin analogues, mifepristone,

osmotic cervical dilators, Foley catheters, and oxytocin. Misoprostol, either alone or in combination with other agents, is recommended over other instillation agents and uterotonics because of its high efficacy, low cost, and ease of use **(Borgatta L, Kapp N. 2011)**

Transvaginal sonographic cervical length measurement at 18-24 weeks of gestation is one of the strongest and most consistent predictors of preterm birth in asymptomatic women, regardless of whether they have a history of preterm birth and twin gestations **(Conde-Agudelo and Romero, 2015).**

Serial measurements of transvaginal sonographic cervical length has shown that assessment of risk for preterm birth and that shortening of transvaginal sonographic cervical length over time is associated with an increased risk of preterm birth **(Moroz et al ., 2012).**

Cervical anatomic changes usually occur slowly, and shortening of cervical length and funneling are considered to be earlier predictors for preterm delivery than uterine contractions **(Dilek et al., 2011).**

Transvaginal sonographic measurement of cervical length, a non-invasive technique, could provide a useful prediction of the likelihood of vaginal delivery within 24 h of induction **(Hatfield et al., 2007)**

Theoretically, Transvaginal ultra sonograghic measurement could represent a more accurate assessment of the cervix than digital examination because the supra vaginal portion of the cervix usually comprises about 50% of cervical length, but this is highly variable among individuals. This portion is difficult to assess digitally especially if the cervix is closed. In addition, effacement is subjective and can vary considerably among

examiners **(Daskalakis et al, 2007).**

2) AIM/ OBJECTIVES

The aim is to find correlation between pre-induction cervical length measured transvaginally and successful induction of second trimesteric abortion

Research hypothesis

In women undergoing induction of second trimesteric abortion transvagianl ultrasonography measurement of cervical length can't predict the successful induction of abortion

Research question

In women undergoing induction of second trimesteric abortion , does transvaginal ultrasonography measurement of cervical length predict successful induction of abortion ?

3) METHODOLOGY:

Patients and Methods/ Subjects and Methods/ Material and Methods

Type of the study:

This study is a prospective observational study.

Settings:

This study will be conducted at Ain Shams University Maternity Hospital

Study duration:

from 1st November 2019 to November 2020

Population:

221 patients with fetal demise attending the labor and delivery ward for second trimester pregnancy termination by misoprostol will be recruited, fulfilling the inclusion and exclusion criteria.

Sample size justification:

Using pass 11 program for sample size calculation and according to (dilek etal , 2011) , the expected rate of successful TOP within 48 hrs = 90% , sensitivity of cervical length to predict outcome 60% , sample size of 221 women can detect this sensitivity with power 80% and error 0.05

single operator : Dr Monira Ali Ali ultrasonographer at fetomaternal unit at Ain Shams University

Patients' selection criteria

Inclusion criteria:

- Age from to 40 years
- Patients with singleton pregnancy
- Patients pregnant at 14-26 weeks (as calculated by LMP sure and reliable and confirm by U/S between 9 and 12 weeks gestation)
- Non-scarred uterus
- Primigravida or multipara
- Indication for elective pregnancy termination is Fetal demise

Exclusion criteria:

- Age less than 18 or more than 40 years age of child bearing period

- Patients pregnant at less than 14 or more than 26 weeks due to different doses needed
- Patients with inevitable miscarriage (diagnosed by uterine contractions and dilated cervix with bulging membranes) as this may lead to spontaneous abortion
- Patients with scarred uterus (previous cesarean section, hysterectomy or myomectomy) due to higher risk of uterine ruptured
- Multi-fetal pregnancy , different doses will be needed and higher risk of uterine atony
- Patients with contraindication for misoprostol.
- Placenta covering internal os. Due to risk of hemorrhage and possibility of hysterectomy
- Incompetent cervix (using TVUS revealing: tunneling cervix, cervical length <2.5cm >lcm).
- Rupture of membranes , this will shorten cervical length and may lead to spontaneous

abortion

Methods

- After acceptance of the protocol by the local review board, an informed written consent will be signed by all women after proper counseling and before participation.
- After enrollment all patients will undergo the following: