شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

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قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

HANAA ALY

Role of Occiput-Spine Angle Measurement during First Stage of Labor as a Predictor of Progress of Labor and Outcome

Thesis

Submitted for Partial Fulfillment of the Master Degree (M.Sc.)
in Obstetrics and Gynecology

By

Mohamed Samir Noamany Ismail
(M.B.,B.CH., Faculty of Medicine –Ain Shams University 2017)
Resident of Obstetrics & Gynecology
Faculty of Medicine – Ain-Shams University

Supervised by:

Prof. Sherif Mohamed Abd El Hameed
Professor of Obstetrics & Gynecology
Faculty of Medicine – Ain-Shams University

Dr. Al Hassan Mohammad Khedr
Lecturer of Obstetrics & Gynecology
Faculty of Medicine - Ain-Shams University

Faculty of Medicine
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Mohamed Samir

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List of Abbreviations

Abb.	Full term
ACOG	*American College of Obstetricians and Gynecologists*
AP	*Antero posterior*
CCT	*Controlled cord traction*
ICU	*Intensive Care Unit*
MVUs	*Montevideo units*
OSA	*Occiput- spine angle*
PGE_2	*Prostaglandin E_2*
U/S	*Ultrasound*
WHO	*World Health Organization*

PPROTOCOL OF A THESIS FOR PARTIAL FULFILLMENT OF MASTER DEGREE IN OBSTETRICS & GYNAECOLOGY

Title of the Protocol: Role of occiput-spine angle measurement during first stage of labor as a predictor of progress of labor and outcome

Postgraduate Student: Mohamed Samir Noamany Ismail
Degree: M.B.B.Ch., Faculty of Medicine – Ain Shams University (2017)
Resident of Obstetrics & Gynecology Ain Shams Maternity Hospital

DIRECTOR: Prof.: Sherif Mohamed Abd El Hameed
Academic Position: Professor of Obstetrics and Gynecology
Faculty of Medicine - Ain Shams University
Department: Obstetrics & Gynecology – Ain Shams University

Co-DIRECTOR: Dr.: Al Hassan Mohammad Khedr
Academic Position: Lecturer of Obstetrics and Gynecology
Faculty of Medicine-Ain Shams University
Department: Obstetrics & Gynecology – Ain Shams University

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

- Deflexed cephalic presentations are an important cause of obstructed labor and account for 1/3cesarean deliveries as the result of labor arrest (Caughey AB, Cahill AG, et al.,2014)
- The diagnosis of fetal head deflexion traditionally is based on digital examination in labor (Hintze J,2011)
- Early detection of deflexed cephalic presentation, measuring occiput-spine angle, Its progression and its relationship with course and outcome of labor.

1.INTRODUCTION

The World Health Organization (WHO) defines normal birth as spontaneous in onset, low risk at the start of labor and remaining so throughout labor and delivery. The infant is born spontaneously in the vertex position between 37 and 42 completed weeks of pregnancy. After birth, mother and infant are in good condition (World Health Organization, 2010).

Spontaneous vaginal delivery without obstetric intervention is the favorable outcome for most pregnancies. However, some women fail to progress in the second stage of labor and so require operative delivery. Management options include primary Cesarean section, instrumental delivery (forceps or vacuum) (Grobman et al., 2018).

In the vertex presentation, the vertex is flexed such that the chin rests on the fetal chest, allowing the suboccipito-bregmatic diameter of approximately 9.5 cm to be the widest diameter through the maternal pelvis. This is the smallest of the diameters to negotiate the maternal pelvis (Kilpatrick et al., 2012).

The arrest of labor progression is the leading cause of obstetric intervention including cesarean delivery and instrumental vaginal delivery. In the attempt to decrease the incidence of primary cesarean delivery the classical definition of abnormal labor course has been revised recently and a longer duration of the second stage has been declared as acceptable before diagnosing a labor arrest (up to 4 hours or more in nulliparous and to 3 hours or more in multiparous) (Caughey et al., 2014).

Some authors however have challenged this new statement claiming that based on the available evidence, a second stage of labor beyond 3 hours is unsafe for the unborn infant (Leveno et al., 2016).

Deflexed cephalic presentations are an important cause of obstructed labor and account for 1/3cesarian deliveries as the result of labor arrest. Three varieties of deflexed cephalic malpresentation traditionally are described according to the degree of head extension including sincipit, brow, face (Boyle et al., 2013).

In some of these cases such as brow presentation the achievement of vaginal delivery is not possible because the mean fetal head presenting diameter (mento-occipital diameter) is 13 cm which is larger than the widest diameter of birth canal (obstetric conjugate=11cm) (Cunningham et al., 2016).

The diagnosis traditionally is based on digital examination during labor, although the use of ultrasound to support clinical diagnosis has been reported recently (Ghi et al., 2016).

2.AIM / OBJECTIVES

The aim of the present study is early detection of deflexed cephalic presentation by measuring occiput-spine angle, its progression and its relationship with course and outcome of labor

Study question: Are fetuses with smaller occiput-spine angle are at increased risk for operative delivery?
Study hypothesis: Fetuses with smaller occiput-spine angle are at increased risk for operative delivery.
Outcome:1ry: Role of occiput-spine angle measurement in determination of degree of head deflexion and its effect on progress of labor and type of delivery.

2ry: Role of occiput-spine angle measurement in decreasing neonatal morbidity and mortality by following the medical state of the newborn using Apgar score and NICU admission

3.METHODOLOGY:
Patients and Methods/ Subjects and Methods/ Material and Methods

- **Type of Study:** Prospective cohort Study
- **Study Setting:** This study will be held at Ain shams Maternity hospital labor ward

Inclusion criteria:
1) Primigravida
2) Gestational age between 37 and 42 weeks
3) Singleton pregnancy
4) Average sized fetus (2.5-4 Kg)
5) Vertex presentation
6) Occiput-anterior or transverse position
7) Active phase of first stage of labor (there is progressive cervical dilatation from 4 cm, regular uterine contractions)
8) Spontaneous onset of labor

Exclusion criteria:
1) Occiput-posterior position, Asynclitism (can't measure occiput-spine angle by U/S)
2) Indication for cesarean section e.g. Category III CTG and placenta previa (no role for vaginal delivery)
3) Medical disorder e.g. hypertension or diabetes (to avoid any maternal or fetal co-morbidity and subsequent statistical bias)
4) Pre labor rupture of membranes (difficult imaging in absence of amniotic fluid)
5) BMI > 30 (difficult imaging due to obesity)

- **Study population:** The study will include single group of 160 cases
- **Sampling Method:** Convenient sampling
- **Sample Size:** using PASS 11 program for sample size calculation and assuming that incidence of operative delivery is 20%, AUC for ROC curve measuring accuracy of occiput-spine angle for prediction of operative delivery = 0.66 (Ghi et al, 2016). A sample of 160 women 80% power to detect a difference of 0.16 between AUC under the null hypothesis of 0.50 and an AUC under the alternative hypothesis of 0.66 using a two-sided z-test at as a significant level of 0.05
- **Ethical Considerations:**

The study will be presented for approval from the Research ethical committee, Faculty of medicine, Ain Shams University.
Informed consent will be obtained from the subjects after explaining