

# **The value of the first trimester sonography in fetal anatomy scanning and detection of fetal anomalies**

**Thesis**

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**by**

**Weeam Fouad A.Rahman Badeeb  
(M.B, B.Ch.)**

**Faculty of Medicine-Aden University  
Republic of Yemen**

**Supervised by**

**Prof. Dr. Alaa El Din Naguib El Ebrashy  
Professor of Obstetrics &Gynecology  
Consultant in U/S and Fetal Medicine  
Faculty of Medicine-Cairo University**

**Dr. Abdalla Yehia ElKateb  
Lecturer of Obstetrics &Gynecology  
Faculty of Medicine-Cairo University**

**Dr. Eman Abdel Monem El Kattan  
Lecturer of Obstetrics &Gynecology  
Faculty of Medicine-Cairo University**

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

وَلَقَدْ خَلَقْنَا الْإِنْسَانَ مِنْ سُلَالَةٍ مِّنْ طِينٍ (١٢)

ثُمَّ جَعَلْنَاهُ نُطْفَةً فِي قَرَارٍ مَّكِينٍ (١٣)

ثُمَّ خَلَقْنَا النُّطْفَةَ عَلَقَةً فَخَلَقْنَا الْعَلَقَةَ مُضْغَةً

فَخَلَقْنَا الْمُضْغَةَ عِظَامًا فَكَسَوْنَا الْعِظَامَ لَحْمًا ثُمَّ

أَنْشَأْنَاهُ خَلْقًا آخَرَ فَتَبَارَكَ اللَّهُ أَحْسَنُ الْخَالِقِينَ

(١٤)

صدق الله العظيم

سورة المؤمنون (آية

١٢-١٤)

## **Dedication To...**

*My First Country (Yemen)*

*The beautiful country that I love more than myself*

*My Second Country (Egypt)*

*A fascinating land with the most hospitable, warm and honest people.*

*The Fetal Medicine Unit (Kasr Al-Eini Hospital):*

*For their commitment and amazing support of my work and training during the last 9 months.*

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*Wahad,*

*Wada*

*Al Wahag*

*For their love and continued support*

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## **LIST OF ABBREVIATIONS**

|              |                                                              |
|--------------|--------------------------------------------------------------|
| °C           | Degree centigrate                                            |
| 2D           | Two dimensional                                              |
| 3D           | Three dimensional                                            |
| ACOG         | American Collegue of Obstetricians and Gynecologists         |
| AFP          | Alpha-fetoprotein                                            |
| AMA          | Advanced Maternal Age                                        |
| BMI          | Body Mass Index                                              |
| B-mode       | Brightness mode                                              |
| BPD          | Biparietal diameter                                          |
| bpm          | Beat per minute                                              |
| CNS          | Central Nervous system                                       |
| CRL          | Crown-rump length                                            |
| CVS          | Chorionic villus sampling                                    |
| CW           | Continuous wave                                              |
| DHEAS        | Dehydroepiandrosterone sulfate                               |
| DS           | Down syndrome                                                |
| DV           | Ductus venosus[                                              |
| ECC syndrome | Ectrodactyly-ectodermal dysplasia-cleft palate syndrome      |
| FASTER       | First and second trimester evaluation of risk for aneuploidy |
| FHR          | Fetal Heart rate                                             |
| FL           | Femur length                                                 |
| FMF          | Fetal Medicine Foundation                                    |
| GA           | Gestational Age                                              |
| hCG          | Human chorionic gonadotropin                                 |
| IVF          | In vitro fertilization                                       |
| KHZ          | Kilo Hertz                                                   |
| LHCGR        | Luteinizind hormone/choriogonadotrophin receptor             |
| LMP          | Last menstrual period                                        |

|                   |                                                                                                              |
|-------------------|--------------------------------------------------------------------------------------------------------------|
| m/s               | Metre per second                                                                                             |
| MHZ               | Mega Hertz                                                                                                   |
| M-mode            | Motion mode                                                                                                  |
| MoM               | Multiples of the Median                                                                                      |
| MSAFP             | Maternal serum alpha-fetoprotein                                                                             |
| NB                | Nasal bone                                                                                                   |
| NT                | Nuchal translucency                                                                                          |
| NTD               | Neural Tube Defect                                                                                           |
| PAPP-A            | Pregnancy associated plasma protein A                                                                        |
| PUDVC             | Pulsed Ultrasound Doppler Velocity                                                                           |
| SD                | Standard Deviation                                                                                           |
| SLE               | Systemic Lupus Erythmatous                                                                                   |
| SPR               | Screen Positive rate                                                                                         |
| TAS               | Trans-abdominal sonography                                                                                   |
| TI                | Thermal Index                                                                                                |
| TIB               | Thermal Index for soft tissue                                                                                |
| TIS               | Thermal Index for bone                                                                                       |
| TVS               | Trans-vaginal sonography                                                                                     |
| UDV               | Ultrasound Doppler Velocimetry                                                                               |
| uE <sub>3</sub>   | Unconjugated estriol three                                                                                   |
| US                | Ultrasound                                                                                                   |
| VATER association | Vertebral defect, Anal atresia, Tracheo-esophageal fistula, Esophageal atresia, Radial limb and Renal defect |
| VSD               | Ventricular septal defect                                                                                    |

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