



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



HANAA ALY



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جامعة عين شمس

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Role of Fetal Cardiac MRI in Assessment of Congenital Heart Diseases in Comparison to Fetal Echocardiography

Thesis

Submitted for Partial Fulfillment of
Master Degree in **Radiodiagnosis**

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2021

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سببنا انك لا تعلم لنا
إلا ما علمتنا إنك أنت
العليم العظيم

صدق الله العظيم

سورة البقرة الآية: ٣٢

Acknowledgments

First and foremost, I feel always indebted to Allah the Most Beneficent and Merciful.

I wish to express my deepest thanks, gratitude and appreciation to Dr. Ahmed Samir Ibrahim, Professor of Radiology, Faculty of Medicine, Ain Shams University, for his meticulous supervision, kind guidance, valuable instructions and generous help.

Special thanks are due to Dr. Hend Galal Eldeen Mohammed Ali, Lecturer of Radiology, Faculty of Medicine, Ain Shams University, for her sincere efforts, fruitful encouragement.

I would like to express my hearty thanks to all my family for their support till this work was completed.

Shimaa Rashad Megahed

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List of Abbreviations

Abb.	Full term
3VV	Three-vessel view.
4CH	Four-chamber view.
AA.....	Aortic arch.
Ao.....	Aorta.
ARV	Atrialized right ventricle.
ASD.....	Atrial septal defect.
AV	Atrioventricular.
AVSD.....	Atrioventricular septal defect.
BSSFP	Balanced steady-state free precession.
CHDs	Congenital heart defects.
CMR	Cardiovascular magnetic resonance.
DILV.....	Double inlet left ventricle.
DORV.....	Double outlet right ventricle.
DUS	Doppler ultrasound.
Echo.....	Echocardiography.
FO	Foramen ovale.
IVC.....	Inferior vena cava.
LA	Left atrium.
LV	Left ventricle.
MRI.....	Magnetic resonance imaging.
PA.....	Pulmonary artery.
RA.....	Right atrium.
RV	Right ventricle.
RVOT.....	Right ventricular outflow tract.
SD	Standard deviation.
SPSS	Statistical package for social sciences.
SVC.....	Superior vena cava.
TRV.....	True right ventricle.
TV.....	Tricuspid valve.
VSD.....	ventricular septal defect.

INTRODUCTION

Abnormalities of the cardiovascular system are the most common congenital diseases in the fetus and the first cause of infant mortality (*Johnson et al., 2014*).

Without a doubt, Echocardiography is the method of choice to visualize the fetal congenital cardiovascular abnormalities. Unlike fetal echocardiography imaging, cardiovascular magnetic resonance (CMR) is relatively unaffected by maternal and fetal conditions such as maternal obesity, uterine myoma, twins, oligohydramnios, fetal position and rib calcification, which particularly impair sonographic visualization of the fetal heart (*Donofrio et al., 2014; Wielandner et al., 2013*).

Fetal CMR imaging has the potential to complement ultrasound in detecting cardiovascular malformations and extra cardiac anomalies (*Manganaro et al., 2014; Dong et al., 2013*).

MRI has been confirmed as an important tool for fetal central nervous system and other diseases. MRI has also emerged as a powerful approach to imaging heart diseases in infants. But fetus with heart diseases diagnosed by MRI has relative rarely been reported. Now most doctors agree that fetal cardiac MRI can provide some additional information when the patient was with some special conditions such as obesity, uterine myoma, twins and oligohydramnios. There also has