ROLE OF MAGNETIC RESONANCE IMAGING IN ASSESSMENT OF FETAL BRAIN ANOMALIES

Essay

Submitted for partial fulfillment of Master Degree in Radiodiagnosis

By

Reem Mohamed Ashraf Mohamed Samy Abdelhameed

M.B., B.Ch.

Under The Supervision Of

Professor Dr. Ayman Mohamed Ibrahim

Assistant Professor of Radiodiagnosis
Faculty of Medicine-Ain Shams University

Professor Dr. Remon Zaher Elia

Assistant Professor of Radiodiagnosis
Faculty of medicine-Ain Shams University

Faculty of Medicine
Ain-shams University
2016-2017

دور التصوير بالرنين المغناطيسى فى تقييم تشوهات مخ الجنين

رسالة توطئة تمهيدا للحصول على درجة الماجستير في الاشعة التشخيصية
مقدمة من الطبيب

ريم محمد اشرف محمد سامي عبد الحميد
بكالوريوس الطب والجراحة العامة
تحت إشراف

أ. د/ أيمن محمد إبراهيم
أستاذ مساعد الاشعة التشخيصية
كلية الطب-جامعة عين شمس

أ. د/ ريمون زاهر إيليا
أستاذ مساعد الاشعة التشخيصية
كلية الطب-جامعة عيم شمس

كلية الطب
جامعة عين شمس
2016-2017

ACKNOWLEDGEMENTS

First and foremost, thanks to Allah, the most beneficial and most merciful. It is but for His mercy that we can put through in life.

I am greatly indebted to Prof.Dr. ***Ayman Mohamed Ibrahim*** *, Assistant Professor of Radiology, Ain-shams University; I am honored and pleased to have had the opportunity to learn from his valuable advice and expanded experience. His constant support, encouragement and willingness to teach and educate have pushed me forwards throughout this work, as well as throughout the rest of my Radiology career.*

I am also very grateful to prof.Dr. ***Remon Zaher Elia*** *, Assistant Professor of Radiology, Ain-shams University, for his excellent supervision, sincere encouragement, valuable criticism, enlightening suggestions and kind guidance throughout the whole work.*

And last but certainly not least, I would like to thank my mother, father and my family, without whose continuous help, Support and encouragement this work would have certainly not come to light.

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List of Abbreviations

- **ACR**: American College of Radiology
- **AVM**: Arteriovenous malformation
- **CCA**: Corpus Callosum Agenesis
- **CMV**: Cytomegalovirus
- **CNS:** Central Nervous System
- **CSF:** Cerebrospinal Fluid
- **DWI:** Diffusion-weighted imaging
- **DWM**: Dandy Walker Malformation
- **DWM:** Dandy-Walker Malformation.
- **FISP:** Fast Imaging with Steady State Precession.
- **FSE:** Fast spin echo.
- **FSGPR:** Fast multi-planer spoiled gradient echo.
- **GRE**: Gradient refocused echo
- **GZ:** germinative zone

- **HASTE:** Half-Fourier acquisition single-shot turbo spin- echo.
- **HPE**: Holoprosencephaly
- **MRI:** Magnetic resonance imaging
- **NTD :** Neural Tube Defect
- **PF**: posterior fossa
- **RARE:** Rapid acquisition with relaxation enhancement.
- **SE:** Spin Echo.
- **SPR**: Society for Pediatric Radiology
- **SSFSE:** Sagittal single-shot fast spin-echo.
- **TF:** Turbo factor
- **US:** Ultrasound
- **VGAM**: Vein of Gallen Arteriovenous malformation

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Abstract

The fetal brain MRI and ultrasound are complimentary imaging techniques in assessment of fetal brain anomalies.When an anomaly is visualized by ultrasound but the etiology remains uncertain due to the nature of the abnormality, or due to sonographic limitations from fetal lie, maternal body habitus, oligohydramnios, or small field of view fetal brain MRI can serve as a confirmative diagnostic and prognostic tool which characterize each type of malformation supplying definitive and complete knowledge of fetal brain pathology and prognosis of diseases also fetal cerebral parenchyma which is essential for decision making in fetal surgery and for parental counseling. T2-weighted imaging using ultrafast sequences (single shot fast spin echo) are mainly used. T1-weighted images (both with and without fat saturation), diffusion weighted imaging, and gradient images are often obtained for complementary information.

Keywords: Fetal brain, Magnetic Resonance Imaging, Fetal brain anomalies.