ROLE OF COMBINED CT AND MRI IN ASSESSMENT OF CHILD SENSORI-NEURAL HEARING LOSS

Thesis

Submitted for partial fulfillment of M.D. in Radio-diagnosis

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بسم الله الرحمن الرحيم

﴿ قَالُوا سُبْحَانَكَ ﴾

﴿ لَا عِلْمَ لَنَا ﴾

﴿ إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ ﴾

﴿ الْعَلِيمُ الْحَكِيمُ ﴾

صدق الله العظيم

سورة البقرة - الآية ٣٢

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Dedication

I would like to dedicate this Thesis to my ***Father*** *and my* ***Sunshine Mother****; to them I will never find adequate words to express my gratitude.*

Also my ***beloved family****, especially my* ***Husband*** *for dealing so patiently, tactfully during this thesis and to my lovely kids.*

LIST OF ABBREVIATIONS

2D : Two-dimensional

3D : three-dimensional

AICA : anterior inferior cerebellar artery

AT : apical turn of the cochlea

BCNC : bony cochlear nerve canal

bFFE : balanced fast field echo techniques

BT : basal turn of the cochlea

CA : cochlear aqueduct

CHARGE : coloboma, heart disease, atresia choanae, retarded growth and development, genital abnormalities, and ear anomalies

CI : cochlear implant

CISS : constructive interference in the steady state techniques

CLA : complete labrynthine aplasia

CMV : Cytomegalovirus

CN VII : facial nerve

CN VIII : vestibulo-cochlear nerve

CND : Cochlear Nerve Deficiency

CO : Cochlear otosclerosis

Co : cochlea

CPA : cerebellopontine angle

CT : computed tomography

DRIVE : Driven equilibrium techniques

ELD : endolymphatic duct

ELST : Endolymphatic sac tumor

EVA : Enlarged vestibular aqueduct

FASE : fast asymmetrical spin-echo techniques

FGRE : fast gradient echo techniques

FIESTA : fast imaging employing steady-state acquisition techniques

fMRI : Functional MRI

FN : facial nerve canal

FO : Fenestral otosclerosis

FRFSE : Fast Recovery Fast Spin Echo techniques

FSE-MRI : Fast spin-echo MRI

Ha : hamulus

He : helicotrema

HRCT :high resolution computed tomography

IAC : internal auditory canal

IP-I : incomplete partition types I

IP-II : incomplete partition types II ((Mondini deformity)

ISS : interscalar septum

LO : Labyrinthine ossificans

Lscc : lateral SCC

Mo : modiolus

MRI : magnetic resonance imaging

MT : middle turn of the cochlea

NI : nervus intermedius,

OSL : osseous spiral lamina

OW : oval window

PET : Positron emission tomography

Pscc : posterior SCC

RW : round window

S/Nb : signal to noise ratio

SIMCAST : segment interleaved motion compensated acquisition in the steady state techniques

SNHL : Sensorineural hearing loss

SSC : semicircular canals

Sscc : superior (anterior) SCC

SSFP : steady-state free precession techniques

ST : scala tympani

SV : scala vestibuli

TE : time to echo

TORCH : toxoplasmosis, rubella, cytomegalovirus, herpes simplex virus, and congenital syphilis

TR : time to return

trueFISP : true free induction with steady precession techniques

VA : vestibular aqueduct

Ve : vestibule

VII : facial nerve,

VIIIc : cochlear nerve,

VIIIvi : inferior division of vestibular nerve

VIIIvs : superior division of vestibular nerve,

VR : volume-rendered

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