

Diffusion tensor magnetic resonance imaging in assessment of prognostic outcome of stroke patients

Thesis

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ABSTRACT

Diffusion tensor MR imaging enable evaluation of the integrity of white matter tracts and their orientation and is used to evaluate the patterns of affection of white matter tracts following stroke. We found good association between tractography findings and patient's clinical recovery on follow up of acute cases. All the patients with disruption of white matter tracts had residual deficits on clinical follow-up, whereas the patients with displaced and preserved tracts had near complete neurological recovery.

KEY WORDS

MRI, Diffusion tensor, tractography, stroke, prognosis

TABLE OF CONTENTS

List of abbreviations	I - III
List of tables	IV - V
List of figures	VI - XII
Introduction	1-3
Aim of work	4
Chapter 1: MRI anatomy of brain white matter tracts	5-20
Chapter 2: Physical principles and technique	21-35
Chapter 3: Pathophysiology and pathology of stroke	36-50
Chapter 4: Current imaging modalities in stroke patients	51-74
Chapter 5: Role of DTI in stroke	75-82
Patients and methods	83-90
Illustrative cases	91-119
Results	120-136
Discussion	137-145
Summary	146-148
References	149-157
Arabic summary	

LIST OF ABBREVIATIONS

2D	Two dimensional
3D	Three dimensional
ACA	anterior cerebral arteries
ADC	Apparent diffusion coefficient
AIDS	acquired immunodeficiency syndrome
CABG	Coronary artery bypass graft
CBF	Cerebral blood flow
CBV	Cerebral blood volume
CE	Contrast enhanced
CC	corpus callosum
CNS	Central nervous system
CSF	cerebrospinal fluid
CST	Corticospinal tract
CT	Computed tomography
DEC	Directional encoded colour
DM	Diabetes mellitus
DSA	Digital subtraction angiography
DT	Diffusion tensor
DTI	Diffusion tensor imaging
DTT	Diffusion tensor tractography
DW	Diffusion weighted
DWI	Diffusion weighted imaging

EPI	Echo planner imaging
FA	Fractional anisotropy
FACT	Fiber assignment by continuous tracking
FLAIR	Fluid Attenuation Inversion Recovery
FOV	Field of view
FT	Fiber Tractography
GRE	gradient recalled echo
HARDI	High angular resolution diffusion imaging
HIV	Human Immunodeficiency Virus
HTN	Hypertension
icp	inferior cerebellar peduncle
ICH	intracerebral hemorrhage
IFOF	inferior frontooccipital fasciculus
ILF	inferior longitudinal fasciculus
MCA	Middle cerebral artery
mcp	middle cerebellar peduncle
MD	Mean diffusivity
MIP	Maximum intensity projection
ml	medial lemniscus
MR	magnetic resonance
MRA	Magnetic resonance angiography
MRI	Magnetic resonance imaging
MS	Multiple sclerosis
MTT	Mean transit time

NIHSS	National Institutes of Health Stroke Scale
PCA	Posterior cerebral artery
PI	perfusion imaging
PLIC	posterior limb of internal capsule
PROPELLER	periodically rotated overlapping parallel lines with enhanced reconstruction
ROI	Regions of interest
SAH	Subarachnoid hemorrhage
scp	superior cerebellar peduncle
SD	Standard deviation
SNAILS	Self-navigated interleaved spiral
SNR	Signal to noise ratio
STEAM	Single-shot stimulated-echo acquisition mode
SWI	susceptibility-weighted imaging
TIA	Transient ischemic attack
TOAST	trial of ORG 10172 in acute stroke treatment
TOF	time-of-flight
TTP	time to peak
TE	Time of echo
TR	Time of repetition
WD	Wallerian degeneration
WM	White matter

LIST OF TABELS

		Page
Table 1	Goals of acute stroke imaging	53
Table 2	MR Imaging versus CT for Acute Stroke	54
Table 3	Perfusion CT analysis	62
Table 4	CT protocol for acute ischemic stroke	65
Table 5	Stroke magnetic resonance imaging protocol	66
Table 6	Demographic features of the studied group.	121
Table 7	NIHSS on admission in the studied group.	122
Table 8	types of stroke in the studied group	123
Table 9	Size of lesion in the studied group	124
Table 10	Degree of FA reduction at the site of lesion in the studied group	125
Table 11	Pattern of involvement of white matter tracts detected by fiber tractography in the studied group.	126
Table 12	Association between FA at the site of the lesion and the NIHSS on admission.	127
Table 13	Association between degree of FA reduction at the site of the lesion and the size of lesion	129
Table 14	Association between pattern of WM tracts involvement detected by FT and at the size of the lesion in the studied group	130
Table 15	Association between pattern of WM tracts involvement detected by FT and NIHSS on admission in the studied group	132
Table 16	Mean FA at the contralateral side of the lesion according to FA at the site of the lesion	133

Table 17	NIHSS after 3 months in the acute patients	134
Table 18	Association between FA reduction at the site of the lesion and the NIHSS after 3 months	135
Table 19	Association between patterns of WM tracts involvement detected by FT and the NIHSS after 3 months	136

LIST OF FIGURES

		Page
Figure 1	Cingulum	7
Figure 2	Tractograms of the superior and inferior occipitofrontal fasciculi	7
Figure 3	Inferior occipitofrontal fasciculus and inferior longitudinal fasciculus directional map	8
Figure 4	Uncinate fasciculus and superior longitudinal fasciculus sagittal view	9
Figure 5	Superior longitudinal fasciculus sagittal view	9
Figure 6	Inferior longitudinal (occipitotemporal) fasciculus	10
Figure 7	Coronal Directional map	10
Figure 8	3D reconstruction results of some association fibers	11
Figure 9	A schematic diagram of trajectories of projection fibers	11
Figure 10	Corticospinal tract	12
Figure 11	Corona radiata	13
Figure 12	Internal capsule	14
Figure 13	Geniculocalcarine tract (optic radiation)	15
Figure 14	3D reconstruction of commissural fibers	16
Figure 15	Corpus callosum	16
Figure 16	Schematic diagram of the tracts in the brainstem	17
Figure 17	The trajectory of the superior cerebellar peduncle	18
Figure 18	The trajectory of the inferior cerebellar peduncle	18

Figure 19	The trajectory of the middle cerebellar peduncle	19
Figure 20	Axial illustration and directional map of the midbrain	20
Figure 21	Axial illustration and directional map of the midpons	20
Figure 22	Illustration of the diffusion random walk for a single water molecule	22
Figure 23	Schematic representation of diffusion displacement distributions for the diffusion tensor	23
Figure 24	FA map	25
Figure 25	Common types of coronal DT images in a healthy subject	26
Figure 26	FA maps showing various fiber tracts	26
Figure 27	Directionally encoded color maps	26
Figure 28 a	Abstract representation of tensors	30
Figure 28 b	Streamline tractography	30
Figure 28 c	Probabilistic tractography	31
Figure 28 d	Coronal images of internal capsule	31
Figure 28 e	streamline tractography of corticospinal tract	31
Figure 28 f	probabilistic tractography of corticospinal tract	32
Figure 29a	Tractography of corticospinal tract by extending streamlines	33
Figure 29b	Volume-rendered probability map of corticospinal tract	33
Figure 30	Hemorrhagic stroke	55
Figure 31	Left-sided dense middle cerebral artery sign	56
Figure 32	Left-sided dense MCA sign	56

Figure 33	Hyperdense basilar artery sign in a patient with signs of brain stem dysfunction	57
Figure 34	Hyperdense right posterior cerebral artery	57
Figure 35	Dot sign in the right sylvian fissure	57
Figure 36	Sulcal effacement	58
Figure 37	Patient with left hemispheric stroke showing hypodensity of left striatum	59
Figure 38	Perfusion CT software	60
Figure 39	CT perfusion in acute stroke	61
Figure 40	Drawing illustrates the pathophysiologic features of acute stroke	62
Figure 41	CT angio in patient with left MCA stroke	63
Figure 42	CT, CT angio & DSA in patient with right hemispheric stroke	64
Figure 43	Conventional MRI in acute stroke in the left medial temporal lobe	68
Figure 44	MRA showing intravascular thrombus	69
Figure 45	DWI of acute stroke of the posterior circulation	71
Figure 46	DWI of chronic infarcts	71
Figure 47	Perfusion imaging in patient with right middle cerebral artery infarction	72
Figure 48	Perfusion/diffusion mismatch in a patient with left middle cerebral artery occlusion	74
Figure 49	Chronic infarction with complete disruption of left corticospinal tract	77
Figure 50	Acute infarct in the right corona radiata with preserved right corticospinal tract	77
Figure 51	Acute infarction in right basal ganglia anterior to the course of corticospinal tract	78

Figure 52	Left chronic infarction showing wallerian degeneration of the left corticospinal tract	79
Figure 53	Left basal ganglia large haematoma causing displacement of the left CST	79
Figure 54	Infarct in the left fronto-parietal region showing low FA at the infarcted area	80
Figure 55	Chronic cerebral ischemia showing increased ADC value & decreased FA at the area of the lesion	80
Figure 56	Right middle cerebral artery stroke showing atrophic right CST & decreased FA	81
Case 1 (fig 57-58)		
Figure 57	Axial FLAIR & DWI of right thalamic acute infarction	92
Figure 58	3D fiber tractography of the CST showing preserved fibers of the right CST	93
Case 2 (fig 59-60)		
Figure 59	Axial FLAIR & DWI of right corona radiate acute infarction	94
Figure 60	3D FT of the CST and corona radiata showing disrupted anterior fibers of the corona radiata	95
Case 3 (fig 61-62)		
Figure 61	Axial DWIs showing left corona radiata and posterior limb of internal capsule acute infarction	96
Figure 62	3D FT of the CST and corona radiata showing disrupted left CST	97
Case 4 (fig 63-64)		
Figure 63	Axial T2 and DWI showing right parietal acute infarction	98
Figure 64	FT of the CST & arcuate fasciculi showing preserved right CST & disrupted right arcuate fasciculus	99
Case 5 (fig 65-69)		
Figure 65	Axial FLAIR & DWI showing large right fronto-temporo-parietal acute infarction	100
Figure 66	FT of the CSTs showing displaced right CST	101
Figure 67	FT of the CC showing disrupted right tapetum and right fibers of the body of the CC	101
Figure 68	FT of the arcuate fasciculi & IFOF that appear preserved	102

Figure 69	FT of ILF that appear preserved bilaterally	102
Case 6 (fig 70-73)		
Figure 70	Axial T2 & DWI showing large right fronto-temporo-parietal acute infarction	103
Figure 71	FT of the CSTs showing disruption of the right CST	104
Figure 72	FT of the IFOF showing disruption of the anterior part of the right IFOF	104
Figure 73	FT showing total disruption of the right arcuate fasciculus	105
Case 7 (fig 74-76)		
Figure 74	Coronal T2 and axial T1 showing right thalamic and right cerebral peduncle acute infarction with hemorrhagic conversion	106
Figure 75	FT of the CSTs showing reduced caliber of the right CST throughout its course	107
Figure 76	FT of the IFO fasciculi showing reduced caliber of the posterior part of the right IFOF	107
Case 8 (fig 77-80)		
Figure 77	Axial T1 & T2 showing large left fronto-temporo-parietal acute infarction with hemorrhagic conversion	108
Figure 78	FT of CSTs & IFOF showing disrupted left CST and anterior part of the left IFOF	109
Figure 79	FT of the arcuate fasciculi showing disruption of the left arcuate fasciculus	109
Figure 80	FT of the CC showing disruption of the left tapetum with displacement of the body of CC medially	110
Case 9 (fig 81-82)		
Figure 81	Coronal T2 & axial FLAIR WI showing left corona radiata and basal ganglia old infarction	111
Figure 82	FT of the CSTs showing disruption of the left CST	112
Case 10 (fig 83-84)		
Figure 83	Axial T2 WIs right internal capsule and right side of pons old infarctions	113
Figure 84	FT of the CSTs showing disruption of the right CST	114
Case 11 (fig 85-87)		