

Diagnostic Role of Dynamic Contrast Enhanced MR Angiography in Evaluation of Vascular Anomalies

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

لَسْبَدَانُكَ لَا عِلْمَ لَنَا
إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ
الْعَلِيمُ الْعَظِيمُ

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List of Abbreviations

Abb.	Full term
2D	Two dimensional
3D	Three dimensional
AM	Adrenomedulin
AV	Arteriovenous
AVF	Arteriovenous fistula
AVM	Arteriovenous malformation
B/R	Bleeding per rectum
BRBNS	Blue rubber bleb nevus syndrome
BW	Body weight
CA	Contrast agent
CAVF	Capillary arteriovenous fistula
CE	Contrast enhancement
CE-MRA	Contrast-enhanced MRA
CH	Congenital hemangioma
CHF	Congestive heart failure
CLAVM.....	Capillary lymphatic-arteriovenous malformation
CLM.....	Capillary-lymphatic malformation
CLOVES syndrome	Congenital lipomatous overgrowth, vascular malformations, epidermal nevi, and skeletal anomalies
CLR/Ramp2	Calcitonin-like receptor/receptor activity modifying protein-2
CLVAVM	Capillary- lymphatic-venous-arteriovenous malformation
CM	Capillary Malformation
CM-AVM.....	Capillary malformation-arteriovenous malformation
CMC1.....	C-X9-C Motif Containing 1
CT	Computerized tomography

List of Abbreviations (cont...)

Abb.	Full term
CTA	CT angiography
CVAVM.....	Capillary-venous-arteriovenous malformation
CVM.....	Capillary-venous malformation
DCE MRA	Dynamic contrast-enhanced MRA
DIC	Dissimiated intravascular coagulopathy
DSA	Digital subtraction angiography
Dx.....	Diagnosis
ECs	Endothelial cells
FAVA	Fibro-adipose vascular anomaly
FS	Fat saturation
FSE	Fast spin echo
Gd	Gadolinium
GI	Gastrointestinal
GIT	Gastrointestinal tract
GLUT1.....	Glucose transporter protein isoform 1
GRE	Gradient Echo
GVM	Glomuvenous malformations
H&E	Hematoxylin and eosin
HHT.....	Hereditary hemorrhagic telangiectasia
IH	Infantile hemangioma
IM.....	Intramuscular
IQR	Interquartile range
ISSVA	International Society for the Study of Vascular Anomalies
IV	Intravenous
KHE	Kaposiform hemangioendothelioma
KMP	Kasabach-Merritt phenomenon
KMS	Kasabach-Merritt syndrome

List of Abbreviations (cont...)

Abb.	Full term
KTS	Klippel-Tre´naunay syndrome
LECs	Lymphatic endothelial cells
LM	Lymphatic malformation
LVM.....	Lymphatic-venous malformation
LYVE-1	Lymphatic vessel endothelial hyaluronan receptor 1
m/sec	millilitres/second
MAF	Maffucci syndrome
ME	Maximum enhancement
MIP	Maximum-intensity projection
MRA	Magnetic Resonance Angiography
MRE	Maximum relative enhancement
MRI	Magnetic resonance imaging
NCE-MRA	Non contrast-enhanced Magnetic Resonance Angiography
NICH	Non involuting congenital hemangioma
NPV	Negative predictive value
OWS	Osler-Weber-Rendu syndrome
PC MRA	Phase-contrast MRA
PG	Pyogenic granuloma
PHACES syndrome	Posterior fossa malformations, hemangiomas, arterial anomalies, cardiac defects, eye abnormalities, sternal cleft, and supraumbilical raphe syndrome
PICH	Partially involuting congenital hemangioma
PMMTI	Primitive myxoid mesenchymal tumor of infancy
PPV	Positive predictive value
PROX-1	Prospero-related homeobox 1

List of Abbreviations (cont...)

Abb.	Full term
PWS	Parkes Weber syndrome
Ras GAP	Ras GTPase activating protein
RE	Relative enhancement
RICH	Rapidly involuting congenital hemangioma
RMS	Rhabdomyosarcoma
ROIs	Regions of interest
SC	Subcutaneous
SE	Spin echo
Sec.....	Second
SI	Signal intensity
SMCs	Smooth muscle cells
SS	Synovial sarcomas
STIR	Short time inversion recovery
SWS	Sturge Weber Syndrome
T1-W	T1 weighted
T2-W	T2 weighted
TA	Tufted angioma
TIE 2.....	Tyrosine kinase with immunoglobulin-like and EGF-like domains 2
TOF MRA	Time of flight MRA
TR MRA	Time-resolved MR angiography
TTP or T max.	Time to peak or maximal lesion enhancement time
US	Ultrasonography
VA	Vascular anomaly
VEGF-C	Vascular endothelial growth factor-C
VEGFR3	Vascular endothelial growth factor receptor 3
VM	Venous malformation
VMCM	Cutaneomucosal venous malformations

List of Abbreviations

Abb.	Full term
VS	Versus
WHO	World Health Organization
Wi	Wash-in rate
Wo	Washout rate

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