

# 폐쇄성 뇌혈관 질환과 뇌경색의 영상진단

## Imaging Diagnosis of Occlusive Cerebrovascular Diseases and Cerebral Infarction

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### Abstract

Non - contrast CT scan still plays a major role in the diagnosis of ischemic stroke, differentiation from hemorrhagic stroke, and determination of therapeutic plans. However, recently introduced perfusion CT and CT angiography using multi - slice CT are now widely used in the clinical field. They provide information about the local hemodynamic status and the exact location of occlusion in the same way as perfusion MRI and MR angiography. Diffusion - weighted MRI describes the status of molecular diffusion of the brain tissue and detects cytotoxic edema, which enables diagnosis of acute stroke in a more sensitive way than CT or conventional T2 - weighted MRI. Perfusion MRI using gadolinium contrast is more sensitive and can detect hyperacute stroke even at the time of occlusion. A proper combination of PWI and DWI can evaluate the brain tissue at risk, e.g. ischemic penumbra, by detection of DWI/PWI mismatching areas and enables the timely diagnosis and treatment of acute stroke. MR angiography also provides an anatomic detail of stenosis or occlusion of cerebral vessels by the non - contrast TOF or contrast - enhanced technique. Understanding the principles and pitfalls of new imaging modalities is very important in the evaluation of acute stroke, and proper communication with neuroradiologists is mandatory.

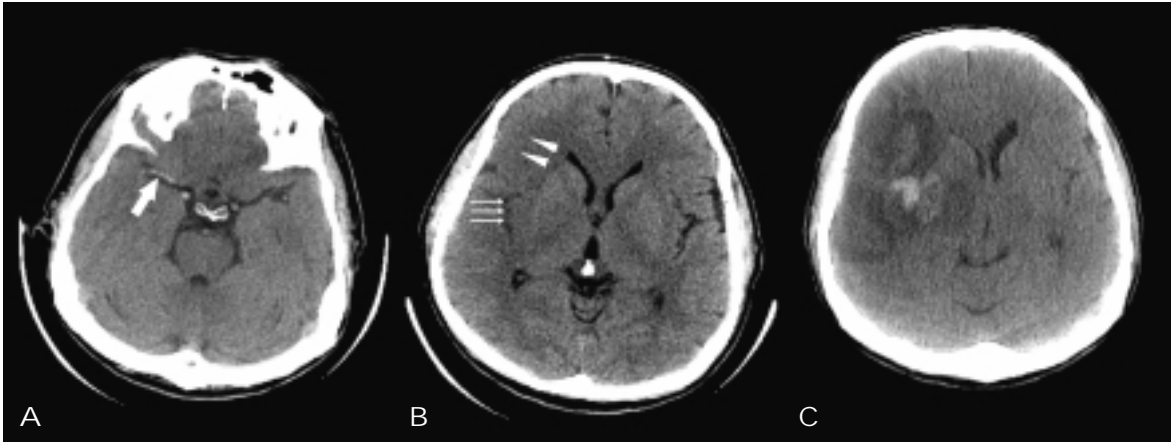
**Keywords :** Cerebral infarction; CT; MRI; Angiography

; ; ;

1  
(1), 가

가 ,  
2  
가 가 가  
가 (2).

,  
가  
가  
(3).  
(CT)

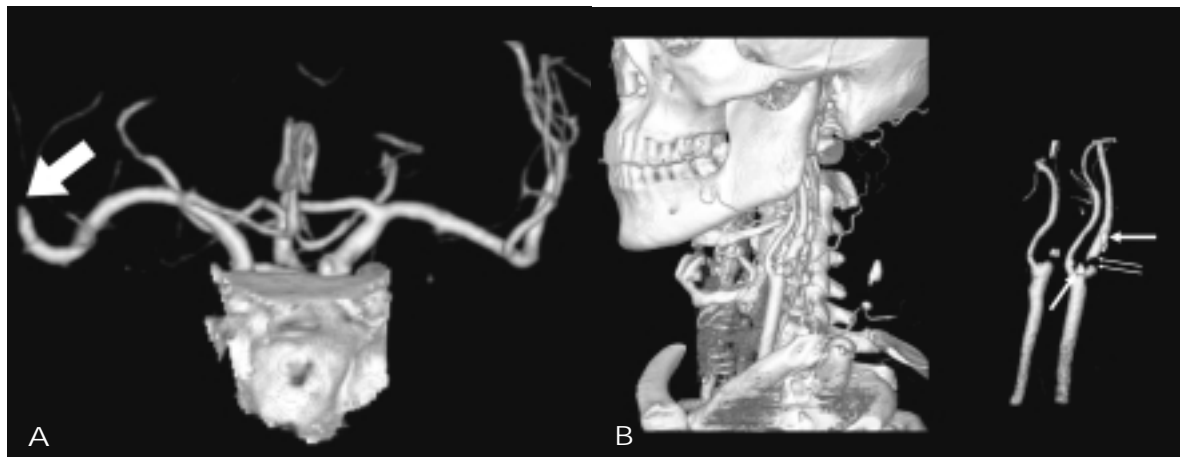


A) CT ( ).

B) insula ( ), - ( ),

C) CT , 1. 62

가 , 가 CT . 24 CT 가 (MRI) (Multi - slice CT) . CT (dense MCA sign), 가 ( 1). CT MRI , 가 MRI, CT 가 CT 1. (CT) MRI CT 85% mortality 가 (4), 1/3 tPA (5).



A)

B) CT

2. CT CT

CT가 CT

3

MR

. CT

( 2),

가

가,

, 가

( 3).

CT CT

CT

가

(6).

CT

가

가가

tive cerebral blood volume, rCBV),  
bral blood flow, CBF),  
peak enhancement, TTP)

MRI

CT

(rela-

2.

(MRI)

(cere-

90

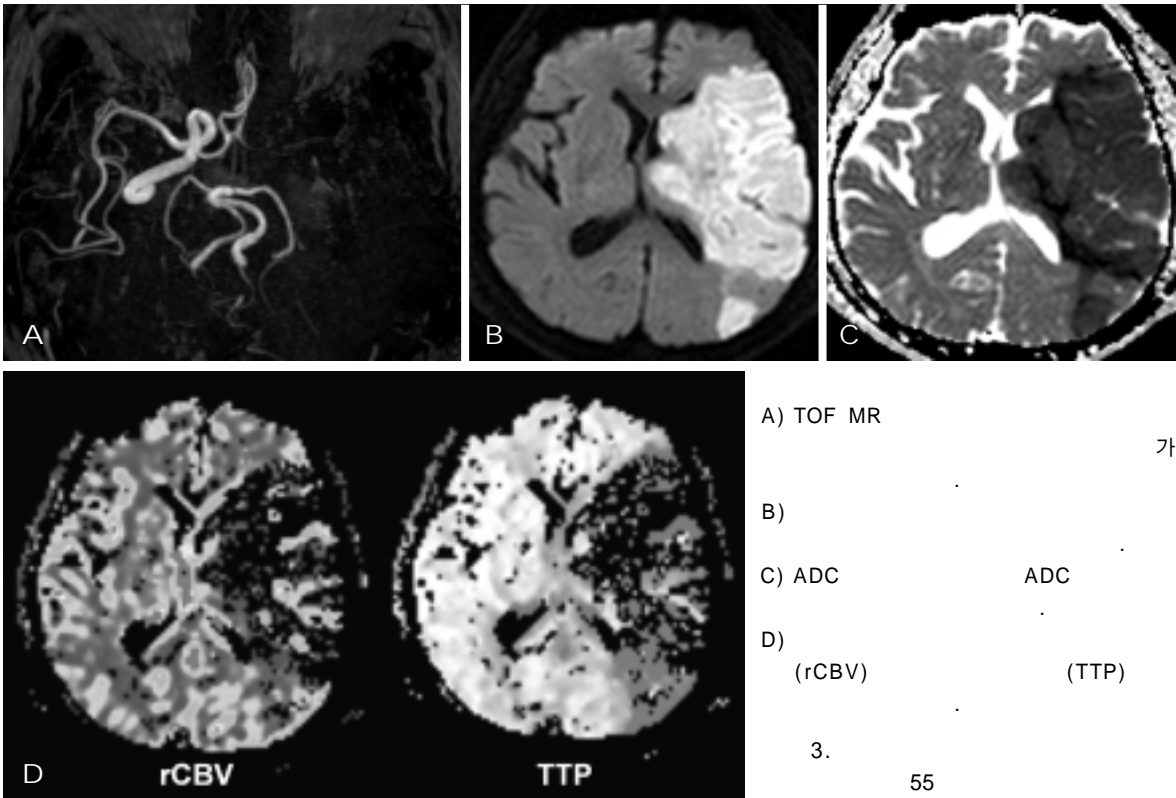
(time to

MRI

T1

T2

가가



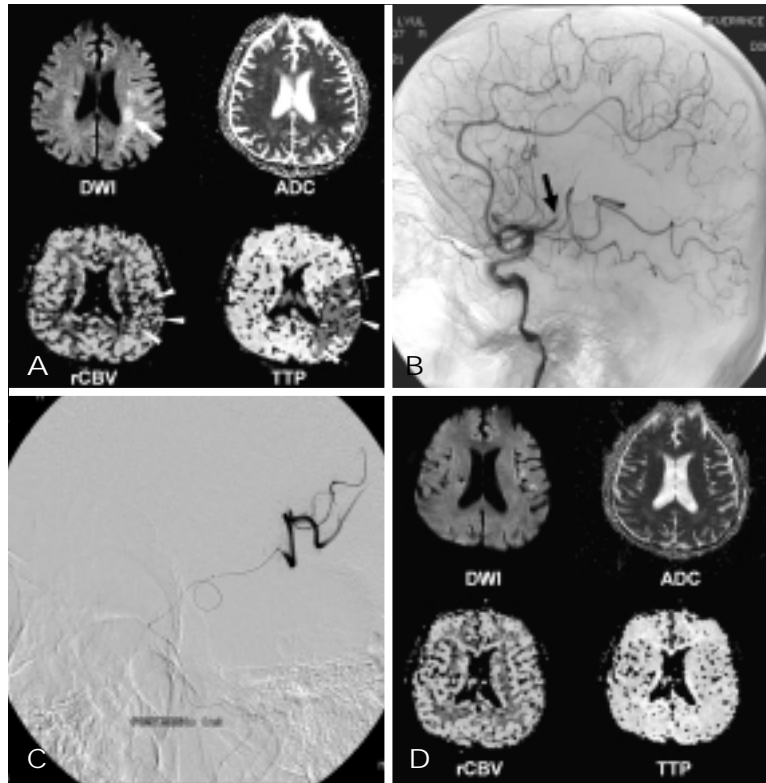
가  
가  
(7)

MRI가  
90  
가  
(echo planar imaging, EPI)  
가 EPI (apparent diffusion coefficient, ADC)  
MRI가 가 가  
CT 가

ADC가 ADC  
,  
( 3).  
(13), (16). 가  
3~6 T2  
(17, 18). CT 가  
ADC  $9 \times 10^{-4} \text{ mm}^2/\text{s}$  rCBV, CBF, TTP  
ADC 가 rCBV , TTP 가가  
50% ( 3).  
(14). rCBV , TTP  
가 3~5 가  
1  
3~5 ADC  
DWI  
(pseudonormalization) (15),  
ADC 가 rCBV 가 TTP  
가 ADC  
가  
가  
가  
(epi- 가  
dermoid), , rCBV가  
가 rCBV 가

## (Perfusion Weighted MRI, PWI)

가  
T2\* 가 / 가  
gadolinium fusion mismatch) (Diffusion/Per-  
(is-



A) 가 ADC, rCBV, TTP ( ). 가 , (ischemic penumbra) 가  
B) 가  
C) 가  
D) 가

4.

82

chemic penumbra)

MRA

TOF

Gadolinium

가 (19). 6

가 ( 4).

MRA, CEMRA)

( 5), TOF

rCBV CBF TTP가

가

CEMRA

가  
CBF  
rCBV  
가  
(20).

(MR Angiography, MRA)

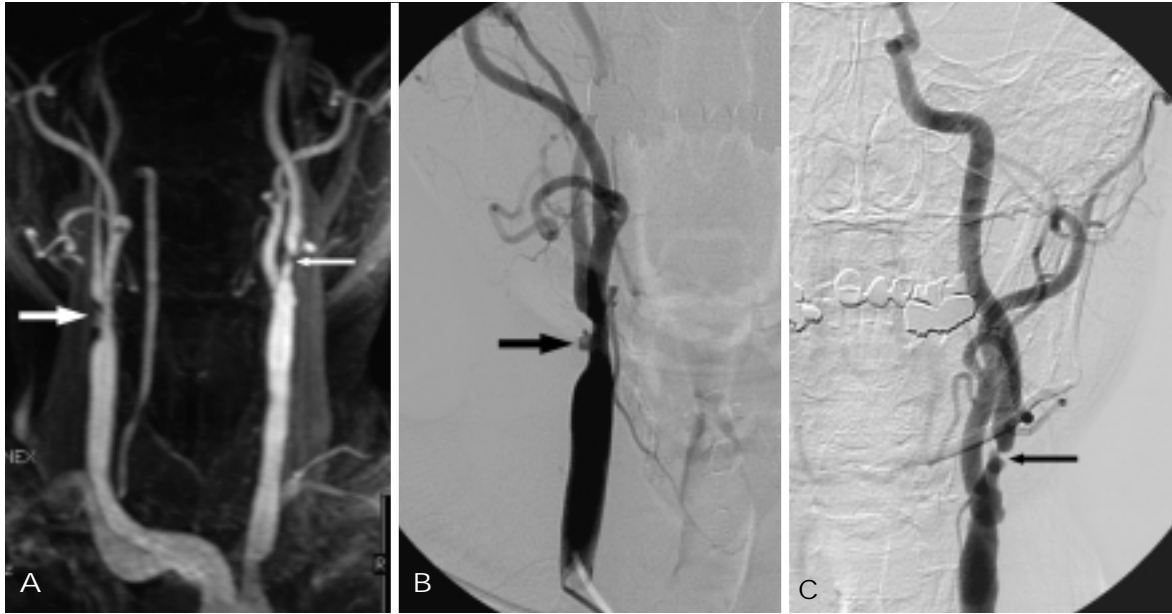
(digi-  
tal subtraction angiography,  
DSA)

가  
gold standard

가  
가  
가  
200

MRA가

가 가



A) MR  
B) C) DSA

5.

MR  
58

가 MRA  
2.4~3.8%

(21),

가

가  
25%

가

MR

(22, 23).

가



CT, MRI

DSA

CT - MRI,

MRI, CT - MR

1. 1999

, 2000

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