

T2

FLAIR

1

: (territory infarction) (lacunar infarction) Fluid  
 Attenuated Inversion Recovery (FLAIR) .  
 : 54 20 25 40 57 , 32  
 가 Fast Spin Echo (FSE) T2 FLAIR  
 T2 FLAIR 가 .  
 : 25 12 FLAIR T2 가  
 9 FLAIR T2  
 , 24 , 16 FLAIR가 T2  
 가 FLAIR T2  
 . 9 , 4  
 가  
 가 17 , 가 15 가 가  
 (24 ) (33 ) 가  
 : FLAIR .

(Magnetic Resonance Image, MRI) 8 FLAIR  
 T2 가 .  
 (1). MRI  
 FLAIR (Fluid Attenuated Inversion Recovery)  
 T2 1998 1 3 MRI  
 FLAIR 54 . MRI  
 . FLAIR ,  
 , 20  
 T2 25 , 40 57 .  
 (2 - 4). 가 28 , 가 26 33 84  
 63.3 .  
 FLAIR T2 1.5T Signa (GE Medical  
 System, Milwaukee, Wisconsin, U.S.A.) T1  
 TR/TE 433 - 450/11 ms, T2 3500 -  
 4000/185 ms FLAIR TR/TE/TI  
 10000/119/2500 7.35 (2.40 - 10.40)

FLAIR T2

11, 5 가

2 가 T1, T2 4 T2 FLAIR T2 FLAIR

FLAIR 가 , T2 9 1 T2 FLAIR

FLAIR 1 T2

FLAIR 가 가

가 17 ,

25 T2 1 , 가 15

(Fig. 1A), FLAIR 21 2 2 1 FLAIR

FLAIR (Fig. 1B). 57 FLAIR 30 가 가

24 가 T2 (3, 4).

(Fig. 2B) 3 25 12 FLAIR T2 T2 FLAIR 1 2

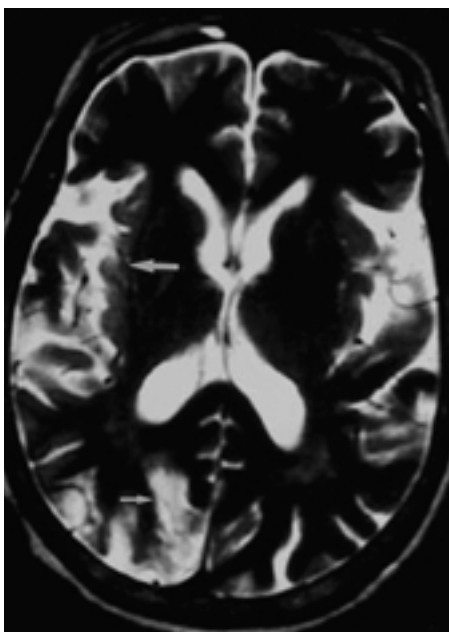
가 9 FLAIR가 T2

15 가 FLAIR 24 , 16

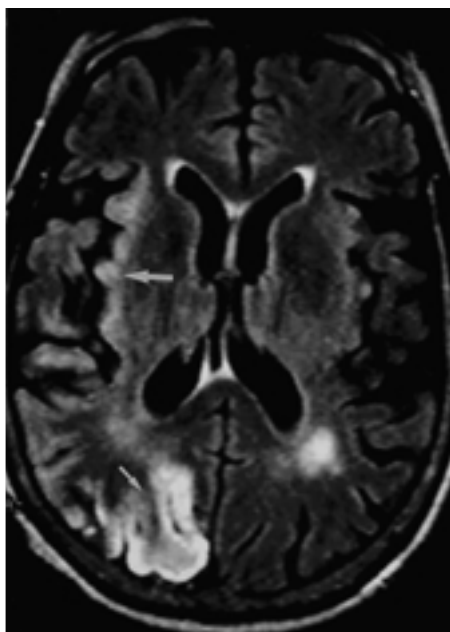
T2 FLAIR T2

T1 가 9 가 4 가

(Fig. 3A), T1 가 45 , 8 가



A



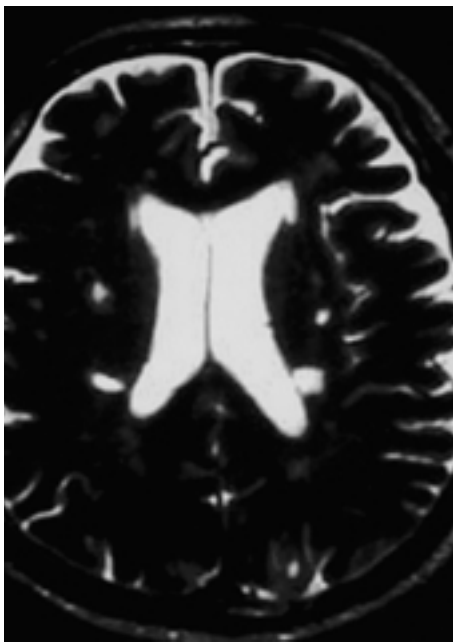
B

**Fig. 1.** Acute and subacute cerebral infarction of right middle and posterior cerebral artery territory in 62-years-old man.

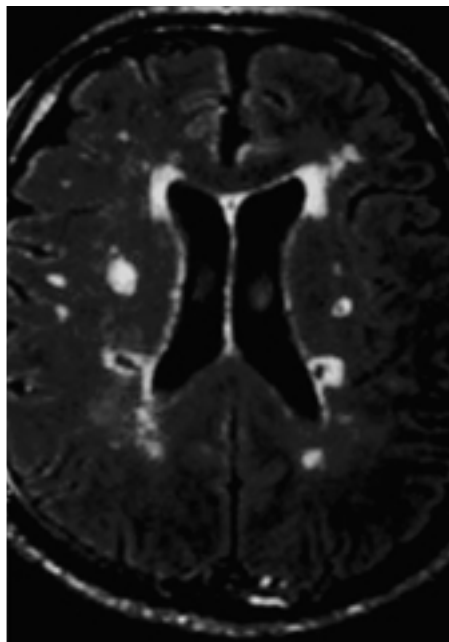
**A.** T2-weighted axial image shows hyperintensity at right occipital lobe (arrow), but isointensity with gray matter at right insular cortex (large arrow).

**B.** Axial FLAIR image shows hyperintensity at right occipital lobe (arrow) and also definite hyperintensity at right insular cortex (large arrow).

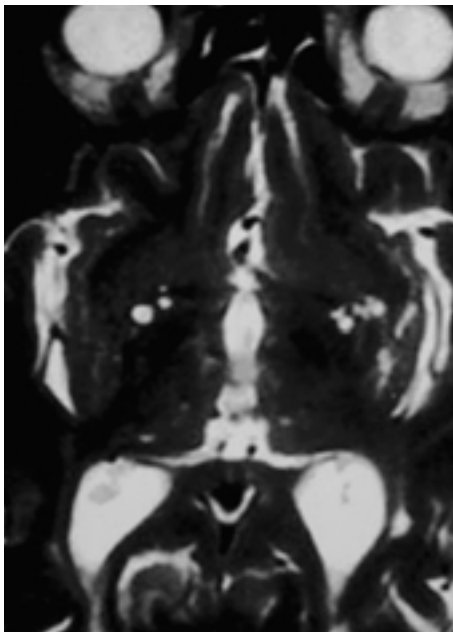
가 (5) FLAIR 가  
 . Peter (6) 10 FLAIR 가  
 , FLAIR, 48 가  
 3가 가  
 FLAIR가 FSE 가  
 FLAIR Wallace (7)  
 가  
 FLAIR 가 T2 , (8) (9)  
 가



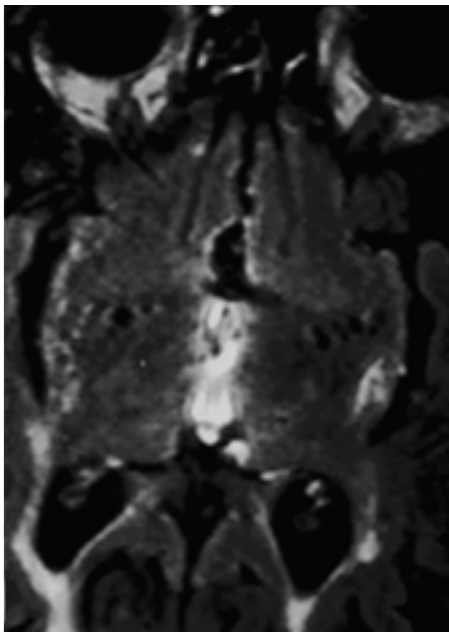
A



B



C



D

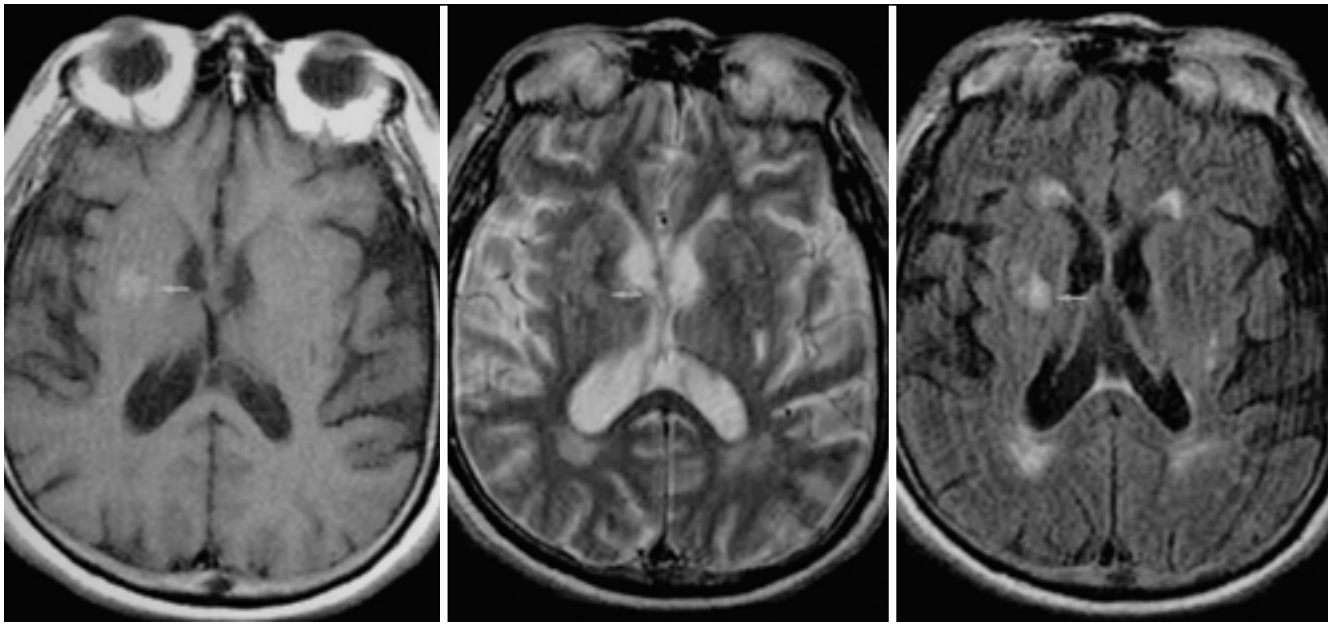
**Fig. 2.** Lacunar infarction and perivascular space in T2-weighted and FLAIR images.

**A.** Axial T2-weighted image shows several ovoid and round high signal intensities of lacunar infarction at both basal ganglia.

**B.** Axial FLAIR image shows three central hypointensities with peripheral high signal intensity rim and one ovoid hyperintensity of lacunar infarction at both basal ganglia.

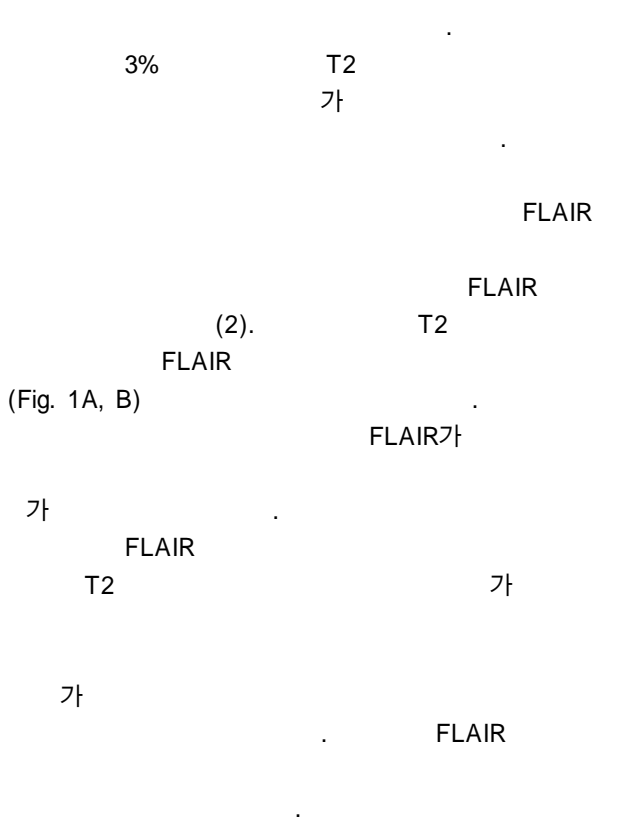
**C.** Axial T2-weighted image shows round hyperintense peri-vascular space at the base of both basal ganglia.

**D.** Axial FLAIR image shows round hypointense perivascular space at the base of both basal ganglia.



**Fig. 3.** Hemorrhagic lacunar infarction in 54-years-old woman.  
**A.** Axial T1-weighted image shows slightly hyperintensity (arrow) at right basal ganglia.  
**B.** Axial T2-weighted image shows slightly hyperintensity (arrow) at right basal ganglia.  
**C.** Axial FLAIR image shows round hyperintensity (arrow) at right basal ganglia.

가  
 T2  
 FLAIR  
 (Fig. 2A, C)  
 (Fig. 2D)  
 가  
 가  
 T2  
 , FLAIR  
 (Fig. 2B)  
 가  
 3  
 T2  
 FLAIR  
 (Fig. 3B, C)  
 (10)  
 7  
 FLAIR  
 가  
 T1  
 T2  
 3  
 가  
 T2  
 T2  
 FLAIR  
 FLAIR  
 FLAIR  
 . Michal (11)  
 가  
 FLAIR  
 가  
 가  
 (2).  
 가  
 adenosine triphosphoric acid (ATP)가  
 Na - K - ATP  
 (12)  
 T2  
 , FLAIR,  
 T2  
 T2



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## Comparison between FLAIR Images and T2-weighted Fast Spin-echo Images of Cerebral Territory and Lacunar Infarction<sup>1</sup>

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**Purpose:** To assess the significance of fluid-attenuated inversion recovery (FLAIR) magnetic resonance (MR) imaging in the diagnosis of intracranial infarctions and to find out differential points between central lacunar infarctions and perivascular spaces.

**Materials and Methods:** We consecutively selected 25 cases of territorial infarction in 20 patients, 37 cases of central infarction in 40 patients, and 30 patients with perivascular space. Signal intensity and lesion conspicuity were analyzed and compared between FLAIR and FSE T2-weighted images, and differences in signal intensity between central infarction and perivascular spaces were determined.

**Results:** Lesion conspicuity for FLAIR was better than for T2-weighted images in 12 and 15, worse in 4 and 24, and similar in 9 and 16 of territorial and central infarctions, respectively. In nine cases of territorial and one case of central infarction, there was associated hemorrhage. At FLAIR imaging, perivascular spaces showed a fine round low signal without a peripheral high signal rim in 17 patients but no demonstrable signals in 15. Differential diagnosis of perivascular spaces and central infarction was thus not difficult.

**Conclusion:** FLAIR MRI was useful in the diagnosis of infarctions and in differentiating between central small lacunar infarctions and perivascular spaces.

**Index words :** Brain, MR

Brain, infarction

Magnetic resonance (MR), pulse sequences

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