

# 장기간 모유수유로 인한 철분결핍성 빈혈 환자에서 경미한 뇌손상으로 야기된 뇌경색증 - 증례 보고 -

정종우 · 윤수한 · 조경기

## Cerebral Infarction Caused by Mild Head Injury in a Child with Iron Deficiency Anemia from Prolonged Breast Feeding - Case Report -

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A child who had iron deficiency anemia (IDA) resulted from the prolonged breast feeding presented with left side hemiparesis following mild head injury. The serial computed tomography and magnetic resonance imaging showed right internal carotid artery territory infarction.

It has been generally accepted that prolonged breast feeding causes IDA. A few cases of infarction caused by IDA have been reported. A few cases of cerebral infarction caused by mild head injury have been also reported. However, few have been reported nonhemorrhagic cerebral infarction caused by mild head injury associated with IDA from prolonged breast feeding.

We reviewed the literature that prolonged breast feeding causes IDA and in this case, mild head injury could cause the cerebral infarction. We think that it is important to have clinical suspicion of cerebral infarction in a child with IDA from prolonged breast feeding who has mild head injury because early diagnosis is difficult.

**KEY WORDS** : Prolonged breast feeding · Iron deficiency anemia (IDA) · Mild head injury · Thrombosis · Cerebral infarction.

서 론

가

9,11,16)

3)

8,10,13,15)

증 례

26

가

1)

2

4 30

1

3

(motor grade )

g/dl, (hematocrit) 15.8%, (hemoglobin) 4.7, CT MRI

(Fig. 1).

(total iron binding capacity) 392ug/dl, 10ug/dl, UIB 392ug/dl

26

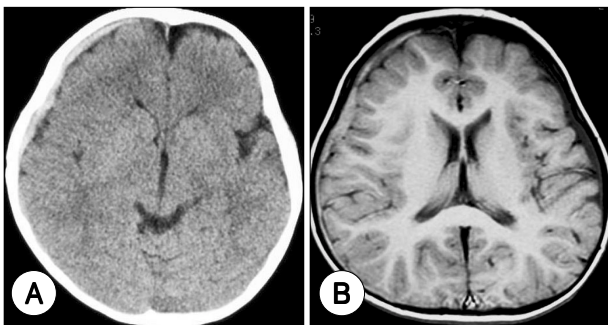


Fig. 1. A : Initial computed tomography showing minimal subdural hematoma on right frontotemporal area. B : Initial T1-weighted magnetic resonance imaging showing minimal subdural hematoma on right frontotemporal area.

mannitol

4 5  
11.5g/dl, 36.9%  
11 CT

(Fig. 2). 12 MRI



Fig. 2. Computed tomography on 11th day after admission showing low density of right internal cerebral arterial territory.

T1  
,  
T2  
,  
(Fig. 3).  
12 MRA  
MRI

(Fig. 4).

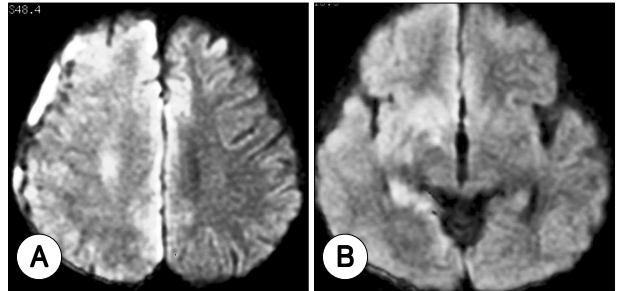


Fig. 3. Diffusion magnetic resonance imaging on 12th day. A : High signal intensity of right internal carotid arterial territory. B : High signal intensity of right basal ganglia.

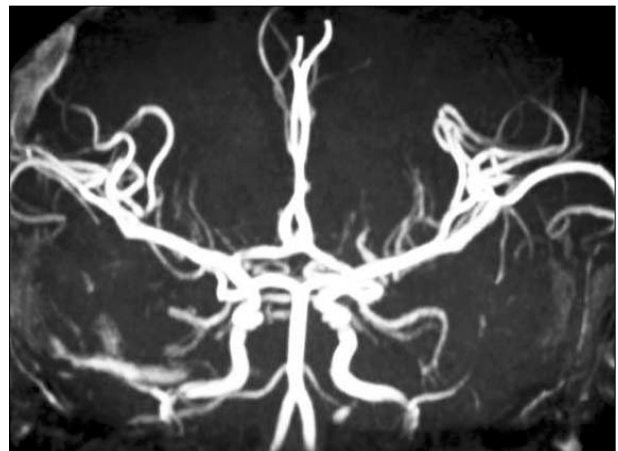


Fig. 4. Magnetic resonance angiography on 12th day after admission being suspicious of occlusion of right medial lenticulostriate artery.

19  
고 찰  
가  
(bioavailability)  
9  
9  
가 4%  
7%  
11)  
26  
4.7g/dl, 10ug/dl

8).

duplex doppler

7.3g/dl 9.3g/dl sonography , MRA

2.7g/dl 8,13,15)

12.6g/dl 1).

가

가 2

(adhesiveness) 가,

(fibrinolytic activity) 가

2,5,14,16)

(iron dependent enzymes)가

3 (motor grade )

MRI MRA

가

3,7,14)

가

가

2 11.4g/dl, 12.6g/dl CT MRI

가

가

가

CT MRI

가

4.7g/dl

가

결 론

(Table 1).

1

가

**Table 1.** Summary of 13 cases of cerebral infarction concomitant with hematologic abnormality

Case No.	Authors	Age/sex	Dx.	Hb(g/dl)*	Hct(%)	Involved site
1	Hartfield, et al	18m/F	IDA	6.7		Thalamus
2		12m/F	IDA	7.7		SSS
3		11m/F	IDA	12.6		Rt. BG
4		18m/F	IDA	11.4		Rt. MCA
5		6m/M	IDA	4.5		SSS
6		18m/F	IDA	9.8		Lt. MCA
7	Swann, et al	23m/F	IDA	2.7		Lt. MCA
8	Priest, et al	14/M	ALL	9.0(4.3)		Lt. FP
9		9/M	ALL	8.6(7.7)		Rt. PO
10		8/F	ALL	9.3(4.6)		Rt. FP
11	Saitoh, et al	3/F	APL	7.3		Rt. MCA
12	Tamura, et al	9m/F	Thrombocytosis	9.0	30.6	Rt. BG
13	Cheong, et al.(present study)	26m/F	IDA	4.7	15.8	Rt. ACA

Dx. : Hematologic diagnosis, Hb : Hemoglobin, Hct : Hematocrit, IDA : Iron deficiency anemia, ALL : Acute lymphoblastic leukemia, APL : Acute Promyelocytic leukemia, BG : Basal ganglia, MCA : Middle cerebral artery, SSS : Superior sagittal sinus, FP : Frontoparietal area, PO : Parietooccipital area, ACA : Anterior cerebral artery \*( ) indicate the data on diagnosis of ALL

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### References

1. Dharker SR, Mittal RS, Bhargava N : Ischemic lesions in basal ganglia in children after minor head injury. *Neurosurgery* **33** : 863-865, 1993
2. Giroud M, Lemesle M, Madinier G, Manceau E, Osseby GV, Dumas R : Stroke in children under 16 years of age, clinical and etiological difference with adults. *Acta Neurol Scand* **96** : 401-406, 1997
3. Hartfield DS, Lowry NJ, Keene DL, Yager JY : Iron deficiency : a cause of stroke in infants and children. *Eur J Paediatr Neurol* **16** : 50-53, 1997
4. Huttenlocher PR, Smith DB : Acute infantile hemiplegia associated with thrombocytosis. *Dev Med Child Neurol* **10** : 621-625, 1968
5. Kim JS, Kang SY : Bleeding & subsequent anemia : A precipitant for cerebral infarction. *Eur Neurol* **43** : 201-208, 2000
6. Kim SK, Cheong WS, Jun YH, Choi JW, Son BK : Red blood cell indices and iron status according to feeding practices in infants and young children. *Acta Paediatr* **85** : 139-44, 1996
7. Knizley H, Noyes WD, Gainesville : Iron deficiency anemia, papilledema, thrombocytosis, and transient hemiparesis. *Arch Intern Med* **129** : 483-486, 1972
8. Laitt RD, Lewis TT, Bradshaw JR : Blunt carotid arterial trauma. *Clin Radiol* **51** : 117-122, 1996
9. Mills AF : Surveillance for anemia ; risk factors in patterns of milk intake. *Arch Dis Child* **65** : 428-431, 1990
10. Mirvis SE, Wolf AL, Numaguchi Y, Corradino Y, Joslyn J : Posttraumatic cerebral infarction diagnosed by CT : Prevalence, origin, and outcome. *AJNR* **11** : 355-360, 1990
11. Saarinen UM : Need for iron supplementation in infants on prolonged breast feeding. *J Pediatr* **93** : 177-180, 1978
12. Shimamoto T : The emergency reaction in thrombogenesis and atherogenesis. *Am Hear J* **66** : 572-573, 1963
13. Shuaib I, Crotch-Harvey MA : Dense artery sign of the middle cerebral artery ; Traumatic case. *Australas Radiol* **39** : 93-94, 1995
14. Tamura T, Konno K, Matusumoto S, Gotou T : An infantile case of cerebral infarction associated with thrombocytosis. *No To Hattatsu* **24** : 257-261, 1992
15. Turpinini R, Stefanini M : Nature and mechanism of the haemostatic breakdown in the course of experimental haemorrhagic shock. *J Clin Invest* **38** : 53-65, 1959
16. Weisberg LA : CT and acute head trauma. *Comput Radiol* **3** : 15-28, 1979
17. Woodruff CW, Latham C, McDavid S : Iron nutrition in the breast-fed infant. *J Pediatr* **90** : 36-38, 1977