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= Abstract =

Miliary Tuberculosis and Multiple Intracranial Tuberculoma : A Case Report

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Although the incidence of tuberculosis has been decreased, it is still an important community acquired infectious disease in the world. Miliary or disseminated tuberculosis occurs from the inadequacy of host defense in controlling tuberculous infection. Generally, brain parenchyme has been considered to be a rare involving organ than other organs or meninges in miliary tuberculosis. However it has been proving that the brain parenchyme is commonly involved organ in miliary tuberculosis even without neurological manifestations. We report a case of 8 yr-old male patient, who was diagnosed as having an miliary tuberculosis with multiple tuberculoma throughout the brain. The tuberculous lesions of lung and brain were nearly cleared within 3 months with anti-tuberculous therapy. With a reveiw of related literatures, we suggest that the patients with miliary tuberculosis should be evaluated about brain involvement.

Key Words : Intracranial tuberculoma, Miliary tuberculosis

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CT MRI

MRI



Fig. 1. Chest X-ray showing diffuse disseminated miliary nodules.

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mmHg, 88 / , 36.8 , : 100/60

: Hb 10.2 g/dL, Hct 29.6%, WBC 8,500/mm³, 317 × 10/mm³, GOT/GPT 26/12 IU/L, Na/K/Cl 143/4.5/103 mEq/L, BUN/Cr 10.6/0.6

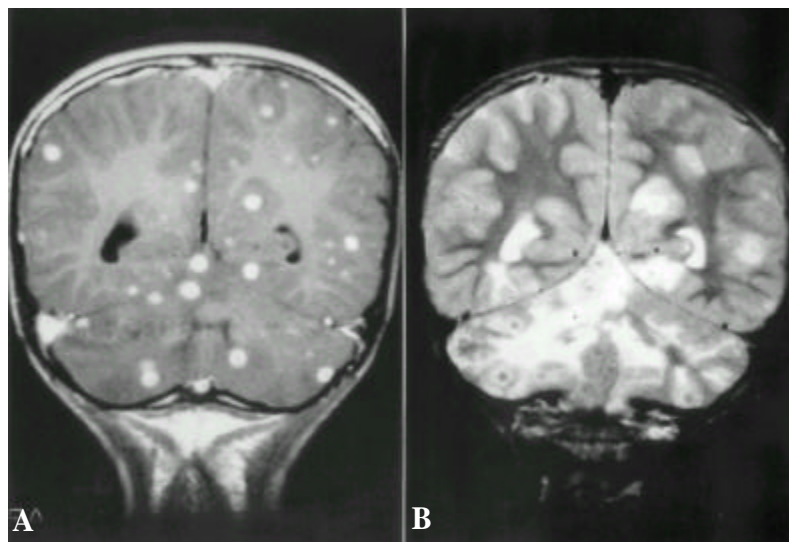


Fig. 2. Brain MRI at admission(Coronal section). (A) Postcontrast T1 weighted image. (B) T2 weighted image. Numerous small peripheral enhancing nodules are seen in corticomedullary junction of supratentorial portion and cerebellar hemisphere. These masses show target-like appearance : central portion shows T1 high, T2 low signal intensity, and peripheral portion shows T1 iso and T2 high signal intensity.

mg/dL, () 7.0(3.5) g/dL, Ca/P/Mg 9.0/
3.6/2.0 mg/dL, CRP : , WBC
4/mm³, 25 mg/dL, 64 mg/dL, Cl 121
mEq/L, ,

(Fig. 1).

2 3 mm

(Fig. 2).



Fig. 3. Follow-up chest X-ray 3 months after anti-tuberculous treatment. Millary infiltrations were markedly regressed and disappeared on both lung fields.

:
(Iso-
niazid, Rifampin, Pyrazinamide, Streptomycin)
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X-
(Fig. 3, 4).

1882 Robert Koch가
BCG 가

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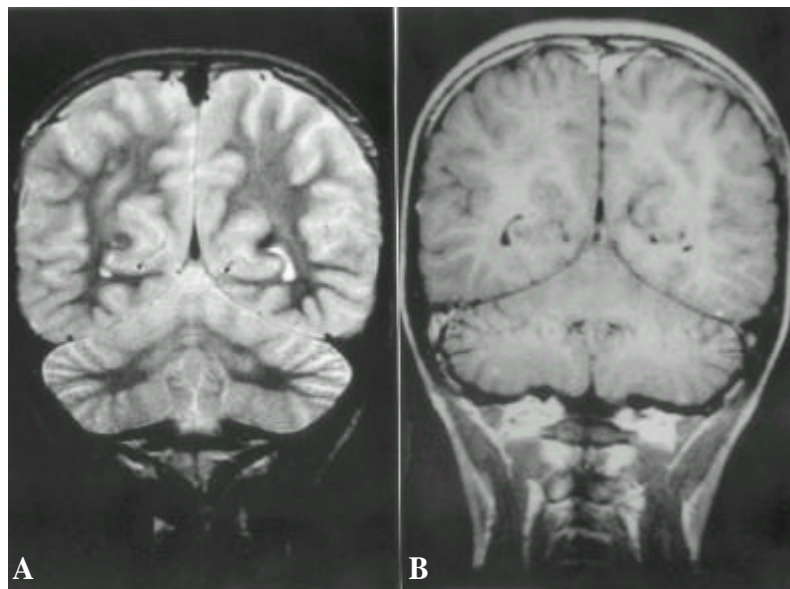


Fig. 4. Follow-up brain MRI(coronal section) 3 months after antituberculous treatment. Marked decrease in number of multiple well-defined small nodules with peripheral rim enhancement is observed in both cerebral and cerebellar hemispheres, and brain stem. However multiple tiny enhancing nodules are still noted in both cerebral and cerebellar hemispheres.

X
1965 5.1% 1995 1.0%,
1965 0.94% 1995 0.22%
8)
(Primary infection)
가
98% 가
4, 10 14) 12)
6)
(primary focus, Gohn focus) 13) 3
가
가 (primary complex)
1 3, 5, 6)
Gupta 15)
7
2, 3) 가 가
가 X-
1, 9) , MRI
5) 58.4%,
30.1% , 3)
40.9%, 39.8%
3 5)
coccidiomycosis, sarcoidosis
가 ,
CT MRI 6)
가
20 16, 17)
CT
가
가

18, 19) . 가 CT, target sign MRI 16, 20, 21) MRI 6, 16, 25) Isoniazid, Rifampin, Pyrazinamide Ethambutol 가 Isoniazid Pyrazinamide 가 (organized granulation) . Ethambutol 가 MRI . Streptomycin aminoglycoside (liquefaction)가 T2WI 2 3 가 T1WI Pyrazinamide(Ethambutol) Isoniazid, Rifampin Isoniazid, Rifampin, Pyrazinamide Streptomycin 4 2 Isoniazid Rifampin 2 3 X- MRI (Fig 3, 4). T1WI , T2WI T1WI T2WI MRI 1 cm 가 7, 15, 18, 22) CT MRI 2 3 , 4 6 가 16, 20, 21) 6 8 CT , , Langhan's , , , neurocysticercosis 21 24) 1) , , , , .

- 1982;25:807-15.
- 2) , , . 1982; 18:83-8.
- 3) , , , . 1982;25:363-71.
- 4) Chang AB, Grimwood K, Harvey AS, Rosenfeld JV, Factm and Anthony Olinsky. Central nervous system tuberculosis after resolution of miliary tuberculosis. *Pediatr Infect Dis J* 1998; 17:519-23.
- 5) , , , , . 1984;27:786-92.
- 6) , , , , , 2 . 1985;32:119-23.
- 7) , . 1998;27:21-8.
- 8) . 1997:5.
- 9) Berger C, Braegger CP, Albisetti M, Landau K, Nadal D. Cerebral tuberculosis presenting as complex febrile convulsions. *Neuropediatrics* 1996;27:161-3.
- 10) Berger P, Larson J, Guss D. Central nervous system tuberculoma : a case report. *J Emerg Med* 1998;16:719-22.
- 11) Muin IA, Zurin AR. Pulmonary miliary tuberculosis with multiple intracerebral tuberculous granulomas-report of two cases. *Br J Neurosurg* 1998;12:585-7.
- 12) , , , . 1 . 1989;36:404-9.
- 13) , , , , , 1 . 2000:250-6.
- 14) Sakao S, Sasaki Y, Yamagishi F, Yagi T, Mizutani F, Tada Y. A case of miliary tuberculosis with multiple cerebral tuberculoma and spinal tuberculosis owing to total delay. *Kekkaku* 1998;73:519-23.
- 15) Gupta RK, Kohli A, Gaur V, Lal JH, Kishore J. MRI of the brain in patients with miliary pulmonary tuberculosis without symptoms or signs of central nervous system involvement. *Neuroradiology* 1997;39:699-704.
- 16) Bagga A, Kalra V, Ghai OP. Intracranial tuberculoma. Evaluation and Treatment. *Clin Pediatr* 1988;27:487-90.
- 17) Lieberman A, Dart L, Bennett R. Intracerebral tuberculoma. Case report. *J Neurosurg* 1970;33:331-3.
- 18) , , , . 2 . 1993;22:1375-80.
- 19) , , , , . 5 . 1984; 5:341-50.
- 20) Whelan MA, Stem J. Intracranial tuberculoma. *Radiology* 1981;138:75-81.
- 21) Domingo Z, Peter JC. Intracranial tuberculomas. An assessment of a therapeutic 4-drug trial in 35 children. *Pediatr Neurol* 1989;15:161-7.
- 22) , , , , , . :MRI . 1993;22:309-14.
- 23) Ramamurthi B, Ramamurthi R, Vasudevan MC. Changing concepts in the treatment of tuberculomas of the brain. *Child's Nerv Syst* 1986; 2:242-3.
- 24) , , , , . 3 . 1994;27: 114-20.
- 25) Ajay SK, Lakhkar BB, Bhaskaranand N. Intracranial tuberculoma manifesting during treatment Indian. *Pediatrics* 1996;33:231-3.