

Bilateral Papil Atrophy in A Case with Intracerebellar Tuberculoma

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ABSTRACT

The aim of the study is to report a rare case of bilateral papil atrophy in a case with intracerebellar tuberculoma. A 12 year old girl was referred to ophthalmologist by neurosurgeon with decreased visual acuity. Her visions were getting worse after she got fever and seizure one year previously. In 2006, she was diagnosed having skin tuberculosis but she discontinued taking anti tuberculosis agents. Her right eye vision was light perception, whereas the left eye was no light perception. Fundusoscopic examination showed bilateral pale optic discs. CT scan showed tuberculoma in left cerebellar hemisphere with communicating hydrocephalus. The chest X-ray was normal. The neurosurgeon planned to perform operation for the hydrocephalus and tuberculoma for life saving

Key words: tuberculosis, tuberculoma, bilateral papil atrophy

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INTRODUCTION

Tuberculosis can affect any organ of the body, and the lung is virtually always the portal of entry. It is always a surprise to those who live in Western countries that even today the infection remains the cause of higher morbidity and mortality than any other infections in the world. This is because of its great prevalence in the densely populated developing countries; however, the incidence of tuberculosis is grossly under reported in these countries. WHO estimated that in 2000 there were approximately 8 million active cases. Extrapulmonary tuberculosis account for up to one third of all cases. Deaths due to tuberculosis occur in 1,5–2 million people worldwide each year. Thus, the tuberculosis still a major cause of disease and death, and its elimination will be extremely difficult as long as poverty, overpopulation, and HIV infection, characterize large portions of the earth.¹

Tuberculoma of the brain account 20–30% of intracranial tumor in adults and 41% of space occupying lesions in children. Patients with intracranial tuberculoma often present with seizures (60–100%), symptoms and

signs of raised intracranial pressure (56–93%), and focal neurological deficit (63–98%).² Lodging of tuberculoma bacilli can occur evenly, everywhere in the brain where infected blood flows, and the equality of supra- and infra tentorial distribution has been stressed in the literature, although given intracerebral and cerebellar volume, there should be a lower incidence in the infra tentorial space. However, particularly in children, most tuberculoma have been reported in the posterior fossa. The reason why lesion in children predominantly in the areas supplied by the vertebral arteries is still not clear. In any case along, with general decrease in frequency of tuberculoma in children, the incidence of cerebellar tuberculoma has also shown a relative decline.³

Space-occupying intracranial lesions, like tuberculoma, can cause increased intracranial pressure. The other mechanisms are obstruction of the ventricular system, impairment of cerebrospinal fluid absorption via arachnoid villi which may be damaged by meningitis, hemorrhage or trauma, idiopathic intracranial hypertension, cerebral venous sinus thrombosis, severe systemic hypertension or hypersecretion of cerebro spinal fluid. Increased

intracranial pressure can lead to swelling of the optic nerve or papilledema, leading to secondary papil or optic atrophy.

The purpose of this article is to report a rare case of intracerebellar tuberculoma that lead to nearly bilateral blindness in a 12-year old girl, caused by bilateral papil atrophies.

CASE REPORT

The patient was a 12-year old girl, who came to ophthalmology outpatient clinic, referred by a neurosurgeon with decreased visual acuity. She complained of blurred vision since a year previously. She noted it first after she got fever and seizure. Her visions were getting worse and worse with time, her right eye was light perception, whereas her left eye was totally blind.

In 2006, she was diagnosed of having skin tuberculosis in her right leg (Fig 1) and she was treated with oral anti tuberculosis agents but she discontinued of taking the medicine. She never complained of cough or any other respiratory disorders.



Figure 1. The lesion on the patient's right leg that diagnosed as cutaneous tuberculosis



Figure 2. The normal chest x-ray of the patient

From ophthalmologic findings the visual acuity was light perception on the right eye and no light perception on the left eye. The anterior segment were normal. Funduscopy examination showed bilateral pale optic discs with blurred margin. CT scan showed tuberculoma in the left cerebellar hemisphere with communicating hydrocephalus. The chest X-ray was normal (Fig 2).

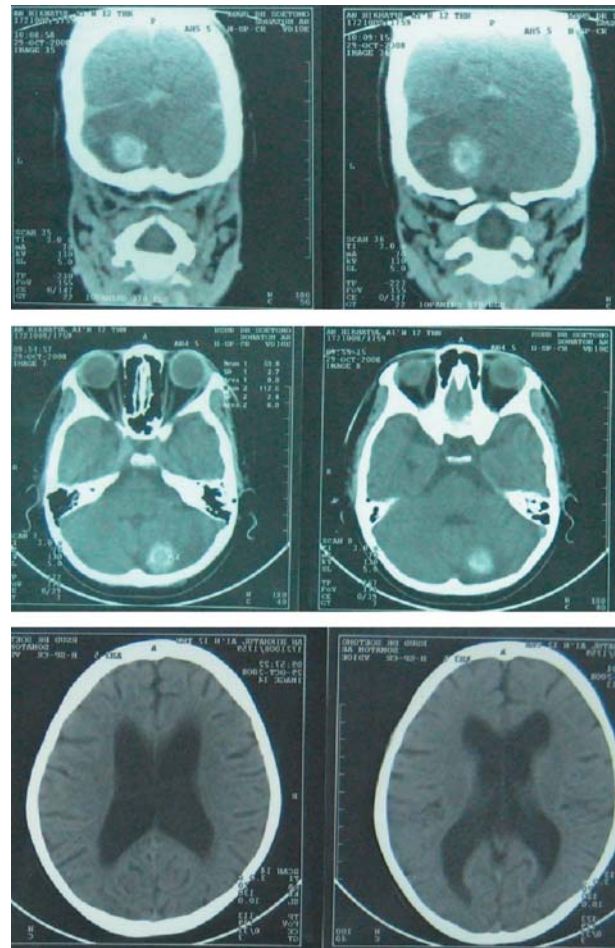


Figure 3. The CT scan showed tuberculoma in the left hemisphere of the cerebellum and communicating hydrocephalus that caused by tuberculoma

The neurosurgeon planned to perform operation for the tuberculoma and hydrocephalus. But there was no treatment to improve the vision from ophthalmology department because bilateral optic atrophy has occurred.

DISCUSSION

Tuberculosis has been known to affect mankind since the dawn of human civilization and still remains a major problem in the developing countries. Extrapulmonary tuberculosis account for up to one third of all cases. Children show a higher predisposition to the development of extrapulmonary tuberculosis.⁴ Here, our patient was first

diagnosed as having cutaneous or skin tuberculosis. Skin tuberculosis, a form of extrapulmonary tuberculosis, occurs in 1-2 % of all tuberculosis cases. *M. tuberculosis*, *M. bovis* and under certain conditions the attenuated BCG organism cause all forms of cutaneous tuberculosis. Although primary inoculation of tuberculosis and tuberculosis verrucosa cutis are exogenous infections; lupus vulgaris, scrofuloderma, metastatic tuberculous abscess, acute milliary tuberculosis and orificial tuberculosis are endogenously spread cutaneous tuberculosis forms. Metastatic tuberculosis abscesses may occur along with progressive organ tuberculosis or in milliary tuberculosis, however there are reports showing that it may occur without any underlying tuberculous focus. It usually occurs in undernourished children of low socioeconomic status or immunodeficient or severely immunosuppressed patient.⁴ And it was occurred in our patient. Our patient had a lower socio economic status with poor general condition. She had no underlying tuberculous focus since her chest x-ray was normal.

Since the patient didn't complete the regimen therapy for tuberculosis, within the next two years, she was found having tuberculoma on her left hemisphere of cerebellum that cause communicating hydrocephalus. Hydrocephalus was described as dilatation of the ventricles, which may be two types: communicating and non-communicating. In communicating hydrocephalus the CSF flows from ventricular system to the subarachnoid space without impediment. The obstruction to flow lies in the basilar cisterns or in the subarachnoid space, where there is failure of absorption by the arachnoid villi. Non-communicating hydrocephalus is caused by obstruction to CSF flow in the ventricular system or at the exit foramina of the fourth ventricle. The CSF therefore does not have access to the subarachnoid space.⁵⁻⁸ It seemed that this hydrocephalus caused raised intracranial pressure that give symptoms for the patient as having seizure. This increased of intracranial pressure followed by bilateral papilledema that with time felt into bilateral papil atrophy; it could be seen from the pale color of the optic discs with blurred margin. The visual acuity than getting worse during two years, and now we found light perception on her right eye and no light perception on her left eye.

The neurosurgeon was planning to solve the raised intracranial pressure by evacuate the tuberculoma and hydrocephalus to save the patient's life, but we're in ophthalmology department has nothing to do to save her vision, because she had already fall into the ned state, papil atrophy.

CONCLUSION

Tuberculosis remains a public health problem, particularly in the developing countries. It could grow in any part of the body, including in central nervous system. Central Nervous System Tuberculoma (CNST) is uncommon. Therefore the diagnosis of tuberculoma should be kept in mind when confronted with intracranial masses. The diagnosis of Central Nervous System Tuberculoma (CNST) can be expedited by the presence of extracranial tuberculous lesions. Prompt diagnosis and treatment are important to prevent any complication like papil atrophy.

REFERENCES

1. Dutt AK. 2006. Epidemiology and Host Factors. In (Schlossberg D,ed) *Tuberculosis and Non Tuberculosis Mycobacterial Infections*. 5th ed. Mc Graw Hill. San Fransisco. Pp1–14.
2. Garg RV. 1996. Diagnosis of Intracranial Tuberculoma. *Ind J Tub*.43 (35)
3. Wakisaka S, Soejima T, Matsuoka S. 1987. Cerebellar Tuberculoma, A Case Report and Article Review. *Neurol Med Chir (Tokyo)* 27: 31–36
4. Sezkin B, Atilgonaglu U, Yigit O, Ergun SS, Cambaz N, Demirkesen C. 2008. Concomitant Cutaneous Metastatic Tuberculous Abscesses and Multifocal Skeletal Tuberculosis. *Indian Journal of Dermatology* 53(3): 149–153
5. Kanski, JJ, 2006. *Clinical Ophthalmology, A Systematic Approach*. 6th ed. Butterworth Heineman. London.
6. Abuhamed M, Bo X, Yan C. 2008. Central Nervous System Tuberculoma: A review article. *American Journal of Infectious Disease* 4(2): 168–173
7. Hill MK, Sanders CV. 2006. Cutaneous Tuberculosis. In (Schlossberg D,ed) *Tuberculosis and Non Tuberculosis Mycobacterial Infections*. 5th ed. Mc Graw Hill. San Fransisco. Pp325–329
8. Starke JP. 2006. Tuberculosis in Infants and Children. In (Schlossberg D,ed) *Tuberculosis and Non Tuberculosis Mycobacterial Infections*. 5th ed. Mc Graw Hill. San Fransisco. Pp365–381