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Case report

## TUBERCULOUS MENINGITIS: PRESENTING AS ISOLATED COMPLETE III NERVE PALSY

\* Laul Rohit S<sup>1</sup>, Avhad Vinod<sup>2</sup>, Laul Abhishek S<sup>3</sup>, Laul Subodh S<sup>4</sup>

<sup>1</sup>Chief resident, Department of Ophthalmology, <sup>2</sup>Chief resident Department of Medicine, Annasaheb Chudaman Patil Memorial Medical College and Hospital, Dhule, Maharashtra, India.

<sup>3</sup> Chief Resident, Pad. Dr. Vithalrao Vikhe Patil Medical College, Ahmednagar, Maharashtra, India

<sup>4</sup> Chief Resident, Dhoot Hospital, Aurnagabad, Maharashtra, India.

\*Corresponding author email: drlaur@rediffmail.com

### ABSTRACT

Tuberculous meningitis (TBM) is the most common form of central nervous system tuberculosis (TB) and has very high morbidity and mortality. TBM is a subacute disease with symptoms that may persist for weeks before diagnosis. Based on the clinical features alone, the diagnosis of TBM can neither be made nor excluded with certainty. A high clinical suspicion and vigilance is required for early diagnosis of TBM. The present case report demonstrates a patient with TB meningitis, who presented with clinical manifestation of isolated left III nerve palsy. **Case:** A 32 years female was hospitalized with acute onset of left sided ptosis, diplopia and mild generalized headache. Neurological examination at admission revealed isolated left III nerve palsy. CT scan and MRI of Brain showed no specific finding. Lumbar puncture was performed four days later due severe headache, low grade fever and neck rigidity. Cerebrospinal fluid (CSF) study, raised ESR and positive Montoux Test confirmed the diagnosis of TB meningitis. Since TB meningitis is a chronic disease, cranial nerve palsies are common manifestations. This case report suggests that TB meningitis should be considered as a disease of differential diagnosis for isolated III nerve palsy.

**Keywords :** III nerve palsy, Tuberculous meningitis, Oculomotor nerve palsy

### INTRODUCTION

India has approximately one fifth of the global incidence of tuberculosis with an estimated prevalence of 3million cases annually as per WHO<sup>1</sup>. 9.1% of extra pulmonary TB cases in the adult population are of Tubercular Meningitis (TBM). The diagnosis of TBM can be difficult early in its course, often be a diagnostic challenge. Because of unusual presentation and

delay in diagnosis and seeking care, TBM causes an increase in morbidity of the treatable condition. Early diagnosis and prompt treatment of TB is important to minimize complications and reduce morbidity and mortality.

The outcome of TBM depends on the degree of neurological deterioration that has occurred by the time antitubercular therapy (AKT) is started.

Age is an important determinant of the risk of disease after infection. So in this typical case report the woman patient adds the landmark to the rare event in a rural health care sector of Maharashtra.

### CASE REPORT

We report this case of Tuberculous meningitis: Presenting as isolated complete III nerve palsy after taking a written valid informed consent from the patient.

A 32 years female was hospitalized with a history of acute onset of left sided ptosis, diplopia and mild headache. No other CNS symptoms were present. She had a past history of being operated for swelling in the upper quadrant of the right sided neck region a year before. She had no history of any other significant medical illness in the past. On the 4th day of admission she developed low grade fever, severe headache and neck rigidity following which L.P. was performed. Cerebro-spinal fluid examination confirmed the diagnosis of tuberculous meningitis. On examination she was found to be conscious, cooperative and well oriented to time, place and person. Initial observations recorded a temperature of 98.2 °F, a regular pulse of 76 beats/min, Blood Pressure of 104/72 mm of Hg and Respiratory rate of 18 breaths/min with no lymphadenopathy.

Cardiorespiratory examination was normal. Abdominal examination was also within normal limits. CNS examination revealed signs of complete left sided third nerve palsy (head deviated to right side, reduced interpalpebral fissure, drooping of upper

eyelid covering upper half of the cornea, ipsilateral pupil dilatation of 7mm, loss light reflex. In primary position, left eyeball appeared to be in an outward & downward gaze with normal abduction but restricted adduction, supraduction, and infraduction) with intact higher, sensory & motor functions. There was no neck stiffness or no involvement of any other cranial nerve.

**Laboratory Investigations:** Blood tests reported Hb of 9.6g%, 4200/cu.mm Leucocytes, 180000/cu.mm platelets, ESR of 80mm at the end of the first hour, urea 16.0mg/dl, Serum creatine 1.2 mg/dl, Serum sodium 135.2 mEq/L and Serum potassium 3.6 mEq/L. All other blood tests including liver function tests were normal. Urine analysis was negative. Montoux test was positive. CT brain and MRI performed on day 1 showed no any significant abnormal finding. Repeat CT brain was performed on day 4, this time with contrast & revealed no abnormality. CSF examination on day 5 showed cloudy appearance, elevated opening pressure, high protein levels (264mg/dl), low sugar levels (37mg/dl). Cytological examination of CSF revealed lymphocyte predominance, total cell count 424cells/micro.litre, (polymorphs 20%, lymphocytes 20% & RBC's few). Gram stain & Ziehl Neelsen stain revealed no any organism. This confirmed the diagnosis of TBM in addition CSF culture yielded growth of TB bacilli at 7<sup>th</sup> week.

Diagnosis: The initial impression was Isolated III Nerve palsy under evaluation.

**Table.1: Cerebro- spinal fluid analysis**

CSF study	Appearance	Cell count	Protein	Sugar	Blood Sugar mg/dl	Initial Pressure
		P/M %	mg/dl	mg/dl		mm of H <sub>2</sub> O
5 <sup>th</sup> Day	Cloudy	424	264	16	84	280
14 <sup>th</sup> Day	Clear	168	112	40	105	146
21 <sup>st</sup> Day	Clear	46	58	46	108	68

CSF: cerebro-spinal fluid; P: polymorphonuclear leukocytes; M: mononuclear leukocytes.



**Fig.1:Showing isolated IIIrd nerve involvement in a case of tuberculous meningitis.**

Final diagnosis: TB Meningitis presenting as isolated III Nerve palsy.

**Management:** The patient was initially treated with i.v. antibiotics & conservative treatment with a lack of response. After the confirmation of diagnosis on 4<sup>th</sup> day, she was started with four drug AKT and i.v. dexamethasone in tapering doses. The patient was discharged on 21<sup>st</sup> day with improvement in her clinical symptoms. CSF examination at the time of discharge was within normal limits. On discharge patient was advised to continue AKT4 and was shifted on Tab. Prednisolone 40 mg in tapering doses.

## DISCUSSION

According to an earlier studies, Chotmongkol and colleagues found that initial clinical presentations of TBM include headache (95.6%), fever (91.1%), stiff-neck (77.8%), mental impairment (40.0%), motor weakness (11.1%) and cranial nerve palsies (11.1%). Unilateral oculomotor nerve palsy has been found to be quite uncommon (2.2%). Other atypical Manifestations include inter-nuclear ophthalmoplegia, psychosis and hemianopia. The presence of focal neuro-logical deficits often indicates that the neurological sequelae may persist in the survivors<sup>2-6</sup>. Another study showed that cranial nerve palsies occur in 20–30% of patients and may be the presenting manifestation of TBM. The sixth cranial nerve is most commonly affected<sup>7</sup>.

In the present case, acute drooping left eyelid with dilated pupil suggests the initial diagnosis of

isolated III nerve palsy. No abnormalities in CT scan and MRI along with persistent low grade fever, headache and neck rigidity which developed after admission made CSF study necessary. The present case serves a good example of the diversity and rarity of the initial manifestations in TB meningitis. Therefore, it is always necessary to take TBM into consideration whenever there is an abrupt deficit of 3rd cranial nerve<sup>8-10</sup>.

Many diseases can present with acute or subacute unilateral III nerve palsy like aneurysm, temporal lobe herniation, infection, cavernous sinus thrombosis, diabetes, brainstem vascular disease, multiple sclerosis, tumor, mellitus, arteriovenous malformations, Tolosa-Hunt syndrome, migraine, myasthenia gravis and carotid-cavernous fistula<sup>11</sup> and can be excluded by obtaining detailed history and thorough clinical examination, brain imaging studies, including cerebral arteriography.

The prognosis of TB meningitis is related to early initiation of treatment any delay may results in poor prognosis with neurological sequelae. However, early diagnosis of TBM is often difficult and the discrimination of cases from those of bacterial meningitis or other meningo-encephalitis are sometimes difficult, if not impossible, by clinical features alone. Thus, empiric anti-tuberculosis therapy may be necessary when TBM was suspected<sup>8-10,12</sup>

If unrecognized TBM is uniformly fatal. This case report shows that Tuberculous Meningitis should be considered as a differential diagnosis

in a case of Isolated III Nerve palsy. The diagnosis was made on the basis of positive CSF findings in favour of TBM with supportive evidence of raised ESR, positive Montoux test and response to Anti-tubercular Therapy.

The patient recovered rapidly with a resolution of palsy at the time of discharge. No any neurological deficit was found after 2 weeks at the time of follow up.

To summarize for every patient presenting with sudden onset of unilateral III nerve palsy, TB meningitis should be in the list of differential diagnosis since the timing of initiation of treatment is an important factor in the prognosis.

## REFERENCES

1. TB INDIA 2011. Revised National TB Control Programme. Annual Status Report. Government of India. Central TB Division. [http://planningcommission.nic.in/reports/genrep/health/RNTCP\\_2011.pdf](http://planningcommission.nic.in/reports/genrep/health/RNTCP_2011.pdf)
2. Chotmongkol V, Panthavasit J, Tiamkao S. Tuberculous meningitis in adults: a four-year review during 1997-2000. *Southeast Asian J Trop Med Public Health* 2003;34:869-71.
3. Mak W, Cheung RT, Ho SL. Tuberculosis meningitis in Hong Kong: experience in a regional hospital. *Int J Tuberc Lung Dis* 1998;2:1040-3.
4. Souza RD, Franklin D, Simpson J. Atypical presentation of tuberculosis meningitis: a case report. *Scott Med J* 2002;47:14-5.
5. Thwaites GE, Simmons CP, Than Ha Quyen N. Pathophysiology and prognosis in vietnamese adults with tuberculous meningitis. *J Infect Dis* 2003;188:1105-15.
6. Daif A, Obeid T, Yaqub B, et al. Unusual presentation of tuberculous meningitis. *Clin Neurol Neurosurg* 1992;94:1-5.
7. Berger JR. Tuberculous meningitis. *Curr Opin Neurol*. 1994;7:191-200.
8. Clark WC, Metcalf JC Jr, Muhlbauer MS. *Mycobacterium tuberculosis* meningitis: a report of twelve cases and a literature review. *Neurosurgery* 1986;18:604-10.
9. Thwaites GE, Chau TT, Stepniewska K. . Diagnosis of adult tuberculous meningitis by use of clinical and laboratory features. *Lancet* 2002;360:1287-92.
10. Holdiness MR. Management of tuberculosis meningitis *Drugs* 1990;39:224-33.
11. Brown RB, Lau SK. A 59-year-old diabetic man with unilateral visual loss and oculomotor-nerve palsy. *N Engl Med* 2001;344:286-93.
12. Harris PJ, Saper CB, Anderson C, et al. Clinical problem solving: diagnosis of tuberculous meningitis. *N Engl J Med* 1999;340:1047-9.