

## Psychiatric Morbidity Following Neurocysticercosis

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### ABSTRACT

A Case of cerebral neurocysticercosis reported with manic episode on first presentation which was confirmed after CT scan of Brain. Psychiatric manifestation showed a gradual decline following treatment with medication. Normal social and occupational functioning was ensured by prolonged treatment with Mood Stabilizer.

**Key words :** Cysticercosis, Manic episode, Mood stabilizer

### Introduction

Cysticercosis is a common parasitic disease affecting C.N.S. Man is the definitive host of the parasite i.e. *Tinea-solium*, the pork tapeworm. The usual route of infestation is through ingestion of inadequately cooked pork containing embryos. When human being become the intermediate host, systemic infection occurs. Infection occurs when food contaminated by human faeces containing eggs are taken or when autoinfection occurs by reverse peristalsis. The eggshell after being digested in stomach releases onchospores that penetrates intestinal mucosa, enter blood stream and lodge inside the brain, spinal cord, ventricle and skeletal muscle etc. The chance of invasion of brain is as high as 60-65%. (Trivedi et al. 1983).

### Case Report

A 20 years old unmarried Hindu female patient pursuing her graduation study and fond of playing with domestic animals reported to our out patient department. Two month prior to consultation she developed abnormal behaviour such as absconding tendencies, hypersexual behaviour, overtalkativeness, elevated mood, engaged in buying more dresses and cosmetics unusually, spending excess money than usual for daily activities, going here and there as per her wish, sleep impairment, grandious ideas and irritability. She had three attack of seizure for few moments at different times, which was decreased automatically. She was provisionally diagnosed as Bipolar I Disorder (Single Manic Episode). She was advised oral tablet of haloperidol and mood stabilizer carbamazepine, which she continued for six weeks and symptoms subsided completely, after which she had discontinued medication by her own without psychiatric consultation. Again after twelve weeks she came to hospital with same complain as before and this

time she was admitted and properly investigated. She was treated again with typical antipsychotic Haloperidol and Mood stabilizer such as carbamazepine and Benzodiazepine such as Diazepam. Her physical examination did not reveal any abnormality on the body. Central Nervous System examination revealed the presence of hyperreflexia with bilateral plantar flexor with mild ataxia. There was no sign suggesting focal neurological deficit. Her mental status revealed catastrophic reaction, impairment of memory and intelligence with intact judgement, speech and insight.

The tuberculoma, neurosyphilis and space-occupying lesion in brain was excluded by proper investigation. Haemograms like PCV, ESR, Urea, Sugar and liver function test were within normal limits. Serum VDRL was negative, stool examination was negative for *tinea solium* on repeated examination. Examination of fundus did not show any sign of raised intracranial tension or deposits of cysticerci. X-Ray of skull, cervical spine, chest, forearm, upper arm did not show any calcification. ECG & EEG were within normal limit and angiogram was also within normal limit. Nerve conduction study showed no sign of peripheral neuropathy. C.S.F. fluid analysis was within normal limit. Psychological testing i.e. Roarschach testing and B.G.T. revealed evidence of organic involvement.

CT scan of brain revealed a definite calcified area with central vesicular lesion surrounded by small oedematous zone. The rounded hypodense lesion that are not enhanced by the contrast medium and represent visible cysticercus right frontal lobe.

The patient was on conventional treatment with Praziquantel & steroid. After treatment the size of lesion decreased slowly as per finding seen on CT Scan & there was slow improvement. The patient was maintained on

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carbamazepine during the same period to avoid any future attack of seizure in addition to its action as mood stabilizer. The lesion decreased slowly (which was seen in picture of CT scan at different times). After the disappearance of psychotic symptoms the patient was maintained on carbamazepine as mood stabilizer and also to prevent the future attack of seizure.

She was taken up for psychological assessment, which showed poor attention & concentration. Bender visuo-motor gestalt test (Bender, 1946) showed a score of 24, which was 15 points more than the cut off points indicating organicity. Young Mania Rating Scale (YMRS-1962) was administered to patient and a gradual decrease in score was marked from time to time after giving medication.

## **Discussion**

Stepien (1962) observed mental changes in 28% of neurocysticercosis cases and the most frequently presenting symptom were loss of orientation, hallucination and less frequent symptoms were euphoria, confusion, agitation, impairment of memory and slowing in mental process. Dixon and Lipscomb (1961) observed mental changes in only 8.7 percent of cases. Our case presented with euphoria and agitation but orientation was intact in all the time during her morbidity.

The most characteristic presentation was described by Vijayan et al (1977 and 1979) and Venkataraman et al. (1982), who described psychiatric presentation of neurocysticercosis occurring without any sign of intracranial hypertension. They reported cases with schizophrenia or manic episode with disturbed sleep, hallucinations, paranoid delusions, seizures and intellectual deterioration without any evidence of raised intra-cranial tension. In our case manic symptoms was observed from the very beginning of the case and the symptom was decreased day by day after treatment, and there was no increase in intracranial tension which can be correlated with small size of the lesion and with anatomical localisation of the lesion in frontal lobe. The seizure may be due to lesion in frontal lobe.

Kala and wig (1977) reported two cases of acute organic psychosis with marked disorientation, excitement and

irrelevant talk with raised intra-cranial tension whereas Venkataraman and Vijayan (1979) reported a similar case without raised intracranial tension.

Contrary to the commonly encountered psychiatry manifestation i.e. manic presentation, Forlenza et al (1997) has observed depression being the dominant manifestation. Frontal damage may lead to manic behaviour disinhibition, irritability, impaired judgement and personality changes. (Kaplan and Sadock, 7<sup>th</sup> edn. 2000) as observed in this case. The probable explanation for manic presentation in neurocysticercosis may be due to some changes in neurotransmitter level which needs further scientific probing. At this stage, it is difficult to assign a cause-effect relationship between mania and neurocysticercosis.

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