

Case Series

Neuro-cysticercosis Presenting as Obsessive-compulsive Disorder

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Abstract

Background : Neuro-cysticercosis, caused by a parasitic infection of the brain, though commonly present as seizure (70-90%), may present with various psychiatric symptoms, including those of Depression, Anxiety, Psychosis, Dementia, Other Cognitive Dysfunction and Personality Changes. Psychiatric manifestations of Neuro-cysticercosis depend on the location of the infective cyst in the brain. Reports of Neuro-cysticercosis, presenting with Obsessive-compulsive Symptoms, are sparse. We reported four cases of obsessive compulsive disorder of recent onset, found to be associated with Neuro-cysticercosis and later improved with anthelmintic and anti-obsessive treatment.

Key words : Psychiatry, Neuro-cysticercosis, Obsessive-compulsive Disorder.

Neuro-cysticercosis is the most common parasitic infestation of Central Nervous System caused by the pork tapeworm *Taenia Solium* larva¹. Parenchymal lesions are most common and may involve Cerebral Hemispheres, Basal Ganglia, Brainstem and Cerebellum. Extra parenchymal lesions may involve ventricles, subarachnoid space and rarely spinal cord. There are 4 stages of NCC ie, Vesicular, Colloidal, Granular and Calcified Nodular Stages of which early 3 stages are active lesions and show signs of inflammation². Patients with Neuro-cysticercosis may remain completely asymptomatic or experience a variety of neurological symptoms ranging from seizure, headache, raised intracranial pressure and hydrocephalus to cognitive dysfunction and dementia³. Psychiatric manifestations such as confusion, delirium, changes in Sensory Perception, Anxiety, Psychomotor Agitation, Depression and Personality Changes have also been reported in as high as 15% patients with Neuro-cysticercosis³. In fact the very first case of Neuro-cysticercosis in Asia was recorded from the autopsy of an inpatient of a psychiatric asylum in then Madras⁴. Treatment of Neuro-cysticercosis include symptomatic management and if warranted specific treatment with anthelmintic drugs (eg, Albendazole) and steroids (eg, Prednisolone)⁵. Psychiatric symptoms, though not uncommon in Neuro-cysticercosis, have found

Editor's Comment :

- Neuro-cysticercosis can present clinically with various Neuro-psychiatric symptoms.
- Recent onset Obsessive-compulsive Symptoms may be a psychiatric manifestation of Neuro-cysticercosis.
- All such cases must be evaluated with early brain scan and should be treated accordingly.

limited attention in the literature. In this case series we have discussed 4 cases of Neuro-cysticercosis presenting with symptoms of Obsessive-compulsive disorder, and also shared our experience on their course and treatment outcome. Informed and written consents were obtained from all the cases and their legal guardian for the purpose of publishing in Scientific Journal.

CASE PRESENTATION

Case 1 :

This 17 years old female from Rural, lower socio-economic family, was referred to Psychiatry OPD with a history of recent onset dull headache and a recurrent intrusive thoughts of being touched or licked by dog whenever she passed by one for the past 3 months. She would check for any scratch or bite mark and upon coming back home would take a prolonged and rigorous bath. She could understand that her fear was irrational and excessive but couldn't resist that. Her brain MRI showed vesicular colloidal cysts in frontal region. She was diagnosed with Neuro-cysticercosis and Obsessive-compulsive disorder with good insight. She was prescribed Prednisolone 40mg BD for 5 days, Albendazole 400mg BD for 2 weeks and Fluoxetine 20mg OD which was increased to 40mg daily after 2 weeks. Headache improved in a month and Yale-Brown Obsessive Compulsive Scale

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(YBOCS) score improved from 19 at baseline to 8 after 2 months. She maintained well and after 1 year Fluoxetine was gradually tapered down and discontinued over next 6 months (Fig 1).

Case 2 :

This 14 years old girl from Rural, lower Socio-economic family, was brought by her parents with recent onset mild headache with recurrent distressing thoughts and images of her parents and friends being dead for past 1 month. She would try to stop those images by thinking of something else or counting back from 100 to 1 but failed to resist them. Her CT scan brain showed multiple Neuro-cysticercoses with different stages of maturity. She was treated with Prednisolone 30mg BD for 5 days, Albendazole 300mg BD for 14 days and Fluoxetine 10mg once daily which was increased to 20mg once daily after 10 days. In the next one month she showed rapid improvement. Her YBOCS score dropped to 6 from baseline 20. We maintained her on Fluoxetine 20mg daily for a year and tapered off over next 3 months (Fig 2).

Case 3 :

This 16 years old male came with his mother with complaints of recent onset occasional diffuse headache and recurrent doubt that he might have stepped on pictures or paintings of God while walking on road for 2 months. He had to take a few steps back to check if there was any picture or painting of God on the street. This would cause him guilt and fear of harm to her family. He would repeatedly pray to God and ask for forgiveness. His brain CT scan



Fig 2 — Showing CT scan Brain

showed many Neuro-cysticercoses of varying stages. He received Prednisolone 40mg BD for 5 days, Albendazole 400mg BD for 2 weeks and Fluoxetine 20 mg daily for 2 weeks and raised to 40mg BD thereafter. On follow-up he showed a partial response as YBOCS score dropped to 16 from baseline 22. The dose of Fluoxetine was escalated to 60mg daily and CBT was added. After a month he reported a good response as YBOCS score improved to 9. After 6 months we reduced the dose of Fluoxetine to 40mg daily because of weight gain with no relapse. After a year Fluoxetine was gradually tapered off and he maintained well on CBT alone (Fig 3).

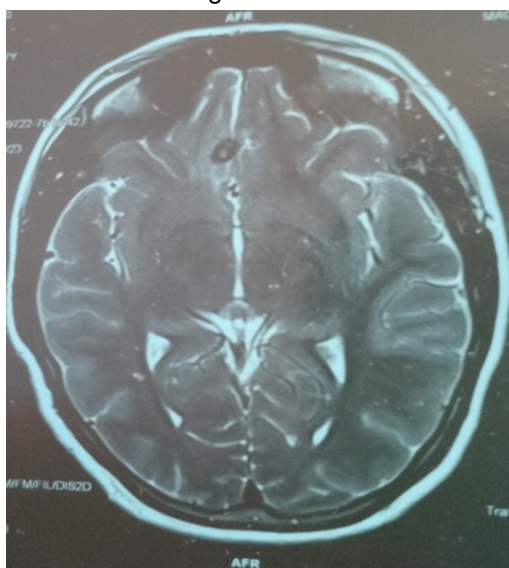


Fig 1 — Showing MRI Brain

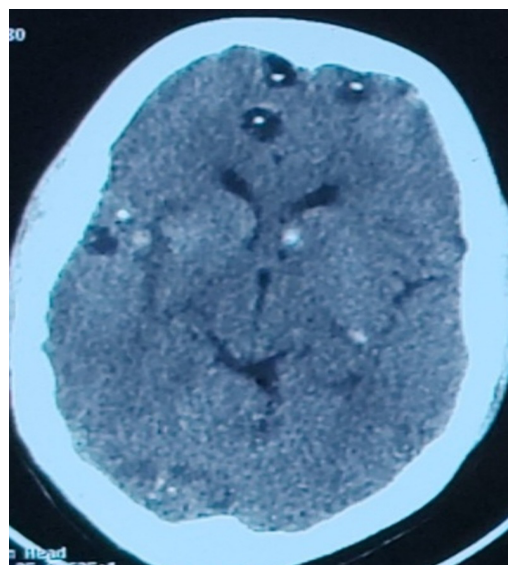


Fig 3 — Showing CT scan Brain

Case 4 :

An 18-year-old male from rural West Bengal was presented with a history of recent onset headache and symptoms of recurrent intrusive thoughts of making mistakes in counting money and locking the house door and repeatedly recounting and rechecking for those mistakes for the last month. His headache was moderate in severity, felt all over his head, and was dull and aching in nature. He was severely distressed regarding his unwanted disturbing thoughts and time wasted in recurrent correcting behavior. He was advised for a CT scan of brain imaging, and it showed multiple neurocysticercosis of varying stages in various brain areas. He was given Prednisolone 40 mg BD for 5 days and Albendazole 400 mg BD for 2 weeks. Fluoxetine 20 mg daily was started and raised to 40 mg OD after 2 weeks. On the first follow-up, his YBOCS score was reduced to 14 from the initial score of 26. After raising Fluoxetine to 60 mg OD, his YBOCS score was further reduced to 8, showing significant improvement. After 9 months of gaining significant remission to treatment, we started to reduce the dose of Fluoxetine gradually, and after another 4 months, it was stopped (Fig 4).

DISCUSSIONS

Parenchymal Neuro cysticercosis particularly in its vesicular and colloidal stages triggers body's immune system to produce inflammatory responses in the brain. On the other hand, inflammations in the neurocircuitry

have been found in a subset of patients with OCD⁶. All the above four cases presented with acute onset OCD with no previous Neuro-psychiatric conditions. To the best of our knowledge this is the first case series of NCC manifested with OCD. All the four cases had headache along with recent onset obsessive compulsive symptoms which warrant for brain imaging and evidence of active parenchymal NCC were established. All four cases responded well to standard serotonergic medication and CBT and achieved early remission unlike OCD in general which shows a longer course and often needs multiple medications in higher doses. Possibly the successful treatment with anthelmintic medication and steroid (anti-inflammatory) contributed to the early and full remission. This is in line with the OCD seen in Pediatric Autoimmune Neuro-psychiatric Disorders Associated with Streptococcal Infections (PANDAS) where also most of the children shows full recovery on early treatments with antibiotics, steroids, intravenous immuno-globulins and immuno-modulatory therapies⁷.

CONCLUSIONS

Like many of its known Neuro-psychiatric Symptoms Neuro-cysticercosis in early parenchymal stages may present with symptoms of OCD. A routine brain imaging should be offered to reach an early diagnosis. OCD associated with NCC responds well to standard and concomitant treatment for both OCD and NCC.

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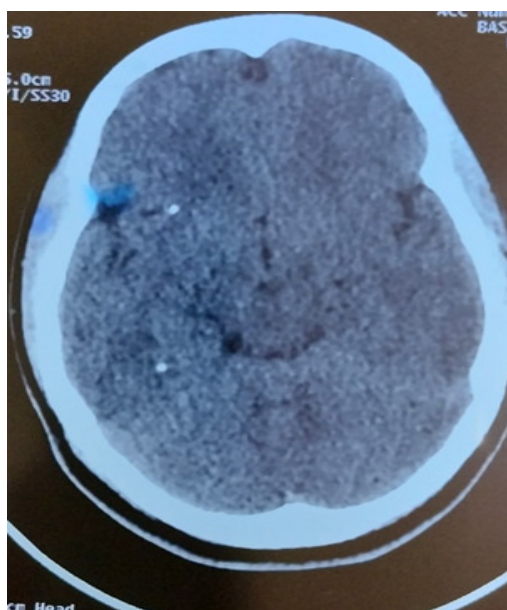


Fig 4 — Showing CT scan Brain