

# Disseminated neurocysticercosis presenting as affective mood disorder with chronic tension type headache

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### ABSTRACT

Neurocysticercosis is a common parasitic infection in India presenting usually with seizures, headache, focal neurological deficits. Neurocysticercosis presenting as a psychiatric illness is rare. Disseminated cysticercosis with involvement of central nervous system and head and neck muscles is rare even in endemic areas. We present a case of disseminated cysticercosis, which presented with chronic tension type headache and affective mood disorder. Treatment with cysticidal drugs led to complete remission of psychiatric complaints. In endemic areas history suggestive of mood disorder should not be used as supportive evidence of a primary headache syndrome like tension type headache without ruling out secondary causes. Making an early diagnosis can prevent morbidity.

**Key words:** Affective mood disorder, chronic tension type headache, disseminated cysticercosis

### Introduction

Cysticercosis is caused by the encysted larvae of the pork tapeworm, *Taenia solium*. We present a case of disseminated cysticercosis with extensive central nervous system (CNS) involvement and extracranial dissemination in a young woman, which presented as a case of affective mood disorder with the chronic tension type headache. The extra-cranial dissemination involved atypical head and neck regions such as posterior pharyngeal wall, masseter, pterygoids, paravertebral neck muscles and tongue. Treatment of cysticercosis led to remission of the depressive episode and primary headache disorder. Though cysticercosis is the most common helminthic infection of the, CNS disseminated cysticercosis is rare.<sup>[1,2]</sup> Less than 50 cases of disseminated cysticercosis have been reported world-wide.<sup>[3]</sup> A few cases of neurocysticercosis presenting with psychiatric

complaints have been reported, but there have been no reported cases of disseminated neurocysticercosis presenting with depression.<sup>[4]</sup>

### Case Report

A 21-year-old woman residing in New Delhi presented to the Department of Medicine with a history of insidious onset, progressive headache on and off for the past 6 months. The headache was bilateral, dull aching in nature occurring at any time of the day and had no special character or precipitating factors. It was not associated with vomiting. It was associated with fatigue, low mood, irritability and loss of appetite, multiple somatic pains and crying spells. Initially, the headache was relieved by over the counter analgesics, but it used to recur after a few days. After 2 months of persistent symptoms, she had consulted a physician where she had been diagnosed to have tension type headache. A formal psychiatric evaluation done at that time revealed minor depressive episode. When her symptoms did not abate she was started on amitriptyline 25 mg once daily for prophylaxis of chronic tension type headache. When she presented to our hospital her headache had worsened in severity and frequency. There was no history of blurring of

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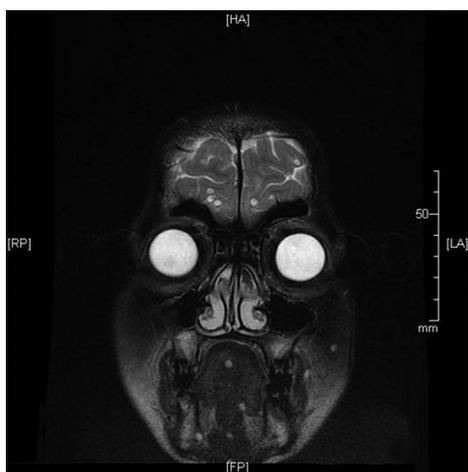
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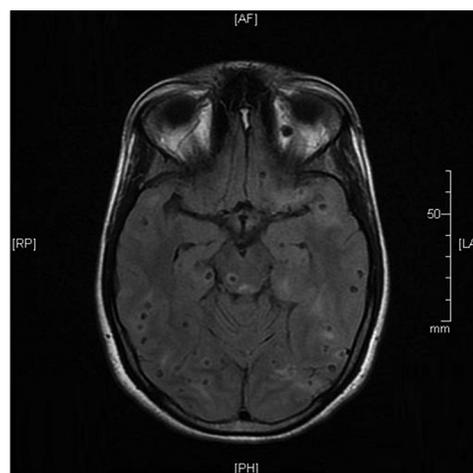
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vision, diplopia, squint, pain, redness or watering of eyes. There was no history suggestive of any other cranial nerve palsy. There was no history of vomiting or seizures. There were no medical comorbidities. Her elder sister had a history of seizure disorder for which she had been taking anti-epileptic drugs for the past 2 years. The general examination was unremarkable. There were no subcutaneous swellings. Visual acuity was 6/6 in both eyes. Visual fields were normal. Cranial nerve examination was normal. There were no signs of meningeal irritation. Rest of the CNS examination was normal and fundoscopy was normal. Rest of the systemic examination was normal. Raised intracranial tension (ICT) leading to secondary headache was suspected. A non-contrast computed tomography of the head showed multiple hypodense lesions. A contrast enhanced magnetic resonance imaging was done, which showed multiple cystic lesions with eccentric nodules in bilateral basal ganglia, cerebellum, brainstem, cerebral hemispheres;

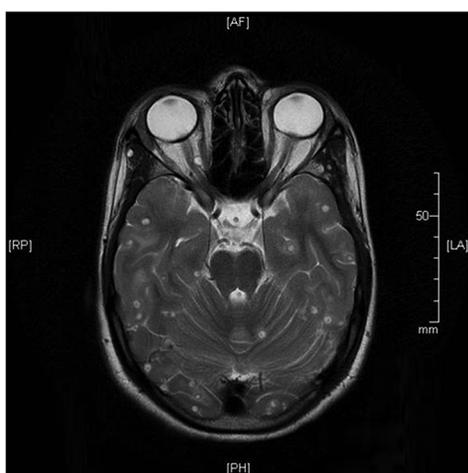
a few of them indenting the lateral ventricle. Many ring enhancing lesions were also visualized throughout the brain parenchyma. Similar lesions were seen in the scalp, posterior pharyngeal wall, masseter, pterygoids, paravertebral neck muscles and tongue [Figure 1]. There was a single lesion in left orbit abutting the superior rectus and a single lesion in the right orbit abutting the optic nerve [Figures 2 and 3]. X-ray of the thigh showed multiple cigar shaped calcifications [Figure 4]. Her complete blood count, liver function test, kidney function test were within the normal limits. Based on the imaging findings a definite diagnosis of neurocysticercosis with extra-cranial dissemination was made. Amitriptyline was stopped. She was started on albendazole with oral steroids and neuroimaging follow-up was planned. After 2 months follow-up, her headache had decreased and she did not complain of any myalgia. There was remission of her affective mood disorder as documented by a psychiatry consultation.



**Figure 1:** Magnetic resonance imaging showing cystic lesions in masseter, pterygoids, tongue and cerebral hemispheres



**Figure 2:** Magnetic resonance imaging brain showing multiple hypodense lesions in bilateral brain parenchyma with scolices and surrounding edema. Single cystic lesion in left orbit abutting optic nerve



**Figure 3:** Magnetic resonance imaging brain with cystic lesion in right orbit compressing optic nerve and superior oblique muscle



**Figure 4:** Plain X-ray of thigh showing multiple cigar-shaped calcifications

## Discussion

Cysticercosis occurs due to the feco-oral transmission of the *T. solium* egg. Consumption of mealy pork containing cysticerci leads to intestinal teniasis, but does not directly cause cysticercosis. When cysticerci involve the CNS it leads to neurocysticercosis. Brain parenchyma is the most commonly involved site in the CNS. Cysticerci also occur in the skeletal muscles. Cases of disseminated cysticercosis have been reported from India with involvement of subcutaneous tissues, skeletal muscles, heart, lungs, spleen, pancreas and liver.<sup>[5,6]</sup> Cysticerci are uncommon in the head and neck region apart from the orbit but cases of cysticerci of tongue, masseter, mylohyoid, lower lip, soft palate and sternocleidomastoid have been reported previously.<sup>[7,8]</sup>

Neurocysticercosis can present with seizures, headache, focal neurological deficit, encephalitis, dementia.<sup>[9,10]</sup> Neurocysticercosis presenting as extrapyramidal disease (Parkinsonism and focal dystonia), Kluver-Bucy syndrome, Weber's syndrome and cortical blindness have also been reported.<sup>[11]</sup> There have also been reports of neurocysticercosis presenting as psychosis or psychiatric illness.<sup>[4,12]</sup> Hamed and El-Metaal reported a case of neurocysticercosis presenting with depressive manifestations together with disturbance of writing, mild deep sensory loss, limb-kinetic apraxia, lack of coordination and dystonia of the right upper limb.<sup>[13]</sup> Disseminated cysticercosis presenting as a mood disorder and mimicking a primary headache disorder has not been reported before. In our patient, the multiple somatic pains could be attributed to skeletal muscle cysticerci. These complaints as well as the minor depressive episode resolved with treatment of cysticercosis. Treatment of neurocysticercosis remains controversial. Our patient was treated with albendazole and oral steroids according to the consensus guidelines published by García *et al.*<sup>[14]</sup>

The diagnosis of tension type headache is clinical and relies on characteristic symptoms.<sup>[15]</sup> A detailed history and thorough examination to rule out secondary causes is mandatory. Traditionally, tension type headache has been believed to have a psychological basis. Even though studies have proved the neurobiological basis of these headaches, the psychological connotations of this

diagnosis remain in the minds of physicians and it is easy to leap to this diagnosis in a clinical background of low mood, crying spells and other psychiatric complaints. Our case report highlights the pitfalls of rushing into such a diagnosis. Routine use of imaging modalities may be justified to rule out neurocysticercosis in endemic areas before making a diagnosis of a primary headache disorder. An early diagnosis of cysticercosis and cysticidal treatment can prevent considerable morbidity in this setting.

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