Case Report

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Neurocysticercosis: A Case Report

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Abstract

Aims:

1. To present a case report of a case of Neurocysticercosis presented with severe episodes of headache and bilateral papilloedema as a relatively silent manifestation of Neurocysticercosis.
2. To evaluate the bilateral papilloedema as to whether it is true papilloedema or a pseudo papilloedema as an ocular manifestation of ocular cysticercosis involving optic discs of both eyes or due to combination of both.

Introduction: Neurocysticercosisis (NCC), a parasitic infestation caused by the Tapeworm,Taenia solium. It is the leading cause of epilepsy in developing countries including India, Africa, Latin America and China. Alternately patients may present with generalized headache secondary to raised intra cranial pressure and meningitis. In addition, in many cases of NCC, the number, size, location and intensity of cysts lead to varied symptomatic presentations. These clinical manifestations vary from completely asymptomatic infestation to severe disease and death.

Case report: In this paper we discuss a case of 17 year old female who presented with severe episodes of headache in March 2021. She was found to have disseminated NCC on MRI and CT and bilateral papilloedema as an ocular manifestation of ocular cysticercosis involving optic discs of both eyes. We also discuss about the cause of papilloedema and how this patient was non surgically managed.

Discussion : The present case is a rare case of disseminated NCC presenting only as severe episodes of headache with out any evidence of focal or generalized neurological signs or symptoms (ie)relatively a silent case. There was evidence of bilateral papilloedema which can be due to infectious generalized subtle brain parenchymal edema or due to meningitis. The presence of calcified foci on both optic discs give an appearance simulating pseudopapilloedema, as seen in Drusen of the optic disc. Both factors might have played a role in producing the bilateral papilloedema. MRI and CT scan of brain and high resolution ultrasound of orbits confirmed disseminated NCC and ocular cysticercosis and symptoms improved after medical management with anti epileptics, cysticidal antihelmenthic drugs and steroids.

Conclusions

1. This case highlights how NCC may present as a case of severe episodes of headache without focal or generalized neurological signs as a relatively silent case.
2. Bilateral papilloedema seen needed to be evaluated whether it was true edema or pseudo papilloedema as an ocular manifestation of ocular cysticercosis involving both optic discs.
3. The nonsurgical medical management in the form of antihelmenthic cysticidal drugs though contraversial, along with steroids will try to delay or prevent the occurrence of focal or generalized neurological signs and symptoms.

Keywords: Neuro cysticercosis; Epilepsy; Seizures and pseudopapilloedema.

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Introduction

Parasitic diseases are a growing global public health concern with severe neurological consequences. Neurocysticercosis (NCC) is a parasitic infection caused by Tapeworm, Taenia Solium. It is a leading cause of epilepsy in developing countries like India, Africa, Latin America and China.[1]Alternately patients may present with a generalized headache secondary to increased intra cranial pressure and meningitis. MRI can help in staging of these cystic lesions in brain into vesicular, colloid cysts, granular nodular degenerations without calcification and complete calcification.[2] The two most common types of cysts are 1. Vesicular cysts which are less epileptogenic and have less mass effect on imaging and 2. Colloid cysts which consist of gelatinous material that exhibits ring enhancement and edema on imaging which is more epileptogenic. The main feature of NCC include variation in clinical presentation as well as disease severity that can vary from completely asymptomatic infestation to severe disease and death. In addition the number, size, location and intensity of cysts also lead to varied symptomatic presentations in patients.[3] Generally cysts in brain parenchyma that present as severe episodes of headache or new onset of seizures can be effectively treated by antiepileptics along with antihelmenthic cysticidal drugs and steroids.

Case Report

A 17 year old non vegetarian female presented to our OPD with main complaint of severe episodes of headache in March 2021 since 2 months. No H/O blurring of vision, diplopia, trauma, nausea, local or systemic medication. No similar complaints in the past. H/O using glasses since 6 years. Anterior segment examination and intra ocular pressure with in normal limits. Both pupils are normal in size and reacting to light normally. Ocular movements and position of eye balls are normal. Fundus examination revealed bilateral papilloedema grade 2 to 3 on Frisen scale in both eyes more in right eye when compared to left eye Fig.[1]

MRI showed NCC at various lobes bilaterally, brainstem and left cerebellum. Ventricular system was normal. Sulci, Sylvian fissure and basal cisterns were normal Fig.[2]

On high resolution ultra sound of orbits calcific foci were noted at optic discs on both sides and mild elevation of optic discs Fig.[4] The patient was put on tab. Albendazole, tab. Levetiracetam, tab. Prednesolone, tab. Supradyn and Dolo SOS on the advise of Neurosurgeon and was advised review after one month. But due to Covid lockdown she could not review and discontinued the medications after two months, in July 2021 she came back with similar complaints of headache of 10 days duration with the presence of bilateral papilloedema. She was referred to Neurosurgeon for review and for CAT scan of brain which showed multiple small intra and extra axial calcified nodules seen scattered in cerebral, cerebellar hemispheres, basal ganglia and upper pons Fig.[3]

Tiny calcification seen at right optic disc. Her other investigations like complete haemogram, ESR, liver function tests, Renal function tests and chest X- ray were normal. She was put on tab, Levipil, tab. Albendazole, tab. Sibelium, tab. Voveran and tab. Pantops, on the advise of Neurosurgeon and was advised review after one month. She came back for review in August 2021. Her headache subsided and she was better symptomatically. Fundus showed subsiding bilateral Papilloedema.

Discussion

Cysticercosis is caused by Cysticercus cellulosae, the larval form of the Tape worm Taenia solium. Humans acquire cysticercosis through faeco-oral contamination with Taenia solium eggs from tape worm carriers.[4] NCC is an uncommon manifestation of this common disease. Widespread dissemination of the cysticerci can result in involvement of almost any organ of the body. The main features of NCC include intractable epilepsy, dementia, and focal neurological signs or raised intracranial pressure depending on the amount and localization of the cysts. The differential diagnosis of cystic cerebral lesion on CT or MRI includes abscess, tubercle, metastasis and glioblastoma. Parasitic CNS infections and subacute cerebrovascular events should also be considered.[5] According to post mortem studies, 80% of Neurocysticercal infestation remain asymptomatic.[6] Human cysticercosis occurs either via endogenous or exogenous autoinfection in Tapeworm carriers or by ingesting Taenia solium eggs after faecal oral transmission. Diagnosis of NCC is often based on the clinical presentation, neuroimaging abnormalities and serology. Serological techniques can vary depending on the activity of the cyst and the number of lesions.[7] Thus, negative results on serological testing do not rule out NCC.

Management of NCC is symptomatic (antiepileptics and steroids), surgical (removal of cysts and ventriculoperitoneal shunt) and Cysticidal drugs. The role of treatment with albendazole (15 mg/kg/day for 30 days) or praziquantel (10-15 mg/kg/day for 6-21 days) is controversial. These drugs

hasten the death of the cysts, which may occur even in the absence of such treatment.[8] Neurocysticercosis is a serious disease with potentially life threatening complications. Patients with active cysts remain at risk of serious complications. It is therefore recommended that all patients with multiple cysts should receive treatment with cysticidal drugs.

The present case is a rare case of disseminated NCC presenting only as severe episodes of headache with out any evidence of focal or generalized neurological signs or symptoms as a relatively silent and asymptomaetic case, There was evidence of bilateral papilloedema which can be due to infectious generalized subtle brain parenchymal edema or due to meningitis. The presence of calcified foci on both optic discs give an appearance simulating pseudopapilloedema, as seen in Drusen of the optic disc. Both factors might have played a role in producing the bilateral papilloedema. MRI and CT scan of brain and high resolution ultrasound of orbits confirmed disseminated NCC and ocular cysticercosis and symptoms improved after medical management with anti epileptics, cysticidal antihelmenthic drugs and steroids.

Conclusions

1. This is a case of dessiminated NCC relatively asymptomatic and silent apart from episodes of headache without any focal or generalized neurological signs or symptoms.
2. The associated occurrence of ocular cystcercosis manifestation of papilloedema should be properly evaluated to differentiate from pseudo papilloedema.
3. The non surgical medical management in the form of antihelminthic cysticidal drugs along with steroids will try to delay or prevent the occurrence of focal or general neurological signs and symptoms.

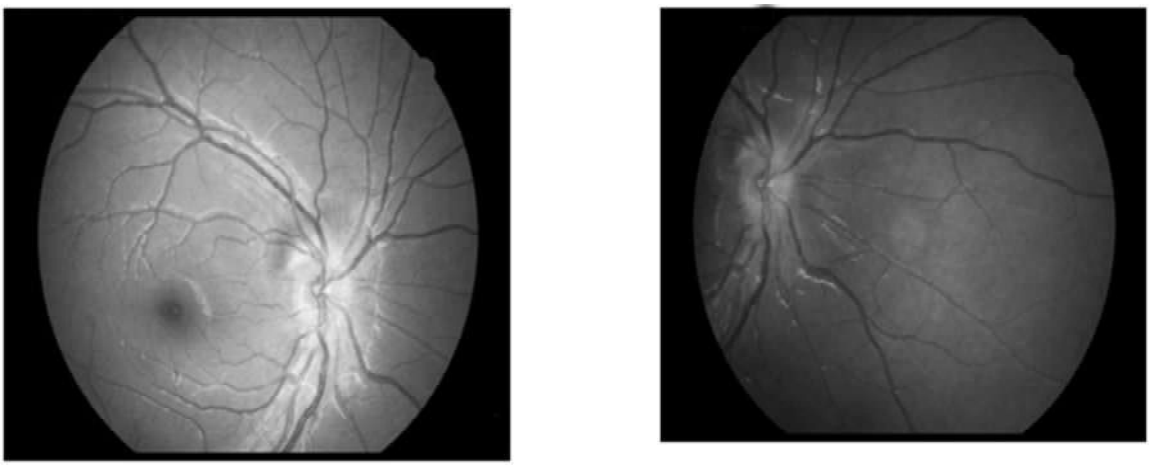

Fig. 1: Fundus photographs.

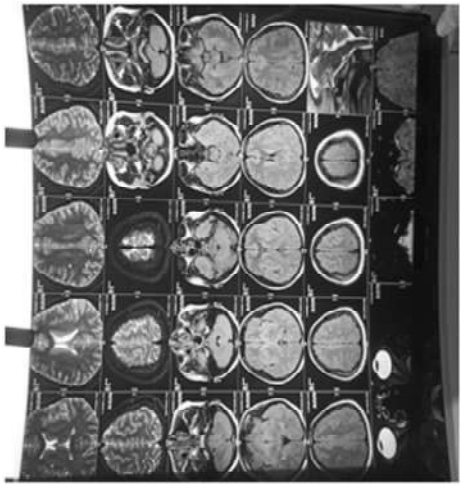

Fig. 2: Mri Brain.

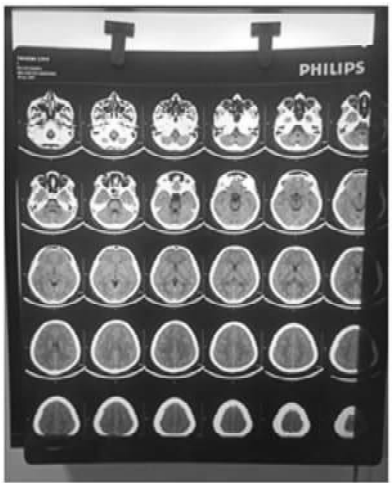

Fig. 3: Cat Scan.

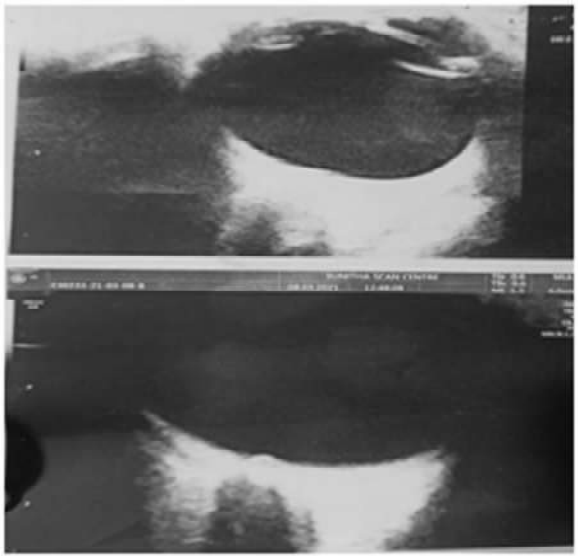

Fig. 4: Ultrasound B-Scan.

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