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Case Study

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CASE REPORT ON NEUROCYSTICERCOSIS

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ABSTRACT

Neurocysticercosis is a preventable Central Nervous System (CNS) infection caused by Taenia Solium (T. solium) usually due to the accidental ingestion of eggs of Taenia Solium by the consumption of contaminated food; especially raw or uncooked food(1). In developing countries, neurocysticercosis is the most common parasitic disease of CNS that results in acquired epilepsy. In US neurocysticercosis is seen mainly in migrants. clinical manifestations of Neurocysticercosis depends upon the location of the lesion, number of parasites and the immune response of the host. Many patients affected with Taenia Solium are asymptomatic. Patients may present with symptoms such as epilepsy, headache, dizziness, stroke, neuropsychiatric dysfunction, intracranial hypertension. Here we present a case of a 73 year old male patient admitted with complaint of three episodes of tonic-clonic seizure of sudden onset and he also had complaint of difficulty in moving the left finger for past three days. This case illustrates the importance and method of treatment of Neurocysticercosis.

KEY WORDS: Neurocysticercosis, Taenia Solium, Cysticercosis, Epilepsy, computed tomography, Anticysticercal drugs, Anticonvulsants.

INTRODUCTION

Neurocysticercosis is a specific form of Central Nervous System (CNS) infection caused by Taenia Solium (T. solium) usually due to the accidental ingestion of eggs of Taenia Solium by the consumption of contaminated food ; especially raw or uncooked food.[1]

Infection may affect any area of the body due to the accumulation of larval cysts of a tapeworm.[2] Symptoms vary from case to case according to the part of body affected. When the infection affects the brain the condition is called Neurocysticercosis.

In developing countries, neurocysticercosis is the most common parasitic disease of CNS that results in acquired epilepsy.[3] In US neurocysticercosis is seen mainly in migrants.

EPIDEMIOLOGY

Neurocysticercosis is endemic in central and South America, Africa, India, Indonesia and China. This disease is rare in Europe, North America, Australia, Japan, Newzeland and muslim countries of Asia and Africa.[4]

Neurocysticercosis is the most common parasitic infection of CNS in developing countries and in US neurocysticercosis is mainly seen in immigrants.[4]

Neurocysticercosis affect men and women equally, but the inflammation associated to the parasite is more severe in women than in men.[5]

PATHOPHYSIOLOGY

Neurocysticercosis is due to the accidental ingestion of eggs of T.Solium through the consumption of contaminated raw or uncooked food. T. Solium has two host biological cycles; humans act as definitive hosts that carrying the intestinal tapeworm and pigs as the intermediate host that harbours the larvae or cysticercosis.[5]

Cysticercosis enters human body through ingestion of poorly cooked infected pork. Cysts invade in small intenstine, get attached to the wall of intestine by its sucker and hook and develop storbila or chain of proglottids. Fertile eggs are excreated in to gravid progloitids from the distal end of storbila.Proglottid may contain up to 60000 eggs.[5]

Pigs act as an intermediate host through the ingestion of stool contaminated with Taenia eggs The embryos actively cross the intestinal wall and enter the blood stream that are transported to most of the tissues.

This enters the human body by the ingestion of poorly cooked infected pork.

CLINICAL MANIFESTATIONS

Clinical manifestations of Neurocysticercosis depends upon the location of the lesion, number of parasites and the immune response of the host. Many patients affected with Taenia Solium are asymptomatic.[5]

Patients may present with symptoms such as epilepsy, headache, dizziness, stroke, neuropsychiatric dysfunction, intracranial hypertension.[6]

Epilepsy is the most common presentation (70%). Neurocysticercosis is a leading cause of epilepsy in adult as well as in children .presence of a single lesion may result in simple and complex partial seizures. Presence of multiple lesions result in generalized seizure that are usually tonic clonic.

Intracranial hypertension may develop due to the obstruction in the circulation of CSF. Intracranial hypertension results in chronic headache associated with nausea and vomiting.

Neurocysticercosis may result in the vascular damage or occlusion that cause lacunar infract and large cerebral infract. The mycotic aneurysms of bsilar artery result in the hemorrhage.

Neuropsychiatric complications that range from poor performance on neurophycologic test to sever dementia may occur due to Neurocysticercosis.

Intrasellar Neurocysticercosis is present with ophthalmological and endocrinological manifestations. A very rare type of neurocysticercosis is spinal neurocysticercosis. Clinical manifestations of spinal Neurocysticercosis include spinal dysfunction such as radicular pain, weakness and paresthesias.

Physical findings of Neurocysticercosis include hemiparesis, dysarthria, hemisensory loss., movement disorder, meningeal signs, cognitive decline, giat disturbances.

DIAGNOSES

Neurocysticercosis is diagnosed with imaging test such as computed tomography and MRI. CSF analysis is indicated in every patient with new onset of seizure or neurological deficit. CSF test are contraindicated in case of large cysts that cause severe oedema and lesions.

10-15% of patients show infection in stool examination. Brain biopsy is done in extreme cases of neurocysticercosis.[5]

TREATMENT

There are 2 approach considerations in treatment of Neurocysticercosis. If the parasite is dead then the management includes symptomatic treatment, if the parasite is alive then the treatment is directed against the parasite. Anticonvulsants are used for the management of seizures. Monotherapy is usually recommended.

Viable or active parasites cause vasculitis, arachnoiditis or encephalitis; in such cases a course of steroids or immunosuppressants are recommended before the use of anticysticercal drugs.

Anticysticercal drugs include Praziquantel and Albendazole these drugs help in elimination of cysticercals.[7]

Surgical interventions such as placement of ventricular shunt by surgical extirpation of cyst are recommended in case of hydrocephalus due to intraventricular cyst.

Surgical extirpation on urgent basis is recommended in case of multiple cysts. Surgical management is also recommended in case of ocular or spinal lesions.

CASE REPORT

A 73 year old male patient was admitted to the emergency department of a tertiary care hospital of Erod Tamilnadu with three episodes of tonic- clonic seizure. Each seizure episode of lasted for 5 minutes followed by loss of consciousness. He had a complaint of difficulty in moving the left finger for past three days which was a sudden onset. He is a known case of hypertension for past two years and was on treatment. CT brain showed starry sky appearance with multiple calcifications which is suggestive of Neurocysticercosis. Enzyme linked immune transfer blot (EIBT) was performed followed by CT which was positive hence Neurocysticercosis was confirmed. The patient was treated with Phenytoin, Albendazole, Dexamethasone, clopidogrel, Amlodipine, Atorvastatin and Enalapril.His seizures settled down and he was discharged after 10 days of hospitalization.

DISCUSSION

Neurocysticercosis is a common parasitic infectious disease in developing countries.About 50 milloin people worldwide are affected with cysticercosis infection, among them the incidence are high in endemic regions like in central and South America, Africa, India, Indonesia and China. This disease is rare in Europe, North America, Australia, Japan, Newzeland and muslim countries of Asia and Africa.

Neurocysticercosis is very common in rural areas where pigs are raised in optimal sanitary environment [(7)]. Clinical manifestations of Neurocysticercosis depend upon the location of the lesion, number of parasites and the immune response of the host. Early detection of the disease is very important for the effective prognosis of disease.

Here we present a case of a 73 year old male patient admitted with complaint of three episodes of tonic-clonic seizure of sudden onset and he also had complaint of difficulty in moving the left finger for past three days.

In this case the possible source of tapeworm infection are from the consumption of uncooked food especially poorly cooked infected pork, self infection from poor personal hygiene like lack of hand washing.[8]

The diagnosis of Neurocysticercosis is made from the CT scan that showed starry sky appearance with multiple calcifications which is suggestive of Neurocysticercosis. The starry appearance on CT is due to the wide spread intra-parenchymal calcifications which are common in Neurocysticercosis.[9]

Presence of multiple lesions result in generalized seizure that is usually tonic clonic and presence of a single lesion may result in simple and complex partial seizures. Patient is present with Tonic-clonic seizure due to the presence of multiple calcifications.

Antibody detecting tests fails to distinguish between active and inactive infections.[10] Here Enzyme linked immune transfer blot was done to confirm Neurocysticercosis. Even though EIBT is currently considered as the test of choice for serodiagnosis of cysticercosis, it is a complicated procedure.[10]

The patient is treated with anticonvulsant for seizure and cysticidal therapy with albendazole to reduce the number of cystic lesion.[11] American Academy of Neurology guidelines recommends the treatment of Albendazole with steroid like Dexamethasone or Prednisone is effective in decreasing inflammation in Neurocysticercosis.[12]

CONCLUSION

Neurocysticercosis is a common parasitic infectious disease in developing countries. the spread of the disease can be prevented through careful attention and awareness of people regarding the importance of personal hygiene and importance of consumption of hygienic food and water especially in high endemic regions.

REFERENCE

1. Cantey PT, Coyle CM, Sorvillo FJ, Wilkins PP, Starr MC, Nash TE. Neglected parasitic infections in the United States: cysticercosis. The American journal of tropical medicine and hygiene. 2014 May 7; 90(5): 805-9.
2. Schantz PM, Tsang VC The US Centers for Disease Control and Prevention (CDC) and research and control of cysticercosis. Acta Trop., 2003; 87: 161-3.
3. Reddy DS, Volkmer II R. Neurocysticercosis as an infectious acquired epilepsy worldwide. Seizure. 2017 Nov 1; 52: 176-81.
4. Agapejev S. Neurocysticercosis: About 5 reported thai cases. Journal of neurosciences in rural practice. 2015 Oct; 6(4): 469.
5. https://emedicine.medscape.com/article/1168656-overview
6. Garcia HH, Nash TE, Del Brutto OH,. Clinical symptoms, diagnosis, and treatment of neurocysticercosis. Lancet Neurol., 2014; 13: 1202–1215. [PMC free article] [PubMed] [Google Scholar]
7. García HH, Evans CA, Nash TE, Takayanagui OM, White AC, Botero D, Rajshekhar V, Tsang VC, Schantz PM, Allan JC, Flisser A. Current consensus guidelines for treatment of neurocysticercosis. Clinical Microbiology Reviews. 2002 Oct 1; 15(4): 747-56.
8. https://www.researchgate.net/publication/320566979_Neurocysticercosis_A_Case_Study
9. Sodhi KS, Khandelwal N, Suri S. Starry sky appearance. Postgraduate medical journal. 2005 May 1; 81(955): 332.
10. Rodriguez S, Wilkins P, Dorny P. Immunological and molecular diagnosis of cysticercosis. Pathogens and global health. 2012 Sep 1; 106(5): 286-98.
11. Rizvi SA, Saleh AM, Frimpong H, Al Mohiy HM, Ahmed J, Edwards RD, Ahmed SS. Neurocysticercosis: A case report and brief review. Asian Pacific journal of tropical medicine. 2016 Jan 1; 9(1): 100-2.
12. Baird RA, Wiebe S, Zunt JR, Halperin JJ, Gronseth G, Roos KL. Evidence-based guideline: treatment of parenchymal neurocysticercosis: report of the Guideline Development Subcommittee of the American Academy of Neurology. Neurology. 2013 Apr 9; 80(15): 1424-9.