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A CASE REPORT OF NEUROCYSTICERCOSIS

General Medicine

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ABSTRACT

Neurocysticercosis is a condition affecting a sizeable number of people around the world. The etiology of this condition is a helminth parasite Taenia solium, which has a cycle eventually affecting the human host. This is a parasitic infection. This condition follows a cycle of human-to-human fecal-oral route and pigs as an intermediate host with transmission to humans. Infected humans can get dissemination of the larva through circulation once get dissemination of the larva and spread throughout the body. In this case, the neural tissue was affect. ed. This case report will review the neurocysticercosis condition, pathophysiology, mode of transmission, treatment, and complications.

KEYWORDS

INTRODUCTION:

Neurocysticercosis is a parasitic infection caused by the tapeworm Taenia Solium. It is a leading cause of epilepsy in developing countries including India, Africa, Latin America and China. In low-income countries, the close proximity of individuals in the same household has a higher incidence of larval transmission. Fecal transmission and proximity of humans to the pigs also lead to secondary infections in pigs. Consumption of undercooked pigs subse. quently transmits the tapeworm to a new human host and the cycle continues. In the case of neuro. cysticercosis, the larvae circulate in the blood and enter the nervous system. The eggs create cysts in different organs leading to a range of conditions from mild to severe and at times lethal.

Hallmarks of NCC include variation in clinical manifestations as well as disease severity that can vary from completely asymptomatic infection to severe disease and death. In addition, the number, size, location and intensity of cysts also lead to varied symptomatic presentations in patients. Generally, cysts in brain parenchyma that present as new-onset seizures can be effectively controlled initially by antiepileptics along with antihelminthics after confirmation of diagnosis. In addition, many cases of NCC have been linked to primary medical conditions like urticarial vasculitis.

In this case we are going to see about the intraparenchymal neurocysticercosis and its role in first adult seizure that was observed in this patient. There was a mild edema in the right pre and post central gyrus.

Case Presentation:

A 38 year old Indian fisherman brought to the casualty with an involuntary movements involved his left upper limb from midday and the previous night he had developed loss of sensation over the left half of the body. The patient also had a complaints of pricking sensation over the left side of the body predominantly in the left upper part. He also complained of weakness in the left upper arm that was predominantly in left hand region.

The patient also had a same presentation before one month for which he was treated with anti epileptic agents but stopped by his own. At the time of presentation patient was conscious., oriented and afebrile. He was having an involuntary movements in the left upper limb but it was not associated with any loss of consciousness, tongue bite, up rolling eye balls and involuntary urination or defecation. Patient vitals were stable with BP-120/70 mm Hg, Pulse- 88/min and Saturation- 98%. Initially patient was evaluated with all basic investigations. Patient was given Inj. Leviteracetam 1gm stat initially for the focal seizure. Patient was alcoholic for 20yrs and beedi smoker for 15 years. Patient dietary habits included consumption of beef, pork and other meat while he consumes alcohol.

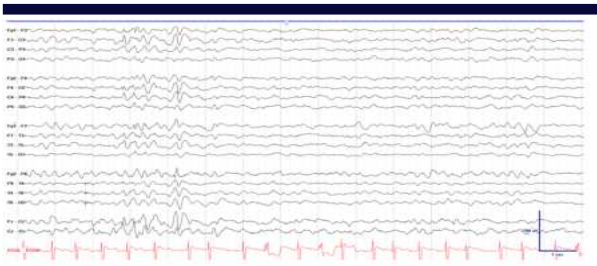
The patient was alert, cooperative, and afebrile throughout the examination. There were no signs of malnutrition or dehydration, such as pale skin, icterus, clubbing, cyanosis, or lymphadenopathy. No abnormalities were found in the lungs, stomach, or heart during the systemic examination.

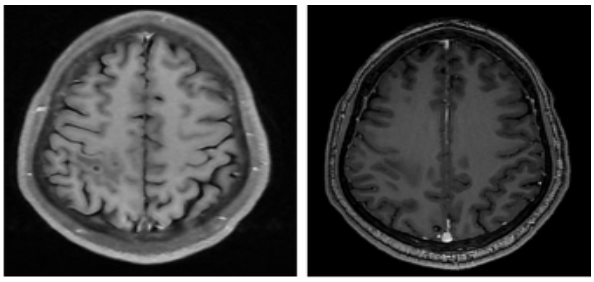
On examination of central nervous system- Higher mental functions were Normal, Tone was Normal and Power was 5/5 in the Right Side but Tone was Normal in the Left Side Power was 3/5 in the left upper limb and 4/5 in the left lower limb. Sensations were intact in Right Side but diminished in the Left Side of the upper half of the body. Plantar- B/L Flexor. Rhomberg's test was positive and swaying towards left side.

CT brain was taken and it revealed - Tiny cystic lesion with hyperdense foci within and significant surrounding edema in right high parietal lobe. Neurology opinion sorted followed which MRI brain with contrast was done that revealed- Multiple ring enhancing cystic lesions with central dot sign, with and without surrounding mild edema as described above - Features suggestive of neurocysticercosis.

Patient was also evaluated for the other infective granulomatous etiology work up that includes AFB sputum and Mantoux that was found to be negative. So, we clinched the diagnosis as Neurocy sticercosis.

The patient once was reviewed with the neurologist and was initially suggested with IV Anti epileptics and IV corticosteroids. After couple of days patient was started with T.Albendazole 400mg BD. Patient condition were monitored. Hence, patient was kept in regular follow up and advised to follow a healthy lifestyle and hygienic food habits.





DISCUSSION:

Neurocysticercosis, as demonstrated in this case, presents a complex interplay of clinical manifestations, diagnostic challenges, treatment modalities, and socio-demographic factors. This comprehensive discussion will meticulously explore each facet, aiming to unravel the intricacies of managing and understanding this parasitic infection. The patient's symptoms of involuntary movements, loss of sensation, and pricking sensations, predominantly on the left side, align with the typical neurological manifestations of neurocysticercosis. The recurrence of similar symptoms within a month, despite previous treatment, underscores the chronic nature of the disease. The focal neurological deficits, such as reduced power and sensation on the left side of the body, along with positive Rhomberg's test, provide crucial insights into the extent of neurological involvement. Notably, the absence of generalized seizure characteristics is pivotal in differentiating neurocysticercosis-related movements from epileptic seizures. The imaging studies, including CT and MRI scans, played a central role in confirming the diagnosis. The presence of multiple ring-enhancing cystic lesions with a central dot sign, along with hyperdense foci and surrounding edema, is pathognomonic for neurocysticercosis. The superiority of MRI, especially with contrast, in delineating the characteristics and extent of these lesions underscores its pivotal role in the diagnostic algorithm. The negative results for AFB sputum and Mantoux tests significantly contribute to ruling out alternative diagnoses, reaffirming the specificity of the clinical and imaging findings.

Staging of cysticerci can be characterized by MRI: Vesicular cysts are stage one and colloidal cysts are stage two. These cysts can progress to stage three which has granular nodular degeneration with onset of calcification and finally stage four, or complete calcification on CT and MRI.]. Most commonly patients present with new onset partial seizures with or without secondary generalization due to cyst formation in various areas of the brain parenchyma. 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 cyst which consist of gelatinous material that exhibits ring enhancement and edema on imaging which is associated with increased epileptogenic potential. Alternatively, patients may present with a generalized headache secondary to increased intracranial pressure and meningitis. These cysts may be dormant for years and they may incidentally be detected on imaging.

Eventually, the host's immune system overcomes the homeostasis and the larva dies. The released larva particles generate a significant immune response with various symptoms depending on the location of the cyst. The lesion cal. cifies and leaves a residual calcification in the brain parenchyma. Most of these cysts have benign prognoses with minimal host symptoms. At times, there may be multiple simultaneous lesions, and this condition is known as cysticercotic encephalitis.

The therapeutic approach in this case incorporated a combination of intravenous anti-epileptic agents, corticosteroids, and oral albendazole. This stepwise strategy aimed at addressing both acute symptoms and the underlying parasitic infestation. The symptomatic improvement observed in the patient, coupled with the resolution of imaging abnormalities, underscores the efficacy of this regimen. It's worth noting that the use of corticosteroids not only helps in reducing inflammation but also minimizes the risk of paradoxical reactions during anti-parasitic treatment. The patient's occupation as a fisherman and dietary habits, including the consumption of beef, pork, and other meats, point towards potential sources of exposure to the cysticercosis-causing Taenia solium. The socio-demographic context, with its unique occupational and dietary aspects, provides valuable insights into the epidemiology of the disease. Furthermore, the patient's history of chronic alcohol use and smoking raises pertinent questions about their impact on the course of neurocysticercosis. Chronic alcohol use, in particular, is associated with various neurological complications, and understanding these interactions is crucial for holistic patient care.

Neurocysticercosis, being a parasitic infection, carries substantial public health implications, especially in regions where sanitation and hygiene practices may be suboptimal. The presented case emphasizes the need for targeted public health interventions. These interventions should encompass educational initiatives to raise awareness about proper meat handling and cooking practices, sanitation, and hygiene measures. Additionally, addressing lifestyle factors such as alcohol consumption and smoking is pivotal not only for the individual patient but also for community-wide preventive efforts. Despite the progress in understanding and managing neurocysticercosis, challenges persist. The potential long-term neurological sequelae in individuals with a history of neurocysticercosis warrant in-depth exploration. Additionally, the impact of lifestyle factors on disease outcomes demands further research. Prospective studies could elucidate the role of alcohol and smoking in the progression and recurrence of neurocysticercosis, guiding tailored interventions for affected individuals.

CONCLUSION:

In conclusion, the presented case offers a nuanced perspective on neurocysticercosis, combining clinical acumen, advanced imaging, and socio-demographic considerations. The successful management of the patient not only highlights the effectiveness of the chosen therapeutic approach but also underscores the importance of a multidisciplinary strategy. This includes neurology, infectious diseases, and public health perspectives. Moving forward, continued research, community-based interventions, and a holistic under standing of individual lifestyles will play pivotal roles in mitigating the impact of neurocysticercosis in endemic regions.

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Ethical Consent:-

The participant gave informed permission to participate in the research.

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Conflict of Interest:-

According to the writers, they have no conflicts circumstances.

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