Content available at: https://www.ipinnovative.com/open-access-journals

Southeast Asian Journal of Case Report and Review

Journal homepage: https://www.sajcrr.com/

Case Report

Non-epileptic presentations of Neurocysticercosis: A rare case of broca's aphasia in a young male

Archana Verma[1]*, Sachin Upadhayay[1]Alok Kumar[1]

[1]All India Institute of Medical Sciences, Raebareli, Uttar Pradesh, India.

Abstract

Neurocysticercosis (NCC) is a brain parasitic infection due to the larval form of Taenia solium. Though seizures are the commonest manifestation, involvement of speech is rare. This is a case report of a 24-year-old male with Broca's aphasia as a non-epileptic manifestation of NCC. Imaging revealed a left-sided inflammatory granuloma and ring-enhancing lesion in the anterior perisylvian speech region in a patient with motor aphasia. Corticosteroids and albendazole showed dramatic clinical improvement. This case illustrates the importance of considering NCC in patients who have atypical neurological symptoms in the absence of seizures.

Keywords: Neurocysticercosis, Broca's Aphasia, NCC

Received: 01-07-2025; **Accepted:** 11-11-2025; **Available Online**: 26-11-2025

1. Introduction

Neurocysticercosis (NCC) is the most common parasitic central nervous system infection, caused by the larval form of the pork tapeworm, Taenia Solium. The disease can manifest in various forms, including intraparenchymal, extra parenchymal (e.g., subarachnoid, ventricular, spinal), and ocular forms.[1] The infection occurs in regions with poor hygiene and is one of the major causes of neurologic morbidity worldwide. NCC produces a wide variety of neurological symptoms; among them 79% have seizures/epilepsy, 38% severe headaches, 16% focal deficits and 12% signs of increased intracranial pressure.[2]

Broca's aphasia is caused by an infarction of the dominant hemisphere's posterior inferior frontal gyrus, specifically Brodmann areas 44 and 45.[3] This type of aphasia is distinguished by expressive language difficulties, in which the patient struggles to speak intelligibly while still comprehending. The most prevalent cause of these infarctions is a thrombus or emboli in the internal carotid or middle cerebral arteries. Broca's aphasia can also be caused by cerebral venous thrombosis, motor neuron disease-associated dementia, central pontine myelinolysis, anterior circulation stroke, cardioembolic stroke, and a range of inflammatory or viral disorders, such as herpes encephalitis.[4]

However, Broca's aphasia as a manifestation of NCC is uncommon, with only a few case reports describing its occurrence, such as a 60-year-old man with multiple brain cysticercosis who presented with Broca's aphasia and responded well to treatment with corticosteroids and albendazole.[5] The paucity of literature also highlights the importance of considering NCC as a predisposing factor in atypical neurological symptoms, particularly isolated speech impairment.

This case report describes a young male who presented with Broca's aphasia as a single manifestation of his NCC, without the classic epileptic seizures. This case illustrates the variability of the presentation of NCC and reminds clinicians to consider parasitic infection in the differential diagnosis of unexplained neurological symptoms, even in endemic areas.

*Corresponding author: Archana Verma
Email: archanashiva2010@rediffmail.com

https://doi;10.18231/j.sajcrr.12082.1763728293

2. Case Report

A 24-year-old male presented in the outpatient department with history of headache for 3 days and acute-onset inability to speak since morning. The headache was holocranial heaviness continuous not associated with fever, vomiting, neck stiffness.

There was no history of weakness in any limbs, seizures, abnormal body movements, facial deviation, loss of consciousness, visual symptoms, or urinary and bowel incontinence. There was no medical history of hypertension, diabetes mellitus, sleep apnoea, or coronary artery disease, and he was not an alcoholic or smoker. The patient reported regular consumption of uncooked vegetables, including cabbage. He denied any direct interaction with pigs or consumption of undercooked pork products.

On general examination, he was conscious and oriented to time, place, and person. He was hemodynamically stable. The higher mental function was intact the patient remained aware and attentive throughout, but he had inability to speak characterized by laborious, non-fluent speech punctuated by noticeable pauses and difficulties retrieving words, naming and repetition. Comprehension was normal, writing and comprehension of written sentences was normal. On motor examination, the power was normal. There were no signs of sensory, cerebellar, meningeal, or autonomic dysfunction.

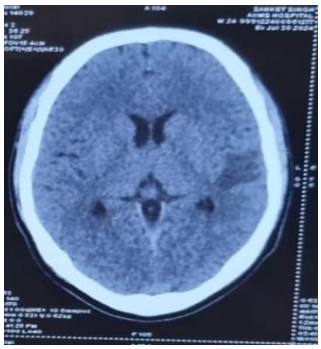

Figure 1: Non contrast CT scan showing an hypodensity in the left frontal region.

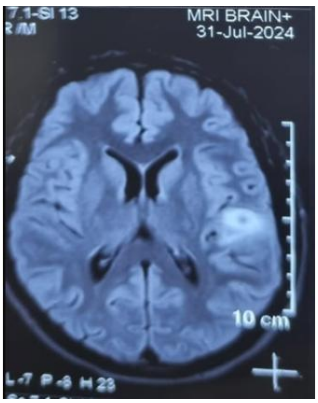

Figure 2: Flair MRI image showing hyperintensity in the left frontal region

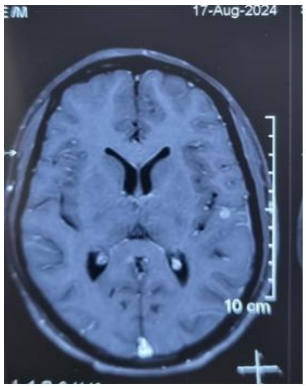

Figure 3: Contrast MRI showed a ring-enhancing lesion in the left frontal region

The baseline investigations, including a complete blood examination, random blood sugar, renal function, and liver function tests, were within reference range. X-ray chest and ultrasound abdomen were within normal` limit.

Initial neuroimaging with a computed tomography (CT) scan revealed and hypodensity in the left frontal region. Due to the patient's acute-onset neurological symptom of aphasia, further characterization of the lesion was deemed necessary. Therefore, magnetic resonance imaging (MRI) was performed. T-2 and FLIAR hyperintensity was seen in in the left frontal region and contrast MRI showed a ring-enhancing lesion, specifically within Broca's area (Figure 1, Figure 2).

This imaging finding was highly suggestive of neurocysticercosis, given the endemic nature of the disease in the region. While serological testing for specific anticysticercal antibodies or antigens was not performed, the highly suggestive imaging findings coupled with the endemic nature of neurocysticercosis in this rural region strongly supported the diagnosis.

The patient was started on corticosteroids to decrease inflammation and albendazole to treat the parasite infection. Over the next few weeks, the patient's speech function improved significantly, gradually returning to more fluent and intelligible speech.

3. Discussion

Neurocysticercosis (NCC) is the most common parasitic central nervous system infection and a significant cause of neurological morbidity, particularly seizures, in endemic regions such as Latin America and India.[6] However, its clinical spectrum is remarkably broad, extending to non-epileptic manifestations and even asymptomatic cases. Studies in endemic rural communities have revealed a significant prevalence of asymptomatic NCC, with CT scan assessments showing rates up to 18.8%.[7] Our case highlights this variability, presenting as isolated Broca's aphasia, an uncommon manifestation of NCC.

Broca's aphasia, caused by damage to Brodmann areas 44 and 45, is typically associated with vascular events,[3,4] In

NCC, the aphasia likely results from inflammation and focal edema around the cysticercal lesion in the posterior inferior frontal gyrus, disrupting neural networks crucial for speech production and mimicking the effects of a stroke.[5] The clinical presentation and imaging appearance are also influenced by the parasite's evolutionary stage within the brain. Four distinct phases are recognized: vesicular (viable larva, minimal inflammation), colloidal vesicular (degenerating parasite, significant inflammatory reaction), granular nodular (granuloma formation, subsiding inflammation), and calcified (inactive remnant, potential epileptic focus).

The dramatic clinical recovery observed in our patient with corticosteroids and albendazole underscores the importance of early recognition and appropriate treatment, even in atypical presentations. Definitive diagnosis of NCC is primarily established through characteristic neuroimaging findings (as seen in our case), relevant clinical manifestations, and epidemiologic criteria.[6]While serological tests can be supportive, their utility varies; for instance, the Enzyme-Linked Immunoelectrotransfer Blot (EITB) is considered the reference standard antibody test, and serum assays generally exhibit higher sensitivity than cerebrospinal fluid (CSF) assays.[8]

4. Histopathological Considerations and Differential Diagnosis

Although a brain biopsy was not performed, understanding the histopathological features of NCC is crucial. Each cysticercal stage has distinct microscopic characteristics: the vesicular stage shows a viable parasite; the colloidal vesicular and granular nodular stages are marked by progressive inflammation and degeneration; and the calcified stage represents the inactive remnant. The differential diagnosis for a solitary ring-enhancing lesion, as observed here, is broad and includes simple cysts, hydatid cysts, pyogenic abscesses, tuberculomas, and certain neoplastic lesions. Accurate differentiation relies on a combination of clinical context, epidemiology, and detailed imaging features.[9]

5. Neurocysticercosis: Current Diagnostic and Treatment Paradigms

In their recent review, Singh et al. (2025) provide a comprehensive overview of the current landscape in neurocysticercosis diagnosis and treatment. They highlight the continued reliance on advanced neuroimaging for precise lesion characterization and staging, which directly informs management strategies. The review emphasizes the evolving role of serological tests, including new antigen-based assays, as potential point-of-care diagnostics and tools for treatment monitoring. Regarding therapeutics, Singh et al. reinforce the use of combination antiparasitic regimens (albendazole and praziquantel) for viable cysts, often alongside adjunctive corticosteroids to manage inflammation. They also touch upon emerging therapeutic agents like oxfendazole, currently in clinical trials. The authors underscore that while these advancements offer significant hope, wider access to diagnostic tools and novel strategies, coupled with concerted prevention efforts, remain crucial to alleviate the global burden of neurocysticercosis-related neurological disorders.[10]

6. Conclusion

Neurocysticercosis (NCC) is a prevalent parasitic infection of the central nervous system, most commonly presenting with seizures. However, this case distinctly highlights the variable nature of NCC, showcasing an atypical presentation of isolated Broca's aphasia in a young male, notably in the absence of classic epileptic seizures. The patient's dramatic clinical recovery following treatment with corticosteroids and albendazole underscores the effectiveness of targeted therapy. This report serves as a crucial reminder for clinicians, especially in endemic regions, to consider NCC in the differential diagnosis of unexplained neurological symptoms, including non-epileptic manifestations like aphasia, emphasizing the critical role of appropriate neuroimaging in its identification and management.

7. Source of Funding

None.

8. Conflict of Interest

None.

References

1. Ahmad R, Khan T, Ahmad B, Misra A, Balapure AK. Neurocysticercosis: a review on status in India, management, and current therapeutic interventions. *Parasitol Res*. 2017;116(1):21–33. https://doi:10.1007/s00436-016-5278-9.
2. Carabin H, Ndimubanzi PC, Budke CM. Clinical Manifestations Associated with Neurocysticercosis: A Systematic Review. *PLoS Negl Trop Dis.* 2011;5(5): e1152. https://doi:10.1371/journal.pntd.0001152
3. Acharya AB, Wroten M. Broca Aphasia. In: StatPearls. Treasure Island (FL): Stat Pearls Publishing; 2025
4. Munteanu G, Motoc AGM, Dan TF. Aphasic Syndromes in Cerebral Venous and Dural Sinuses Thrombosis—A Review of the Literature. Life (Basel). 2022:12(11):1684.
5. Reddy H, Shah D, Reddy V, Kumar S, Acharya S, Aggarwal S. Broca's Aphasia as an Only Presenting Feature in Neurocysticercosis with Multiple Cysts: A Rare Case Report. *Int J Nutr Pharmacol Neurol Dis*. 2023;13(3);210-13.
6. White AC. Neurocysticercosis: updates on epidemiology, pathogenesis, diagnosis, and management. *Annu Rev Med*. 2000;51:187–206. https://doi:10.1146/annurev.med.51.1.187
7. Philco-Aguilar A, et al. High Prevalence of Asymptomatic Neurocysticercosis in an Endemic Rural Community in Peru. *PLoS Negl Trop Dis.* 2016;10(12):e0005251. https;//doi:10.1371/journal.pntd.0005130.
8. Coyle CM, Mahanty S, Zunt JR. Laboratory Diagnosis of Neurocysticercosis (Taenia solium). *J Clin Microbiol*. 2018;56(11):e00424-18. https://doi:10.1128/JCM.00424-18.
9. Peker E, Unal S, Uludag SB et al.Ring-Enhancing Lesions-Differentiation with MRI. *Br J Hosp Med (Lond)*. 2024;85(10):1-20. https://doi:10.12968/hmed.2024.0195.

10. Singh G, Chomba M, Sander JW. Neurocysticercosis: current diagnostic and treatment paradigms. Curr Opin Neurol. 2025;38(4):380-387.https://doi:10.1097/WCO.0000000000001396.

Cite this article: Verma A, Upadhayay S, Kumar A. Non-epileptic presentations of Neurocysticercosis: A rare case of broca's aphasia in a young male. *Southeast Asian J Case Rep Rev*. 2025;12(4):91-94.