Transient Global Amnesia, an Uncommon Diagnosis of Exclusion

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Abstract

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Transient global amnesia (TGA) is an uncommon clinical syndrome characterized by a loss of short-term memory and disorientation that resolves in twenty-four hours. The etiology is unknown and the diagnosis is made by exclusion of other possible etiologies that may cause similar patterns and the reversibility of the condition in less than 24 hours. Here we report a 60year-old male presented with sudden onset of disorientation and short-term memory loss early in the morning while at home and started to ask his whereabouts and what happened. He had no history of significant medical or psychiatric disease. There was no history of previous similar episodes. He had no recent history of sleep problems, head trauma, substance abuse, or loss of consciousness. He had no history of seizure disorder, or migraine. A neurologic examination revealed a normal wakefulness state with mild disorientation, and short-term memory impairment. He had score of 18/30 on mini-mental state examination (which later returned to normal baseline in 24 hours). Extensive lab investigations did not show any abnormal findings. Brain MRI did not show any acute cerebral pathology. The EEG was negative for any abnormal cerebral activity. His memory improved and returned to normal baseline over the course of a 20hour from the onset. After exclusion of potential causes and the patient returned to normal state of memory, the diagnosis of transient global amnesia was made. At the follow-up visit, the patient was in a state of normal function without a recurrence of memory impairment.

Here we presented this interesting case of transient global amnesia. TGA is diagnosis of exclusion and important to keep in mind when evaluating a patient with acute onset of short-term memory impairment, especially when etiological investigation revealed no potential cause.

Keywords: Antrograde Amnesia, repetitive questioning, Transient global amnesia

Introduction:

Transient global amnesia (TGA) is neurological syndrome that was initially discovered in 1956 by Bender [1] and simultaneously but independently of Courjon and Guyotat ^[2]. It is defined as as a sudden onset of an anterograde amnesia that lasts up to 24 hours, despite mild subclinical neuropsychological impairment may persist for days after the episode ^[3, 4]. Transient global amnesia predominantly affects middle-aged or elderly patients. The incidence of TGA is approximately 2.9–10/100,000 worldwide. It is also more common in people living with migraine ^[5, 6]. Diagnosis of TGA is based on the exclusion of all potential etiologies that may present a similar pattern. The criteria of a TGA diagnosis include the presence of a witness during the attacks, cognitive impairment is limited to anterograde amnesia, preserved conscious state, normal neurologic examination findings; absence of recent head trauma and active epilepsy; and reversibility of the attack in 24 hours ^[7, 8].

There is no known treatment for transient global amnesia. The condition is benign and resolves itself within 24 hours. The exclusion of any potential etiologies is the main goal of clinicians. Multiple different pathophysiologic explanations have been suggested, but the cause is still unidentified ^[9]. Here, we present a 60-year-old male patient who presented with a sudden onset of confusion and anterograde memory loss who was diagnosed as TGA.

Case Presentation

A 60-year-old male patient presented to our neurology department with a chief complaint of confusion and short-term memory loss that started at 7:00 AM in the morning while at home. He was in a state of good health when, according to his son, he suddenly found him confused, disoriented, and asking repetitive questions. The patient started to ask his whereabouts and what happened. He remained confused from morning till evening. There was no history of previous similar episodes. He had no recent history of sleep problems, head trauma, or substance abuse.

The patient did not have a previous history of migraine or associated recent headache, visual auras, nausea, or vomiting. He had no history of seizure disorder; likewise, he had no complaints of strange smells, tastes, epigastric elevations, or abnormal, inexplicable sensations. He had no tingling, numbness, weakness, vertigo, difficulty speaking, blurred vision, loss of consciousness, shortness of breath, or fever.

His past medical and surgical history is significant only for well-controlled asthma. There were no recent changes in the medication dose. His vital signs were normal. A neurological examination revealed that he was awake, alert, and aware of person and place but not of time or situation. He was not sure why he was brought to the hospital. His long-term memory was intact, but his short-term memory was impaired. There were no apparent active delusions or hallucinations. His speech was fluent (no dysarthria or aphasia). There was no cranial nerve deficit seen on the examination. His motor examination showed normal muscle tone and strength (based on the MRC *scale*), and deep tendon reflexes were normal. There was no gait abnormality seen. Likewise, there was no neck stiffness or meningeal signs. The rest of the examination, including the cardiovascular and respiratory systems, were normal. Laboratory investigations revealed a normal complete blood count, biochemistry profile, and normal thyroid hormone levels. A urine analysis was negative for leukocytes, bacteria, or casts. On the MMSE, the patient was unable to answer the current date, season, seven serial subtractions, and recall of named objects. He had a score of 18 out of 30.

Brain MRI (including DWI) done immediately showed mild gliotic foci but no acute abnormal cerebral findings. The EEG did not show any abnormal cerebral activity. Carotid and vertebral arteries duplex ultrasound showed normal findings. The patient was diagnosed with transient global amnesia after exclusion of the possible etiologies. The patient returned to his baseline normal neurologic state in less than 24 hours. A repeated MMSE test later showed a normal score (30/30).



Figure1: (A): Brain MRI FLAIR Axial View, (B) Brain MRI T1 Axial View, (C) Diffusion sequence MRI, (D) Brain MRI T2 Coronal View. All these brain MRI sequences did not show any acute cerebral pathology.

Discussion

Transient global amnesia (TGA) is a clinical syndrome characterized by the abrupt onset of anterograde amnesia (the inability to encode new memories), accompanied by repetitive questioning that occasionally has a retrograde component. TGA could last up to 24 hours without impairing other neurological functions ^[10].

Most of the cases of TGA are seen in middle-aged and elderly people. The incidence of TGA among those less than 50 years old is estimated at 23 to 32 per 100,000 each year ^[11]. There is no known etiology for TGA. Known risk factors for stroke such as hypertension, diabetes mellitus, smoking and hypercholesterolemia are not associated with TGA, while migraines have been found to be highly associated with TGA ^[12, 13]. The present case presented with sudden onset confusion and anterograde amnesia that lasted for 20 hours. He was in state of good health. He had no previous similar episodes. He had no recent history of sleep problems, head trauma, or substance abuse. The patient did not have a previous history of migraine, or seizure disorder. He had no history of diabetes mellitus, hypertension, hypercholesterolemia, known cardiac disease, or thromboembolism. Likewise, there was no other associated neurologic deficits.

TGA's pathogenesis still remains unclear; however, theories suggest that it may be caused by venous and arterial factors as well as conditions like migraines, epilepsy, and psychogenic diseases ^[12]. Transient ischemic attacks caused by arterial thromboembolism and TGA share some characteristics, including occurrence in older patients and a shorter duration of less than 24 hours, hence the arterial ischemic hypothesis has been proposed. It is worth noting that TGA usually lasts longer and patients with TGA tend to have a lower cerebrovascular risk factors such as hypertension, diabetes, hypercholesterolemia, smoking and underlying cardiac pathologies ^[15, 15].

Diagnosis of TGA is based on the exclusion of all other potential causes of acute memory loss. The following criterion by Hodge and Warlow^[8] in 1990 is used for the diagnosis of TGA: (a) information from witness that was present at the beginning of the event to rule out possibilities of head trauma, conscious impairment (b) A complete neurological examination should be normal except for anterograde amnesia. (c) Anterograde memory should return to normal within 24 h; (d) Seizure event or active epilepsy must be excluded. Anoxia, hypoglycemia, alcohol intoxication, drug withdrawal, encephalitis, metabolic disturbances, and Wernicke's encephalopathy are other conditions that must be differentiated from TGA ^[16]. The present case was witnessed by his son. There wasn't any incident of head injury, seizure attack, conscious impairment, or loss of personal identity. Neurologic examination was normal except for anterograde amnesia with preserved other cognitive domains. There was no history of alcohol intoxication, drug withdrawal, hypoglycemia, or other metabolic derangement. Brain MRI excluded acute cerebral pathology, including cerebrovascular accident and encephalitis. An electroencephalogram showed normal brain activity.

There is no specific treatment for TGA. Interestingly, the condition is benign and resolves its self in 24 hours. Thus, the most useful management for TGA is to monitor the patient until the amnesia resolves. The condition does not usually recur, however, according to previous studies, the annual recurrence rate ranges from 2.5 to slightly over 5 percent, and individuals who experience TGA do not have a greater risk of mortality, epilepsy, or stroke.

Conclusion

Transient global amnesia is a benign self-resolving condition characterized by anterograde amnesia that resolves in less than 24 hours with no associated neurologic deficit. Although less common it should be considered after exclusion of all possible etiologies for a patient who presents with sudden onset anterograde amnesia that complies the diagnostic criteria of TGA.

Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Author contribution

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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