Transient Global Amnesia (TGA)

Introduction and definitions  Transient global amnesia is a unique and relatively common neurologic event that is poorly understood and frequently misdiagnosed. It is often wrongly diagnosed as a transient ischemic attack (TIA) or 'mini' stroke. However, transient global amnesia does not have the sinister implications of a transient ischemic attack, it is not the precursor to a stroke.

The term transient global amnesia describes what happens in an attack and was coined in the 1950s because no one could confidently explain the mechanism.

**Transient** indicates that what happens is brief and, importantly, that the symptoms resolve completely. **Global** means that the loss of memory is severe and often total. **Amnesia** means a loss of memory.

Manifestations  Because a transient global amnesia episode or 'attack' is defined by its severe amnesia, what happens during the attack can only be described by a witness, as the patient has no recollection of the event. Here's an example: a taxi driver remembers having breakfast, picking up a passenger outside a suburban train station at about 9 AM, and then next 'comes to' in his taxi, alone, at 4.30 PM on the other side of town. He anxiously checks his vehicle and his money and to his amazement, deduces that he has driven his taxi more than 100 miles in the last several hours, without any evidence of an accident, probably picking up other passengers as he has taken more than $320 in fares.

A witness will typically describe that the person with transient global amnesia suddenly begins to act strangely and appears confused and disorientated. An example is a daughter who leaves her elderly father at home in bed early in the morning and comes home at lunch to find her father walking around the house completely confused and disoriented. He begins to ask repeated questions about "why...." and "when....." and "how...." Her father has no recollection of what has happened and can't even recall getting out of bed. Yet it is obvious to the daughter that her father has safely arisen from his bed, there is evidence that he has showered, and he is dressed appropriately and shaved. There is a fry pan on the stove, a dirty plate in the sink, and a half-full coffee pot. All this seems to have occurred without any mishap or catastrophe. She takes him to the Emergency Room, and within 4 hours he slowly recovers his orientation and his memory, but he has absolutely no recall of his life from the time he went to bed the night before until about 11.30 am that morning in the hospital.
It is important to emphasize the following characteristics:

- The patient's confusion is the most striking aspect. It is common for the patient to constantly and repeatedly ask questions that are mostly attempts to orient themselves, such as "Where are we going today?", "Who owns that car in the driveway?" "Who is that person in the photo?", "Where did I go yesterday?", "Do I need to go to work?" Although the patient may not recognize friends and possibly family members, the patient will not forget who he or she is. There is absolutely no evidence of a stroke. The patient has no weakness, and is able to undertake most complex actions: drive a car, manipulate electronic equipment, dress themselves, use cutlery, and write. They are alert and other than some confusion and anxiety, retain their normal personality and character.

- Patients will often complain of a headache as the amnesia resolves.

- Although there may be patchy recall of events as the episode resolves, those minutes or hours of the patient's life remain a blank, never to be recalled or remembered; it's this aspect that is often most frustrating and anxiety provoking for the patient, especially because he or she was not 'unconscious' and was often undertaking complex activities (ie, driving) during this time. Investigations such as a CT, MRI, and electroencephalogram (EEG) are normal. Sometimes the attack appears to be provoked after strenuous exercise or exertion (including sexual activity), very hot or cold weather, or a stress such as having surgery or other medical procedure, or even a severe bout of coughing. There is no difference in risk of transient global amnesia between men and women. The risk of transient global amnesia increases with age, with most transient global amnesia episodes occurring after the age of 50 years, and on average at about 60 years of age. The vast majority of attacks are isolated, about 5% of people will experience a second episode within a year.

Etiology (cause) The cause of transient global amnesia is unknown. The part of the brain vital for memory is the hippocampus. Each side of the brain has one and each is shaped like a banana or a seahorse (the word hippocampus is derived from the Greek for seahorse). The hippocampi lie on the inner, underside of the brain.

The difficulty in trying to explain transient global amnesia is how a process or mechanism would selectively depress or inhibit the action of the hippocampus and not affect any other parts of the brain. It can't be a simple reduction in the blood supply to the organ. Something seems to depress the metabolism of that part of the brain in a way similar to the
depression of the brain that causes the 'aura' of a severe migraine. At present this is the best theory: that there is a sudden inhibition of the nerve cells in the hippocampus and that this inhibition seems to spread throughout the hippocampus on both sides of the brain, almost like the ripples that spread out after a stone is thrown into a pool of calm water. The most plausible theory to date is that transient global amnesia is an unusual form of prolonged, migraine-like aura.

Differential diagnosis The most important complicating issues to consider, especially in the older patient, are that the confusion is a side effect of medication, or alcohol, or a prolonged confusion after an unrecognized partial seizure. Or it may be a psychological episode, a fugue-like state as a consequence of unrecognized stress. Treatment and prevention Because transient global amnesia is almost always isolated, and because the cause is unknown, treatment and prevention options are limited and unnecessary; other than confirming the diagnosis and excluding other explanations, it follows that the best treatment is explanation and reassurance.

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