

Transient global amnesia or subarachnoid haemorrhage? Clinical and laboratory findings in a particular type of acute global amnesia

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Acute global amnesia may be due to several causes, such as transient global amnesia (TGA), acute drug-related confusional state, toxic substances, metabolic abnormalities, infective diseases, cerebral tumours, cerebrovascular accidents, subarachnoid haemorrhage and epilepsy. In particular both TGA and subarachnoid haemorrhage may be precipitated by sexual activity; by contrast the two diseases are quite different in prognosis and treatment. Ten subjects were admitted in the period 1997-99 to our emergency department for acute global amnesia related to sexual activity. They represented 18% of total acute global amnesias observed in the same period. All patients were males, aged between 41 and 64 years. TGA was found in nine cases, while one patient had subarachnoid haemorrhage, due to rupture of an aneurysm of the right middle cerebral artery. The patient with subarachnoid haemorrhage showed neurologic defects (second-degree nystagmus and retropulsion), while no major neurologic abnormalities were found in TGA. Likewise computerized tomography (CT) scan was positive only in the case of subarachnoid haemorrhage. Patients and relatives in most cases left out sexual activity as a trigger factor. This experience indicates that acute global amnesia related to sexual activity is mostly due to TGA. Major neurologic signs are suggestive of subarachnoid haemorrhage and an immediate CT scan is recommended. Targeted questions are needed to identify the cause of the event.

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INTRODUCTION

Acute global amnesia is an uncommon syndrome, which may be due to several causes, such as transient global amnesia (TGA), acute drug-related confusional state, toxic substances, metabolic abnormalities, infective diseases, cerebral tumours, cerebrovascular accidents, subarachnoid haemorrhage and epilepsy.¹ Among these TGA is one of the most benign syndromes, defined by the acute global loss of memory, preservation of consciousness, behavioural changes, repetitive questioning and lack of focal neurologic defects.² Frequently no cause can be determined. TGA occasionally follows emotional stimuli, physical exertion, sharp pain or haemodynamic alterations.³⁻⁵

Even sexual activity may induce TGA, often associated with a headache.¹ TGA related to sexual

activity has in particular to be discriminated from subarachnoid haemorrhage, which sometimes presents as an acute amnesia and which may be triggered by sexual excitement.^{6,7}

CASE REPORTS

Ten subjects were admitted in the period 1997-99 to the Emergency Department of the IRCCS Ospedale Maggiore in Milan for acute global amnesia related to sexual activity. They represented 18% of total acute global amnesia observed in the same period.

Patients' clinical characteristics are summarized in the Table 1. All patients were healthy males, aged between 41 and 65 years (mean age \pm SEM: 55 ± 3 years). As shown, blood pressure ranged from low to high values. No alterations were found in blood examinations. Amnesia was most frequently associated with confusion and repetitive questioning. Headache was present in 40% of cases.

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Table 1. Patients' clinical characteristics

Case	Age	Sex	Blood pressure	Headache	Symptoms besides amnesia	Neurologic signs	CT scan
A.R.	64	M	140/85	Yes	Repetitive questioning	None	Normal
G.T.	62	M	170/110	No	Repetitive questioning	None	Age compatible
V.M.	41	M	150/85	Yes	None	None	Normal
M.F.	65	M	100/60	No	Confusion	None	Age compatible
G.B.	52	M	180/105	No	Repetitive questioning	None	Normal
F.P.	45	M	140/80	Yes	None	None	Normal
G.F.	60	M	160/80	Yes	Repetitive questioning	None	Normal
E.B.	49	M	130/75	No	Repetitive questioning	None	Normal
R.C.	51	M	140/80	No	Confusion	None	Normal
A.P.	63	M	150/90	No	Repetitive questioning	Left beating nystagmus plus retropulsion	Intracranial haemorrhage

Neurologic abnormalities were found only in one case. In fact the patient with subarachnoid haemorrhage presented a second-degree left-beating nystagmus and retropulsion at the Romberg manoeuvre. Likewise, computerized tomography (CT) scan showed pathological findings only in the case of subarachnoid haemorrhage. Patients and relatives in most cases left out sexual activity as a trigger factor.

DISCUSSION

The clinical characteristics of TGA have been described by several studies.^{2,3,7-10} Miller *et al.*² found that the syndrome occurs most frequently after the age of 50. Hodges *et al.*⁷ suggested a clinical classification, distinguishing pure TGA (attacks with no neurologic signs and of more than 1 hour in duration, which do not require detailed investigations) from probable epileptic amnesia (attacks of less than an hour or rapidly recurrent) and from probable transient ischaemic amnesia (a minority of cases with additional focal neurologic defects during the attack). Other authors however believe the presence of neurologic defects to be compatible with the diagnosis of TGA.⁷ Particular antecedent events and activity such as exertion were demonstrated in one-third of the subjects with TGA by Miller *et al.*²

TGA related to sexual activity is a particular type of transient global amnesia.¹⁰⁻¹³ Although few data are available in the literature, this syndrome is more frequently described in males. In agreement with this finding, all subjects observed in our report were middle-aged men.

Almost half of our patients showed headache,

though no one had a clinical history of migraine. This is in keeping with previous studies demonstrating that TGA is often associated with a headache.¹⁴ Headache appeared to be significantly more common in patients with TGA than in patients with transient cerebral ischaemic disease or in normal subjects in a study by Hodges and Warlow.¹

It is known that the diagnosis of acute global amnesia related to sexual activity is often unrecognized. That is mainly due to the reserve of patients and relatives. In our report, targeted questions were needed to find out the triggering events of the syndrome.

The duration of amnesia has been proposed as one of the diagnostic criteria of TGA.⁷ The present experience does not agree with this statement and suggests the need for early exclusion of brain haemorrhage.

The lack of focal neurologic defects is considered to be one of the main criteria for TGA, as proposed by Caplan and by Hodges.⁷ These authors have however demonstrated that minor abnormalities such as mild brain stem symptoms do not exclude the diagnosis. On the contrary, the finding of nystagmus and retropulsion in our patient with subarachnoid haemorrhage raised the suspicion of a more severe disease.

The relationship between sex and subarachnoid haemorrhage is known but still under discussion. In fact, sexual intercourse was the precipitating factor in six out of 50 cases of subarachnoid haemorrhage as reported by Lundberg and Osterman.⁶ Conversely, Wardlaw and White did

not include sexual activity among hazardous factors.¹⁵ Subarachnoid haemorrhage, however, infrequently presents as an acute global amnesia. The involvement of the thalamus is sometimes responsible for the syndrome,¹⁶ probably due to an interference of the mamilothalamic tract, ventroamygdalofugal pathway or dorsal noradrenergic bundle. In other cases the temporary hippocampal dysfunction related to the haemorrhage may explain the occurrence of amnesia.^{17,18}

The question, whether CT scan is a necessary procedure in the emergency department in order to diagnose TGA is not as yet defined.³ In our series CT scan showed pathological results only in the patient with subarachnoid haemorrhage. This finding suggests that CT scan is always needed in the presence of neurologic abnormalities, while it may be deferred to a further ambulatory evaluation in the absence of neurologic signs or history of vascular diseases.

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